NOVEMBER 2026

# PEACE DISEASE

## IS THE PLA BATTLE READY?




**AUTHORS**

Seth G. Jones
Eric Heginbotham
Daniel Byman



A REPORT OF THE CSIS DEFENSE AND SECURITY DEPARTMENT

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# ACRONYMS

**AEW** – airborne early warning

**AI** – artificial intelligence

**ASW** – anti-submarine warfare

**AWACS** – airborne warning and control system

**C4ISR** – command, control, communications, computers, intelligence, surveillance, and reconnaissance

**CAS** – close air support

**CCP** – Chinese Communist Party

**CMC** – Central Military Commission

**CSAR** –combat search and rescue

**C-UAS** – counter-unmanned aircraft system

**ISR** – intelligence, surveillance, and reconnaissance

**JOCC** – Joint Operations Command Center

**LHA** – landing helicopter assault

**LPD** – landing platform dock

**LSM** – landing ship medium

**LST** – landing ship tank

**MCM** – mine countermeasure

**NCO** – non-commissioned officer

**PLA** – People's Liberation Army

**PLAA** – PLA Army

**PLAAF** – PLA Air Force

**PLAN** – PLA Navy

**PLARF** – PLA Rocket Force

**PME** – professional military education

**PRC** – People's Republic of China

**RO-RO** – roll-on/roll-off

**SAM** – surface-to-air missile

**SEAD/DEAD** – suppress or destroy enemy air defenses

**UAS** – unmanned aircraft system

**UGV** – unmanned ground vehicle

**USV** – unmanned surface vehicle

**UUV** – unmanned underwater vehicle



# EXECUTIVE SUMMARY



Members of a People's Liberation Army band stand together at a military parade in Beijing.

▶ Kevin Frayer/Getty Images



**China poses a formidable military challenge to the United States.** Beijing is rapidly modernizing its forces in all the major domains of warfare and presents a particularly serious threat to the U.S. military in the first and increasingly the second island chains, where the People's Liberation Army (PLA) can bring significant mass and volume to a fight. In addition, China's defense industrial base is producing ships, aircraft, tanks, and other military systems at a rapid rate, and China is devoting significant resources to AI, quantum, and other technologies with defense applications. Despite these impressive and real advances, however, military equipment and technologies do not directly translate into military effectiveness or capabilities, including successful force employment in wartime.

This report aims to provide some balance to analyses of the PLA, which overwhelmingly focus on improvements and strengths, by examining PLA weaknesses and vulnerabilities. Almost across the board, China has improved its capabilities and operational competence. Yet, as this report highlights, it has weaknesses that can be exploited. All militaries—including the U.S. military—would face serious challenges in a high-end war against another major power. China is no exception. To better understand PLA operational capabilities, this report is based in part on interviews with operators from the United States, Australia, India, Japan, the Philippines, and Taiwan with direct experience dealing with the PLA, as well as primary and secondary sources.

This analysis concludes that the PLA could face significant operational weaknesses in wartime, including in the following areas:

- **Command:** China's dual command structure, with a military commander and political commissar, likely has vulnerabilities in wartime, even though Chinese Communist Party (CCP) leaders view this structure as a strength because it reinforces party control. There is a risk of disagreement and confusion in decisionmaking during combat. In addition, the PLA's dual command system could limit rapid response and initiative during wartime. Finally, the PLA has purged a significant number of its operational commanders, including on the Central Military Commission (CMC), which would likely impact combat effectiveness.
- **Power Projection and Logistics:** The PLA would likely face significant challenges projecting power in far seas areas and sustaining operations because of limited overseas basing, logistics challenges, and other issues. PLA power projection capabilities, such as strategic airlift and sealift, remain relatively limited, reducing

China's ability to execute operations outside the first island chain.

- **Undersea Capabilities:** Submarine warfare and anti-submarine warfare (ASW) remain an Achilles' heel for the People's Liberation Army Navy (PLAN), which has been slow to develop modern ASW platforms and techniques to detect and counter submarines. Nevertheless, the PLAN is focused on improvements in submarine warfare and ASW.
- **Joint Warfighting:** The PLA has enacted structural reforms over the last decade, including the creation of standing joint commands, that will improve joint warfighting. But the deep changes necessary for jointness will require continuous efforts to shift command paradigms, establish new institutional mechanisms, and change culture. Overall, the PLA will likely face challenges in conducting joint operations in a major war.
- **Dynamic Targeting:** The PLA could face serious challenges with dynamic targeting in wartime and quickly identifying, engaging, and assessing targets that are not preplanned.
- **Corruption:** The PLA will likely face operational challenges because of endemic corruption in its military and defense industrial base that impacts combat effectiveness. Examples of how this might compromise the military's ability to fight include defective weapons and equipment because of corruption in the industrial base, falsified training certifications, fabricated logistics and maintenance books, falsified evaluation and proficiency reports, and poor quality control. In addition, it is unclear whether the PLA is replacing purged officers with combat-effective ones, potentially prioritizing political loyalty over warfighting effectiveness.

The United States and its partners should consider several approaches to exploit PLA weaknesses:

- **Leveraging Command Challenges:** In wartime, PLA classified and unclassified networks should be aggressively targeted using space, cyber, electronic warfare, stand-off weapons, and other means to take advantage of PLA command challenges. The objectives should be to sow discord, create command uncertainty, and exacerbate tensions between echelons of the PLA, political commissars and military commanders, branches of the PLA, and other networks.
- **Accelerating Undersea Acquisition and Procurement:** The United States and its allies should increase efforts to develop and produce undersea capabilities. There should be an acceleration in the development and production of relatively cheap unmanned underwater vehicles (UUVs) with the ability to collect intelligence, conduct electronic warfare, lay mines, conduct anti-mine warfare, orchestrate logistics, and conduct kinetic strikes. Cheaper UUVs will be helpful to achieve "precise mass," in which large numbers of inexpensive, accurate, and technologically advanced systems can be deployed together, bolstered by more exquisite capabilities, to target an opponent such as China. UUVs are also necessary because a conflict with China might be a long war, in which case large numbers of systems will be necessary.
- **Manipulating Geography and Horizontal Escalation:** PLA warfighting challenges likely increase the farther that PLA forces move away from the Chinese mainland and the first island chain because of power projection and logistics problems. Consequently, the more that Chinese leaders believe a war could horizontally expand beyond a narrow and confined area, such as the Taiwan Strait, the more reluctant they may be to start a conflict in the first place. In short, deterrence is likely strengthened if the PLA believes a war could spread.
- **Waging Offensive Information Warfare:** PLA weaknesses also provide several opportunities to conduct information campaigns to sow discord within the PLA both horizontally (between higher- and lower-level units) and vertically (between political commissars and military commanders) in a wartime environment. Information operations might take advantage of the corruption of senior officials and discontent with the party or raise questions about the loyalty of specific military commanders.

- **Adapting Intelligence Collection Requirements:** U.S. and allied intelligence collection is likely inadequate to fully understand PLA weaknesses, including at the operational level of war. There should be a refocused strategic intelligence collection effort to understand weaknesses within the PLA and China's political leadership.

In addition, there are several lingering questions about how well the PLA could mitigate these weaknesses in wartime. First, how quickly would the PLA—and the CMC—adapt in war, and in what areas? Second, how does geography impact PLA weaknesses? For example, are PLA weaknesses manageable if China can fight a war close to the mainland, such as around Taiwan, and be confident that the war will not expand outside the first island chain? Third, will these weaknesses lead the PLA to avoid conventional war and focus on irregular or political warfare instead—or even deterrence through nuclear weapons?

The answers to many of these questions are unclear—and would probably not become clear until after shooting starts in a war. Nevertheless, the overall goal of this analysis is to strengthen deterrence by identifying PLA weaknesses that can be better exploited by the United States and its allies and partners.

"Every Communist must grasp the truth, 'Political power grows out of the barrel of a gun.' Our principle is that the Party commands the gun, and the gun must never be allowed to command the Party."[1]

–Mao Tse-tung




# INTRODUCTION



DF-17 medium-range hypersonic ballistic missiles at a military parade in Beijing.

▶ Sheng Jiapeng/China News Service/VCG via Getty Images

# 1

**China is engaged in a long-term competition with the United States and poses a growing threat to the U.S. military and its allies, especially in the Western Pacific, where the People's Liberation Army (PLA) can bring significant mass and scale to a fight.** China's defense industrial base is producing hardware and software at a rapid rate, and is focused on military modernization in all the major domains of warfare. As U.S. National Security Advisor and Secretary of State Marco Rubio bluntly noted, the rise of China is the "single greatest challenge this nation has ever faced."[2] Yet China has not fought a major war since its border war with Vietnam, which began in 1979 and stretched into the mid-1980s, and it performed relatively poorly in that conflict. Some Chinese analysts—and even President Xi Jinping himself—have referred to the PLA's lack of combat experience as "peace disease" (和平病).[3] Instead of combat, the PLA has closely studied a range of wars, such as the 1990–1991 Gulf War, NATO operations in Bosnia and Kosovo, U.S. operations in Iraq and Afghanistan, the Russia-Ukraine war, the 2026 U.S. operation in Venezuela, and the 2026 U.S.-Israeli war with Iran. In addition, the PLA has engaged in peacekeeping operations, executed anti-piracy operations in such areas as the Gulf of Aden, conducted exercises and wargames, and engaged in limited border clashes with India along the Line of Actual Control.

Such studies are valuable, and China's increasingly formidable arsenal represents real advances in military power. Yet military capabilities do not directly translate into battlefield effectiveness, which includes the capabilities that militaries generate from converting resources into fighting power.[4] Resources alone—including the quantitative military capabilities of opposing militaries—cannot explain battlefield effectiveness, performance, or outcomes. A country's gross national product is a weak predictor of its military's odds of victory, leaving nearly half of war outcomes unexplained.[5] In addition, a country's relative military manpower is also not a good predictor of battlefield effectiveness or victory in war.[6] Numerous analyses overestimated the effectiveness of the Russian military and underestimated the Ukrainian military prior to the February 2022 full-scale invasion of Ukraine. For many analysts, it was easier to assess quantitative factors (e.g., the military balance) than qualitative factors (e.g., force employment, initiative, and the impact of corruption).[7]

**The analysis is informed by interviews with operators from the United States, Australia, India, Japan, the Philippines, and Taiwan with firsthand experience flying, sailing, and deploying on the ground against PLA forces.**

This report attempts to peer into the future by asking how the PLA might perform in a war, with a particular focus on PLA weaknesses and vulnerabilities.[8] The analysis is informed by interviews with operators from the United States, Australia, India, Japan, the Philippines, and Taiwan with firsthand experience flying, sailing, and deploying on the ground against PLA forces. It integrates these findings with primary and secondary assessments of the PLA, as well as broader literature on military effectiveness. One benefit of interviewing operators with direct experience against the PLA is that it provides an opportunity to assess relative capabilities between the PLA and other militaries—including asymmetries.

It is, of course, impossible to know with certainty how any military will perform in a future war, especially one such as the PLA with little recent combat experience. After all, the U.S. military has little recent experience with major power war, as the United States has largely conducted operations against smaller powers (e.g., Iran) and non-state actors (e.g., the Houthis, the Taliban, al-Qaeda, and the Islamic State) in recent years. It is also unclear how rapidly the PLA would adapt and learn during a war. The use of new technologies, including many involving AI, adds an additional complicating factor. Finally, it is possible that the PLA has used some denial and deception during peacetime to mask its capabilities and intentions during wartime, making it difficult to judge how the PLA would actually fight. Nevertheless, there is still sufficient information to make informed judgments. Any assessment—including any net assessment of opposing sides—must deal with uncertainty and imperfect information.[9]

The rest of this chapter is divided into five sections. The first outlines the research design, including the main research questions and methodology. The second examines battlefield effectiveness. The third examines PLA military capabilities across the main domains of warfare. The fourth highlights PLA operational uncertainties. And the fifth provides an overall road map for the report.

## RESEARCH DESIGN

To gauge PLA battlefield effectiveness in wartime, this report examines PLA operational weaknesses and focuses on two main questions: What are possible PLA challenges at the operational level of war? What are implications for the United States and its allies to leverage PLA weaknesses? While the focus is on PLA weaknesses, PLA strengths are noted in various places as well.

The report focuses on PLA weaknesses in the maritime, air, and land domains of warfare—as well as such crosscutting areas as joint operations—for several reasons. First, the People's Liberation Army Navy (PLAN), People's Liberation Army Air Force (PLAAF), and People's Liberation Army Army (PLAA) have been particularly active in conducting missions and exercises, such as Chinese air and maritime patrol in the Taiwan Strait, joint exercises, peacekeeping operations, and low-level clashes along the China-India border. These actions provide opportunities to assess PLA weaknesses and strengths. Second, a war in the Indo-Pacific would heavily rely on air, sea, and land forces to seize territory and establish air and sea control, making it critical to understand Chinese operational capabilities in these domains.[10] Where feasible, this report provides an assessment of Chinese capabilities in such domains as space and cyber, but these areas receive less attention.

An analysis of PLA weaknesses is, of course, relative and depends on how China stacks up against a specific adversary or adversaries. While the report focuses on PLA weaknesses against a great power adversary, particularly the United States, many of the PLA weaknesses identified may still be relevant for a war between China and other entities, such as Taiwan, the Philippines, India, and Japan. Some PLA weaknesses would be less problematic for China for operations against Taiwan or close to China's mainland than against a major power or outside the first or second island chains.

In examining PLA maritime capabilities, this report assesses several areas: submarine and anti-subma-

rine warfare; strike and surface warfare; amphibious warfare; maritime air and missile defense; mine and anti-mine warfare; information and electronic warfare; and maritime domain awareness. In examining PLA air and rocket force capabilities, this analysis examines such areas as air superiority and counterair; offensive strikes; protecting friendly airspace; intelligence, surveillance, and reconnaissance (ISR); and airlift and mobility. In examining PLA land capabilities, this assessment examines the following areas: movement and maneuver; sustainment and logistics; fires; information and electronic warfare; ground force command; intelligence; ground-based air and missile defense; and amphibious assault. The report also examines the impact on operational effectiveness of such crosscutting areas as joint operations, the political nature of the PLA, and corruption.

The report relies on three types of sources. The first are semi-structured discussions with over 100 U.S. and foreign government officials in 2025 and 2026 about PLA battlefield effectiveness at the operational level of warfare.[11] These discussions involved speaking with aircrew, sailors, soldiers, and others with direct experience dealing with the PLA in such areas as the South China Sea, East China Sea, Sea of Japan, and the China-India border. The research team held discussions with operators from the United States, Australia, Japan, the Philippines, Taiwan, and India. While helpful, these discussions have some limitations. For example, they rely on what operators experience through engagements with the PLA and may miss strategic, operational, and tactical insights that the PLA has chosen not to reveal. Second, the research team supplemented these semi-structured discussions with information from primary and secondary sources, including Chinese-language sources. This work examined—and drew on—a wide range of PLA and other periodicals, including journals, newspapers, and books published by PLA organizations.[12] Third, the research team examined the broader literature on battlefield effectiveness and its implications for the PLA.[13]

Assessing PLA operational weaknesses and strengths is difficult for several reasons. China's opacity in the military sector ensures imperfect information. In addition, the PLA's lack of combat experience makes it difficult to definitively assess PLA performance in a future war. Nevertheless, it is still critical to make judgments about PLA weaknesses in wartime based on available information—even if it is imperfect.

## BATTLEFIELD EFFECTIVENESS

Battlefield effectiveness involves a military's development of proficient fighting units capable of conducting complex operations.[14] Armies with high levels of battlefield effectiveness can successfully conduct combined arms operations, such as the integrated use of infantry and armor, armor and artillery, or infantry and drones. Army, air, and naval forces with high levels of battlefield effectiveness can conduct effective joint operations, such as the integration of air and ground forces and amphibious assaults.[15]

**Battlefield effectiveness involves a military's development of proficient fighting units capable of conducting complex operations.**

Battlefield effectiveness is different from war outcomes—whether a military wins or loses a war. As the military historian Martin van Creveld argued,

> Victory is by no means the sole criterion of military excellence. A small army may be overwhelmed by a larger one. Confronted with impossible political and economic odds, a qualitatively superior force may go down to defeat through no fault of its own. Not the outcome alone, but intrinsic qualities as well must figure in an attempt to measure military (or any other) excellence.[16]

A wide range of factors, such as force size and situational, environmental, and technological context, can influence battle outcomes.[17]

An important aspect of military effectiveness is force employment—how military organizations develop and use a body of tactics and operations for military actions on the battlefield. There are several components of force employment. First, offensive and defensive operations and tactics aim to reduce exposure to enemy firepower by maneuvering in independent and dispersed small units, as well as using territory (air, land, surface,

and sub-surface) for cover and concealment. An additional element is combined arms—the blending of infantry, direct and indirect fires, aviation, and other capabilities.[18] For example, main battle tanks still have offensive advantages over dismounted infantry in protective armor and firepower, but they are easy to identify and destroy by the opponent's drones, infantry, artillery, and aircraft. Combining tanks with dismounted infantry, drones, and other systems may enhance their maneuver and survivability.[19]

Second, modern offensive operations attempt to concentrate forces at specific locations and maneuver by achieving superiority and breaking through lines. Reserves can then pour through the gap and cause the collapse of the defender by destroying supply chains and command and control systems. At the same time, the principles of modern defensive operations—such as defense-in-depth, involving drones and multiple lines of defenses, counterattacks, and the employment of reserves—can limit a breakthrough attempt.[20]

Battlefield effectiveness typically requires that commanders and their sailors, soldiers, and aircrew use initiative and flexibility.[21] At the operational level, a breakthrough targeting enemy defensive sea or land lines depends on local commanders dealing quickly with unexpected events without detailed guidance from their superiors. Defense-in-depth also requires initiative and leadership abilities because it involves independent maneuvering in small and dispersed units.[22] The ability of different units to coordinate activity is central for the implementation of modern system operations.[23]

In addition, command arrangements in effective militaries tend to emphasize unity of command but decentralized execution. While not devolving all command authority down to lower levels, command arrangements in effective militaries often give significant decisionmaking power to those in the field, air, or sea, enabling military units to engage in the initiative required to perform complex operations. In the U.S. Army, this is often called "mission command," based on the intentions of higher commands but independent action by subordinates. Commanders can act quickly in response to battlefield events, rather than wait for headquarters' approval of actions.

In addition, a commander's authority over their units is absolute. There are never two commanders giving different orders to the same soldiers. The chain of command is clear, and responsibility is generally unambiguous, meaning that soldiers can implement decisions rapidly once they have been made.[24]

Promotion patterns and training can also be important.[25] Militaries are typically more effective when they promote based on wartime performance or performance in training, not political loyalty or through corruption.[26]

## PLA CAPABILITIES

Under Xi Jinping, the People's Republic of China (PRC) has articulated a long-term national strategy to achieve the "great rejuvenation of the Chinese nation on all fronts" by 2049, including developing a "world-class" military.[27] From its earliest years, the PLA's principal function has been defined by its mission to support the pursuit and maintenance of political power for the Chinese Communist Party (CCP). Indeed, the PLA was born as the "armed wing" of the party.[28] PRC plans also include completing defense modernization by 2035 and accelerating the development of mechanization, informatization, and intelligentization by 2027. The PLA has connected the achievement of its 2027 objectives to the development of three strategic capabilities: "strategic decisive victory" (战略决胜), "strategic counterbalance" (战略制衡), and "strategic deterrence and control" (战略慑控).[29]

As part of this effort, China has established a defense industry that is producing advanced weapons systems at mass and scale.[30] The bottom line is that China has formidable military capabilities, particularly for operations in the first and increasingly second island chains (see Figure 1.1). One area is advanced technologies, such as AI and quantum computing. Many of these efforts are part of "military-civil fusion" (军民融合) and "deep fusion" (军民深度融合), China's efforts to integrate military and civilian industries.[31] The PLA has also developed "multi-domain precision warfare" (多域精确战) to improve its ability to fight a war by leveraging a command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) network; rapidly coordinate firepower using AI, big data, and other emerging technologies; and identify and exploit U.S. vulnerabilities.[32] In addition, the PLA has focused on such priorities as "informatization" (信息化), to leverage information technology, and military "intelligentization" (智能化), to take advantage of developments in AI and other technologies.[33]

Figure 1.1
## First and Second Island Chains




SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

The PLAN warship inventory has grown with startling speed, with a goal of conducting "far seas defense" (远海防卫) and expanding China's operational area. China's state-owned enterprises, such as the China State Shipbuilding Corporation (CSSC), produce a wide range of naval combatants, such as submarines, surface combatants, unmanned systems, engines, shipboard weapons, and electronic systems. The PLAN has been growing larger over the last decade, with major advances in several categories of surface vessels: aircraft carriers (e.g., the Type 002 *Shandong* and the Type 003 carrier *Fujian*), amphibious ships (e.g., the Type 071 Yuzhao-class landing platform dock and Type 075 landing helicopter assault ship), cruisers (e.g., the Type 055 Renhai class), destroyers (e.g., the Type 052D Luyang III class), frigates (e.g., the Type 054A Jiangkai class II/III), and corvettes (e.g., the Type 056 and Type 056A Jiangdao class).[34] China has become the world's largest shipbuilder and accounts for 53.3 percent of global commercial shipbuilding, compared to 29.1 percent for South Korea, 13.1 percent for Japan, and a paltry 0.1 percent for the United States.[35]

The PLAAF has also significantly grown. The Aviation Industry Corporation of China (AVIC) produces many of China's missiles and fighter, bomber, transport, reconnaissance, drone, and training aircraft. It oversees a vast network of 86 laboratories and applied research centers, and it has hundreds of subsidiaries and more than 100 overseas entities.[36] The PLAAF force structure includes a growing number of J-20 fifth-generation fighters, as well as fourth-generation fighters such as the J-16 and J-10 aircraft. The PLA has also produced a growing number of bombers, such as the H-6K and H-6N, capable of attacking beyond the first island chain. In addition, the People's Liberation Army Rocket Force (PLARF) has a growing number of ballistic, cruise, and hypersonic missiles (e.g., the DF-21D, DF-26, and DF-27), as well as one-way attack drones capable of short-, medium-, and long-range strike.[37]



**A J-20 stealth fighter conducting a training mission.**

PHOTO: CHEN JIMIN/CHINA NEWS SERVICE/VCG VIA GETTY IMAGES

The PLAA is the world's largest ground force. Led by the China North Industries Group Corporation Limited (NORINCO) and China South Industries Group Corporation (CSGC), China's production capacity has increased in nearly every PLA ground system category: main and light battle tanks, armored personnel carriers, assault vehicles, air defense artillery systems, and artillery systems.[38] Since becoming chairman of the Central Military Commission (CMC), Xi Jinping has sought to raise the overall level of the PLA's combat readiness, embodied in the slogan "be able to fight and win" (能打仗、打胜仗).[39]

**Xi Jinping has sought to raise the overall level of the PLA's combat readiness, embodied in the slogan "be able to fight and win."**

The PLA also has significant capabilities in the space, cyber, and nuclear domains. Led by the China Aerospace Science and Technology Corporation (CASC), China Aerospace Science and Industry Corporation Limited (CASIC), and a range of smaller companies, China has significantly improved its space and counterspace capabilities.[40] It has aggressively developed global navigation satellite system capabilities, satellite communications, missile warning, and intelligence, surveillance, and reconnaissance (ISR) capabilities—including satellites with optical, multispectral, radar, and radio frequency sensors that can detect U.S. and other surface, air, and ground forces.[41] China has developed a fractional orbital bombardment hypersonic vehicle that can approach targets—such as the U.S. homeland—from unpredictable vectors and bypass traditional northern-facing early warning radar and missile defense networks.[42] Beijing also continues to develop its counterspace capabilities, including jamming and directed energy systems, direct-ascent anti-satellite capabilities, and weapons capable of reaching geosynchronous Earth orbit (GEO).[43]

In addition, the PLA possesses significant cyber capabilities led by the Cyberspace Force and the Information Support Force, the latter of which oversees PLA network information systems. The Cyberspace Force is responsible for cyberspace warfare, influence operations (including misinformation and disinformation), psychological operations, electronic warfare, and technical reconnaissance. It poses a major threat to the United States and its allies and partners by gaining access to U.S. government, private sector, and critical infrastructure networks.[44] Along these lines, China has pre-positioned assets in U.S. and other critical infrastructure to conduct high-precision destructive attacks in the event of a crisis.[45] The PLA possesses both fixed and mobile electronic warfare systems that could interfere with satellite communications links, global navigation satellite system signals, and synthetic aperture radar intelligence-gathering satellites.

The PLA is also modernizing its nuclear forces and may have more than 1,000 operational nuclear warheads by 2030.[46] China possesses a growing arsenal of land-based intermediate-range and intercontinental ballistic missiles, such as the DF-5, DF-26, DF-31, and DF-61 missiles; sea-based submarine-launched ballistic missiles, such as the JL-3 and JL-2, which can be launched from the PLAN's nuclear-powered submarines; and air-launched ballistic missiles, such as the JL-1 and JL-3, which can be launched from H-6N and H-20 bombers.[47] China has likely made progress in its efforts to achieve an early warning counterstrike launch-on-warning capability, which involves firing nuclear weapons after detecting an incoming enemy strike but before those warheads detonate.[48]




**DF-31BJ intercontinental ballistic missiles (ICBMs) on Chang'an Avenue in Beijing during a military parade.**

PHOTO: QILAI SHEN/BLOOMBERG VIA GETTY IMAGES

China's military strategy is based on the concept of "active defense," in which the PLA would look to seize and maintain the initiative and conduct offensive operations even when pursuing defensive strategic ends.[49] The PLA has developed operational concepts that underpin its doctrine and planning.[50] The PLA released "Chinese People's Liberation Army Joint Operations Outline (Trial)" in November 2020, marking the start of the PLA's fifth generation of operational doctrine. Since then, the PLA has launched a broad effort to study and implement it, including through joint exercises, such as Stride, Mobility, Red Sword, Sky Sword, and Joint Logistics Mission. In 2025, the CMC revised the PLA's basic laws and code of conduct, known as the Common Regulations, which prioritize combat effectiveness to better prepare the PLA to fight and win wars. The revised regulations also emphasize the importance of political loyalty within the PLA and provide guidance on internal and external relations, etiquette, and discipline. National defense education training is likely to become more rigorous and realistic as the PLA moves to standardize its combat readiness system to enable China to quickly transition to a wartime footing.[51]

In short, the PLA has significant and growing capabilities in all the major domains of warfare—air, land, maritime, space, cyber, and nuclear—as well as in command and control, AI, and other technologies.

## OPERATIONAL UNCERTAINTIES

Despite these capabilities, numerous questions remain about the PLA's combat effectiveness. Analysts have long attempted to shed light on how effectively the PLA might fight a war by studying its doctrinal writings, training, exercises, and other sources of information.[52] The PLA has articulated an ambitious doctrine of joint warfare and demonstrated some operational competence in counterpiracy missions, humanitarian assistance, disaster relief, and UN peacekeeping operations.[53] PLA exercises also suggest some ability to execute joint operations, at least in a training environment.[54] But training and exercises are not combat. As one Chinese military scholar bluntly noted, "the situation of accurate training needs to be improved."[55] Another warned that there is likely "insufficient 'smell of gunpowder' in training."[56]

It is important not to mirror image the PLA and assume that PLA personnel think, act, fight, or value concepts the way the United States or other Western militaries do. The PLA draws on a different culture (including organizational culture) and political system, which shape military effectiveness. The CCP operates under a political system inspired by Soviet leader Vladimir Lenin, who believed the government should direct all aspects of society and stressed the need for "the greatest possible centralization" of power.[57]

As previously noted, however, the PLA has not conducted significant combat operations for nearly 50 years. The paucity of PLA experience with high-end combat—and the absence of PLA generals with any significant combat experience after the purges under Xi Jinping—makes it difficult to assess PLA capabilities by direct observation. For example, how competent is the PLAN at anti-submarine warfare (ASW)? The highly variable acoustic properties of the ocean environment make it difficult to detect, identify, track, and engage enemy submarines. ASW requires national and joint intelligence collection platforms because of the complexities of the operating environment, the size of the maritime area that needs to be covered, and the overall mission to find, fix, track, target, and potentially engage enemy submarines.

Another question about PLA combat effectiveness lies in the extent and duration of PLA structural reforms. The reforms, which began in earnest in 2015 and continued with such developments as the creation of the Strategic

Support Force, are important and move China toward greater joint capability. However, China's leaders are reforming an archaic structure that was designed many decades earlier to facilitate "people's war" in the heart of China. Doctrinal changes began much earlier, in the 1980s, and have been designed to enhance conventional warfighting. But doctrinal adjustments were not accompanied until recently by the kinds of structural changes that would enable China to begin realizing an ability to execute modern combined arms warfare. And despite structural reforms, which have continued to the present, much work remains to be done.

Table 1.1 provides an overview of some of the PLA's self-identified weaknesses over the past several years. The table indicates that the PLA is engaged in an active discussion about its own strategic, operational, and tactical weaknesses, as well as efforts to improve.

Understanding this operational uncertainty and not automatically assuming China's military is as formidable as its military systems suggest are particularly important since some U.S. government analysts and subject matter experts overestimated the operational capability of the Russian military—and underestimated the Ukrainian military—prior to the February 2022 invasion of Ukraine. These errors may have occurred because it is easier for analysts to assess the quantitative and tangible aspects of a military—such as doctrine and the number and quality of air, naval, and ground systems and platforms—than to assess operational effectiveness in war. Key intangibles, such as the ability to conduct joint and combined arms operations, initiative, and the impact of corruption, are inherently difficult to assess outside of actual combat operations.

## ORGANIZATION OF THE REPORT

The rest of this report is divided into the following sections. Chapter 2 assesses PLA joint operational capabilities. Chapter 3 explores implications on combat effectiveness of the political nature of the PLA and corruption. Chapters 4, 5, and 6 examine the maritime, air, and land domains, respectively. Chapter 7 outlines opportunities and options to leverage and exploit PLA weaknesses.

Table 1.1

### Overview of PLA Self-Identified Weaknesses

| WEAKNESS | OVERVIEW |
|---|---|
| **TWO INSUFFICIENCIES** (两个能力不够 两个能力不够 **OR** 两个不够 两个不够) | The PLA (1) still struggles to fight modern wars and (2) faces challenges with the proficiency of officers at all levels of command in a modern war. |
| **TWO BIG GAPS** (两个差距很大) | There are substantial gaps between the PLA's level of military modernization in two areas: (1) the requirements for national security, and (2) the level of the world's most advanced militaries, such as the United States. |
| **THREE WHETHERS** (三个能不能) | There are still serious questions about whether the PLA can accomplish three tasks: (1) maintain the party's absolute leadership, (2) fight and win, and (3) rely on PLA commanders at all levels to effectively lead forces and command in war. For the PLA, these tasks are intertwined. |
| **FIVE INCAPABLES** (五个不会) | Some PLA commanders are still unable to effectively accomplish the following tasks: (1) judge the situation, (2) understand the intentions of higher command authorities, (3) make competent operational decisions, (4) deploy troops, and (5) deal with new and unexpected situations. |
| **FIVE WEAKNESSES** (五弱) | PLA forces struggle to adequately accomplish several tasks: (1) adapt to changing circumstances in the environment, (2) manage and coordinate operations, (3) operate equipment, (4) command operations, and (5) organize training. |

SOURCE: DENNIS J. BLASKO AND RICK GUNNELL, *ASSESSING THE PLA'S STRENGTHS AND WEAKNESSES FOR ACHIEVING THE PRC'S GOALS* (WASHINGTON, DC: NATIONAL BUREAU OF ASIAN RESEARCH, 2025), 135, HTTPS://WWW.NBR.ORG/PUBLICATION/ASSESSING-THE-PLAS-STRENGTHS-AND-WEAKNESSES-FOR-ACHIEVING-THE-PRCS-GOALS/.



# JOINT OPERATIONS



Retired Chinese military officers observing the new DF-5C strategic nuclear capable missile at a military parade in Beijing.

▶ Kevin Frayer/Getty Images

# 2

**As in the areas treated elsewhere in this report, the PLA has undoubtedly improved its ability to conduct joint operations, or actions in which forces of more than one service (e.g., army and navy) participate.** However, the current state of PLA jointness is far behind that of the United States, and the structural reforms intended to make joint operations possible are recent and almost certainly incomplete. Vested interest and parochialism in the military remain, and China has not undertaken the thoroughgoing reforms that the United States underwent with the 1986 Goldwater-Nichols Act. Meanwhile, doctrine itself is "under construction," and change will require adjustments not just to ideas about the employment of military force, but also to how China defines and develops doctrine. Finally, jointness requires not just technical knowledge but changes to culture, a process that PLA strategists will find difficult.

## BACKGROUND AND DOCTRINAL AMBITIONS

In 1959, Mao Zedong purged Field Marshal Peng Dehuai, the man who had commanded PLA forces during the Korean War and a powerful proponent of modernization, replacing him with loyalists who moved the PLA back toward a doctrine of undiluted and unreconstructed "people's war." Not until Mao's death in 1976 would the PLA begin to revive its earlier moves toward combined arms warfare, which were, in any case, centered almost entirely on the orchestration of ground force components, specifically, infantry, armor, and artillery. Since then, the PLA has employed a variety of terms to describe its doctrinal thinking, but all of them—and the great arc of change in PLA thinking—have been oriented around realizing the aim of achieving the kind of joint capabilities it has witnessed other leading military powers employ in their military conflicts.

This long, slow process began with the introduction of "People's War Under Modern Conditions" embodied in Deng Xiaoping's 1980 Strategic Guidelines. Under those guidelines, the PLA was expected to employ combined arms warfare in conventional battles alongside guerrilla operations. In large part, Chinese thinking on combined arms drew from its successes in past wars (the Chinese Civil War and Korean War) as well as from its disappointing performance in the 1979 Vietnam War. But even as it struggled to remaster forms of fighting that it had participated in during the late 1940s and 1950s, it witnessed the U.S. orchestration of joint forces at a speed and scale that it had not imagined during the 1991 Gulf War, an event that came as a profound wake-up call to PLA leaders.

Following from PLA analysis of that war, the PLA's 2004 Strategic Guidelines ushered in the term "integrated joint operations" (一体化联合作战) as the basic operational form of future war, in contrast to the "coordinated joint operations" (协同联合作战) described in past Chinese doctrinal writing. The same 2004 document discussed the need to be able to fight and win "local wars under informationized conditions."[1] All of these catchphrases are intended to capture the essence of how modern, high-functioning militaries can orchestrate joint operations and adjust to changing conditions in real time. At the same time, however, Chinese military leaders acknowledged after the promulgation of the 2004 guidelines that integrated joint operations were aspirational and that the PLA could not, in fact, execute such operations.

## STRUCTURAL REFORMS TO REALIZE INTEGRATEDJOINT OPERATIONS

Hu Jintao's 2006 critiques of the military, the so-called "two incompatibles" and "two gaps," were largely focused on the inability of the PLA to execute the kinds of operations outlined in the 2004 Strategic Guidelines.[2] The PLA itself observed that existing command authorities and structures precluded more meaningful or widespread training in joint operations. A 2010 article in the *PLA Daily* said, "In most cases, the primary service still lacks both the capability and the conditions to directly command participating forces from other services." "To overcome this dilemma," the author continued, "the role of General Headquarters and military regions must be strengthened."[3] At that time, vested (often corrupt) interests and the entrenched position of generals made such structural reform difficult if not impossible.[4]

Following Xi Jinping's accession to party general secretary, however, Xi was able to employ the "chairman responsibility system"—backed by an anti-corruption campaign that spared no rank—to begin a process of structural reforms. These structural reforms were designed, in large measure, to enable joint operations. In 2015, the existing seven military regions were abolished, and five theater commands were put in their place. At the same time, the Ground Forces (sometimes translated as Army) were established as a separate service, and the Second Artillery Force was promoted from branch to service as the Rocket Force. The resulting four-service structure—composed of the PLAA, PLAN, PLAAF, and PLARF—was complemented under a 2024 reorganization by four supporting forces: Cyberspace, Aerospace, Joint Logistics, and Information Support.

Reforms clarified and separated the operational and supporting chains of command. Operational command flowed from the CMC to the theater commands (the PLA's first standing joint commands) to the theater command service components, which serve as the operational elements. The service headquarters were tasked with training and equipping the force and were removed from the operational chain of command. Meanwhile, to direct operations, permanent Joint Operational Command Centers (JOCCs) were established both within the CMC and the theater commands, with staff for theater command JOCCs drawn (and dual-hatted) from the theater command departments and service components. And training courses were established to begin cultivating officers capable of staffing the new joint headquarters.

## STRUCTURAL REFORMS: HOW DEEP AND HOW THOROUGH?

The structural reforms of the PLA that began in 2015 were dramatic and have undoubtedly placed the PLA in a better position to rehearse and implement doctrine for joint military operations, but it will likely take a decade or more—and further structural adjustments—for the PLA to approach the standards of jointness seen in the U.S. and some other Western militaries.

**It will likely take a decade or more—and further structural adjustments—for the PLA to approach the standards of jointness seen in the U.S. and some other Western militaries.**

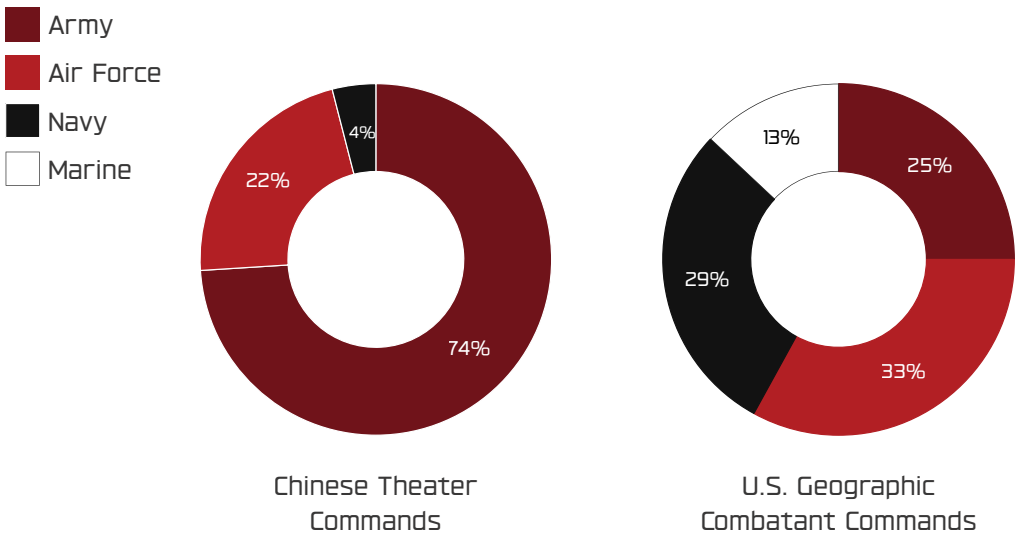
One of the most obvious things to track in understanding jointness is the distribution of top theater command billets. In at least one sense, improvement has been immediate. The service component commanders now serve as theater command deputy commanders, providing high-level representation for the different services within the joint headquarters. However, top command positions continue to be dominated by officers from the PLAA, indicating either a defense of parochial interests or considerable delay in developing officers from the other services capable of commanding at the theater level. Between January 2016 and January 2026, 17 of 23 theater commanders (74 percent) were PLAA officers. Of the six others, five have been from the PLAAF and one from the PLAN. Over the same period of time, the service distribution associated with U.S. geographic combatant commands has been far more even (see Figure 2.1).

The PLA has established courses at China's National Defense University in joint operations and the problem of joint command, but technical education may not solve the problem of parochialism or incentives. The Chinese military is reportedly considering a joint specialization track for officers, but it has not yet implemented it. Moreover, even if such a track were established, it is not clear that it would produce the desired effects. As two Western analysts have argued, "a separate career track also has the potential to be a career ghetto if the senior leaders deciding on promotions (currently local commanders and political commissars within the officer's service) value a different set of criteria."[5]

These concerns were evident in the PLA discussion of a Chinese Goldwater-Nichols Act during the 2010s. Among other things, the U.S. Goldwater-Nichols Act of 1986 mandated that U.S. officers who had served in joint billets should be promoted, on average, above the curve or at a higher rate than other officers without joint experience. Between 2013 and 2019, 26 articles discussing Goldwater-Nichols were published in the *PLA Daily*, with most describing it as a foundation of U.S. military reform and some describing its personnel provisions as a positive model for China.[6] A 2016 article, for example, argued that the Goldwater-Nichols Act had been adopted to address "service parochialism" and to help overcome "significant obstacles to joint operations." It noted that "military reform involves profound adjustments to structures of interests and relationships of interests," and argued that "through the creation, revision, abolition, and interpretation of laws and regulations, military reform can be provided with more effective institutional guarantees" that could "prevent military reform from falling into a recurring cycle of repeated problems."[7]

Figure 2.1

## Command Billets in Chinese Theater Commands and U.S. Geographic Combatant Commands, by Service (2016–2026)




SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

The discussion of a Chinese Goldwater-Nichols ended after 2020, and the *PLA Daily* has published virtually no articles on the subject since that time. As with many PLA subjects, analysts must infer from circumstantial evidence, but the abrupt end of discussion about Goldwater-Nichols indicates that the issue of legal protections for joint officers had been raised and rejected and that the PLA would employ other methods to foster a core of joint warriors. Even under the best of circumstances, however, the question of timelines looms large. At the outset of reform, PLA analysts noted that it took the United States 25 years to develop a cadre of joint officers once the priority had been established, and they argued that China may not have that much time.[8]

A second question about the PLA's new joint structures concerns the level at which integration might occur. The establishment of JOCCs (联合作战指挥中心) within the theater commands endowed the latter with a standing joint command capability and, in that regard, represented a significant step forward. The JOCCs are capable of coordinating service components. However, they almost certainly do not perform the same functions as U.S. joint functional component commands, which provide command authorities that cross service lines down to the tactical level.

In the Chinese system, the JOCC is staffed by individuals dual-hatted from the theater command bureaus, such as the operations bureau (作战局), intelligence bureau (情报局), and network electronic bureau (信息保障局), and from the service components. The JOCC includes sub-centers for the domains (e.g., the Air Operations Sub-Center [空中作战分中心]).[9] It is, however, unlikely that these sub-centers perform all the functions that the joint functional component commands do in the U.S. system. Although their precise size is not published, available evidence suggests that they are much smaller. The entire theater command JOCC, including all its sub-centers, is likely made up of several hundred individuals (comparable to a single U.S. domain organization, such as a U.S. Air Operations Center).[10]

Within the Chinese system, the theater command service component commands (e.g., Eastern Theater Navy Component Command) retain significant command authority, and the precise division of tasks between those commands and the JOCC is unclear. Most likely, the component commanders retain significant authority over operations, which are integrated and overseen by the JOCC. The functions of the JOCC, then, are more comparable to what would be performed under a U.S. regional command by the J-3 (operations), J-35 (future operations), and Command Center (situational awareness) than they are to the U.S. system's functional component commands.

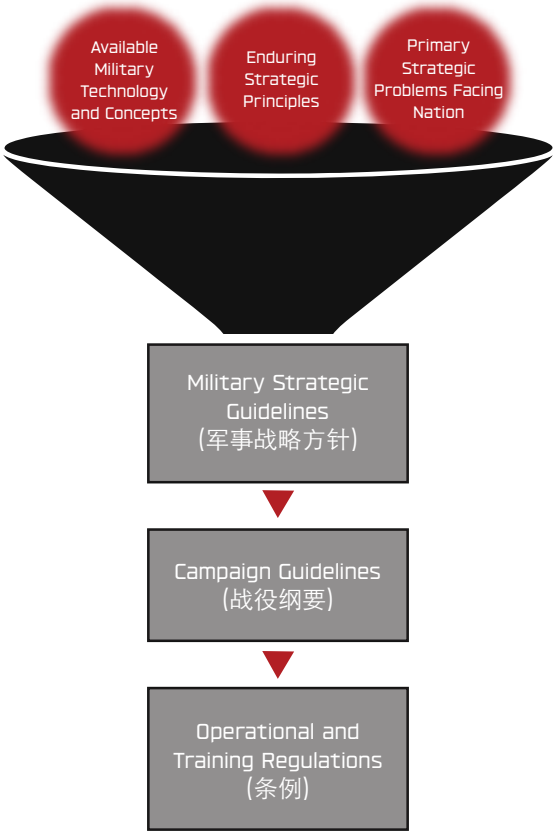
Joint experience is not common among senior officers: Few officers have commanded troops outside their own service. Nor is it common for officers to do tours with supporting functions, such as logistics.[11]

## DOCTRINE, MODERN WAR, AND CHINA'S CAMPAIGN LITERATURE

As in the area of structural reform, doctrinal change and operational practice will likely take many years to reach maturity. Not only is doctrine itself changing, but the entire way in which the PLA conceives of battles and campaigns—or war itself—is in transition. A transition on this scale can only be executed over time and through a process of iterated trial and error.

PLA military practice flows from a sequential series of documents that introduce broad concepts and then provide increasingly detailed frameworks designed to operationalize those concepts. The highest-level strategic document guiding doctrine within the PLA system is the Military Strategic Guidelines (军事战略方针). These are secret documents that are formulated by the CMC, with new guidelines published roughly every 8 to 10 years. The guidelines leverage contemporary military technology and ideas to establish principles designed to meet the nation's primary military challenges. They answer general questions about the most likely strategic opponent, the location (primary direction) of conflict, and the way (basic form) in which the war should be fought.[12] The most recent Military Strategic Guidelines were issued by the CMC in 2019 and established integrated joint operations as the baseline for PLA operations.

Figure 2.2
## Hierarchical System of PLA Doctrinal Development




SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

Historically, Campaign Guidelines (战役纲要) have then been published to translate the broad mandates embedded in the Military Strategic Guidelines into campaign-specific principles. Although English translations confusingly use the same word, "guidelines," in both cases, the Chinese terms—*fangzhen* (方针) and *gangyao* (纲要)—carry different connotations and make the distinction clear. *Fangzhen*, used in the Military Strategic Guidelines, indicates principles or guiding policy, while *gangyao*, used in Campaign Guidelines, refers to a framework or outline. Within the Chinese lexicon, campaigns fall between wars and battles and refer to "combat operations consisting of a series of battles conducted by army-level units under a unified command to achieve a local or overall objective in war."[13] It is difficult to overstate the historical importance of the campaign level of warfare in Chinese military thought. Virtually any book on, for example, the PLA's combat operations during the latter stages of the Chinese Civil War or during the Korean War will be organized by the campaigns that comprised those conflicts, as defined by contemporary PLA leaders.

Prior to 2019 and the stipulation that the PLA would conduct integrated joint operations, jointness referred primarily to coordination at the group army (campaign) level.[14] Of the 17 campaigns discussed in separate sections of the 2006 *Science of Campaigns*, only 3 were joint: joint blockade, joint landing, and joint fire campaigns (see Figure 2.3). The remaining 14 were service specific, though some PLA educational materials make clear that support might be provided to one service by others.[15] And, while the 3 joint campaigns address strategically important missions, they were not the most general or inclusive campaigns that one might conceive.

Figure 2.3

## Campaigns Discussed in 2006 Science of Campaigns (战役学)

**JOINT CAMPAIGNS**

- Joint blockade campaign
- The joint landing campaign
- Joint anti-air-raid campaign

**GROUND FORCE CAMPAIGNS**

- Maneuver warfare campaign
- Mountain offensive campaign
- Positional offensive campaign
- Positional defensive campaign
- Anti-terrorism (stability) campaign

**NAVY CAMPAIGNS**

- Group campaign to eliminate enemy
- Sealine interdiction campaign
- Offensive campaign against coral island reefs
- Sea line protection campaign
- Naval base defense campaign

**AIR FORCE CAMPAIGNS**

- Air offensive campaign
- Airborne campaign
- Air defensive campaign

**ROCKET FORCE CAMPAIGNS**

- Conventional missile assault campaign

SOURCE: 张玉良 [ZHANG YULIANG] ED, 战役学 [*SCIENCE OF CAMPAIGNS*] (BEIJING: NATIONAL DEFENSE UNIVERSITY PRESS, 2006).

Within the Chinese campaign rubric, multiple campaigns are likely to run simultaneously, and they will, over time, transition from one to another at an uneven pace. So, for example, at the outset of a Taiwan invasion, a joint fire campaign might be conducted in conjunction with PLAAF and PLAN (service-specific) offensive and defensive campaigns. Following this preparation, a joint landing campaign might then be conducted to establish a beachhead on Taiwan. After the beachhead is established, the landed ground forces would then likely conduct either an army maneuver warfare campaign or a positional offensive campaign. Throughout the entire period, offensive and defensive air campaigns might also be ongoing. Notably, there is no generic joint offensive campaign—and to the authors' knowledge, there still may not be one.

On top of this, much of the campaign literature on individual campaigns appears dated and deliberately paced. In *Science of Campaigns*, for example, the culminating point for the joint landing campaign is the consolidation of the beachhead rather than the capture of primary objectives of the larger campaign. Thus, the joint landing campaign more closely resembles the U.S. amphibious landings during the first half of its involvement in World War II rather than more recent U.S. Marine Corps doctrine regarding ship-to-objective maneuver, which built on the lessons of the Battle of Anzio, in which the slow pace of movement off the beachhead ultimately cost more lives than the landings themselves.

While the 2004 Military Strategic Guidelines (*fangzhen*) introduced integrated joint operations as best practice, it was regarded as an aspirational doctrine for China. The 2019 Military Strategic Guidelines, on the other hand, established integrated joint operations as the new baseline for PLA doctrine and thus constituted a dramatic break in how China executed military operations. The extent to which this document was intended to drive change was highlighted by an officer from the CMC Joint Staff Department, who asserted that "as a top level law, the Guidelines have a commanding and binding effect on lower-level operations regulations. . . . The promulgation of the Guidelines can effectively impel the construction of the entire system of operations regulations."[16]

The Guidelines [*gangyao*] on Joint Operations of the Chinese People's Liberation Army (Trial) (中国人民解放军联合作战纲要(试行) followed in 2020 and were intended to outline operational principles. However, one immediate difference from past practice was that this gangyao document did not include "campaign" in the title but rather highlighted joint operations. While the authors do not have access to the original classified guidelines, subsequent documents released by China's top military academies suggested that the omission was not accidental. The *2020 Science of Military Strategy*, published by the Chinese National Defense University, states that "Under the new historical conditions, the political nature of war has further increased, and tactical actions often have a strategic impact. The boundaries between strategy, campaign and tactics have become blurred. The area where

strategy and campaign science and even tactics meet have expanded."[17]

Heavy amendments to campaign theory can logically be expected from these changes. Yet it appears the hierarchy of planning within the PLA—strategic, campaign, and battle—continues to operate. In a 2021 article, three authors from the Air Force Command Academy acknowledged that the recent record of local high-tech wars involving small-scale precise actions had led some "to conclude that campaign theory has become outdated." However, the authors challenged the idea and argued that "campaigns connect national strategic objectives with battles, giving battles their meaning, while battles give campaigns their form."[18] More recent writings, including a 2024 piece by faculty from the Chinese National Defense University, make clear that campaign planning remains part of the curriculum, even if some effort has been made to create a more dynamic environment for that planning through the use of simulations and computerized wargames.[19]

Analyst David Finkelstein reviewed China's new joint doctrine and posed several questions based on the PLA's history of efforts to implement joint doctrine.[20] One was how long the changes will take, an issue often raised by China's most prominent military theorists. China began its movement toward joint operations more than 30 years ago and yet has only recently produced an operational framework. Translating the framework into campaign documents or tactical procedures will take additional time. A second question was the level down to which joint doctrine and jointness will be pushed. If the theater command service components are charged with implementing missions assigned by the theater command JOCC, will they be able to command elements from other services? More broadly, this might raise the question of how the PLA will organize its future thinking about the levels of war and whether perhaps its current thinking is hung up on conceptual debates over, for example, whether campaign templates are necessary at all and, if not, what should replace them.

## TRAINING EXERCISES

Another area to consider in evaluating the state of jointness is training exercises, including both change over time and the current state of exercise jointness. In assessing joint exercises, one might consider their realism and the extent to which jointness is achieved through organic, as opposed to ad hoc, means. PLA advances in jointness are evident in exercises, but these are beginning from a very poor starting point and continue to demonstrate weaknesses as well as strengths.

**PLA advances in jointness are evident in exercises, but these are beginning from a very poor starting point and continue to demonstrate weaknesses as well as strengths.**

Immediately prior to the reforms of 2016, Chinese joint exercises were largely experimental and designed to develop the mechanisms of jointness that were later established under the theater commands. In other words, the PLA was looking to create the organic means of coordinating the services, initially at higher echelons. For Joint Action-2015B (联合行动-2015B), a joint headquarters was established within the (now defunct) Nanjing Military Region and was built around the 12th Army Group. Chinese writing about the exercise specified that its purposes included studying the construction of a joint operational system, organizing and employing information systems, joint ISR, joint firepower strikes, joint information operations, joint obstacle breaching, and integrated fire support. "More broadly," one article stipulated, "the exercise was intended to comprehensively study the characteristics, patterns, and mechanisms for achieving victory in joint operations under informationized conditions."[21]

A decade later, many PLA exercises are joint, though it is worth distinguishing the nature of jointness in large theater-run exercises and in smaller, unit-level "adversarial" exercises. Major theater exercises demonstrate that the theater commands can rapidly script the coordination of large exercise elements. Joint Sword 2024A, executed in May 2024, saw the Eastern Theater Command JOCC issue an action order on relatively short notice in response to President Wil-

liam Lai's inauguration speech. Naval formations reached predesignated operating areas (预定海域) and then conducted blockade exercises, while air units similarly assembled and then proceeded to assigned mission airspace. Rocket force units conducted simulated attacks against predesignated targets (预定目标).[22] Although there may have been opposing (blue) force elements dispatched from the Northern Theater Command, there is no direct evidence of unscripted combat exercises.[23] Jointness in these large exercises, then, appears oriented toward the orchestration of larger forces rather than organic joint activity initiated by lower-level commanders.

Chinese reporting on smaller exercises depicts a PLA leadership that encourages units to plan and engage in joint training but also shows units operating in an environment with few clear guidelines about how to accomplish such tasks. Thus, although smaller exercises offer Chinese units the opportunity to engage in less scripted exercises in which system-of-system operations could be rehearsed, many of these appear to be informally organized, and it is not clear how standardized the application of doctrine is or how lessons learned might be diffused to the larger force.

In 2024, the Southern Theater Command and the PLAAF headquarters in the Southern Theater Command reportedly established a "training 'cooperation zone mechanism' to ensure that complementary elements could train together." The system was set up in response to inadequate training opportunities for units to train with dissimilar units from both within the PLAAF and with elements of other services. The zones are established according to proximity (physical distance) and convenience and group units that might logically operate together, such as fighter aircraft, airborne early warning (AEW) aircraft, surface-to-air missile (SAM) elements, and early warning radar. But they also occasionally include naval task forces and rocket force elements.[24] A similar pattern has been observed in the Eastern Theater Command, where "aircraft from multiple services in the theater command have formed joint mission groups and explored methods for conducting autonomous joint training [自主联训], creating a series of 'joint training domains' [联合练兵域]." One naval aviation unit, in conjunction with research into a training problem, proactively paired itself with an air force unit training at the same location. Together they studied operational methods.[25]

Probably more common are training combinations engineered by the units themselves. A PLAAF SAM brigade of the Northern Theater Command was held up as a model for undertaking extensive adversarial and cross-domain training with dissimilar elements (in this case other PLAAF elements). One exercise, witnessed by a reporter, highlighted obstacles to smooth coordination. In the exercise, the SAM unit failed to engage a target despite receiving warning from a neighboring unit. During the after-action review, leaders discovered that the unit's "existing operational procedures did not mesh with those of the neighboring unit, resulting in delays in communications and slow data sharing." Personnel "knew relatively little about the neighboring unit's organizational composition, weapons parameters, and other characteristics."[26] Surfacing such discrepancies can be a legitimate function of training exercises and will presumably improve at least local coordination. Ultimately, the PLA will likely collect, analyze, and act on such data to improve and diffuse improved tactical procedures, though how and when this will take place is unclear.

Finally, despite substantial improvement in adversarial training (i.e., training that includes a blue, or opposing, force), some reporting argues that "there remains a certain gap between current training and the requirements of realistic combat." Specifically, training is often insufficiently difficult or intense and is often predictable. "To resolve these problems, military training must include more difficult training subjects, and more unexpected situations requiring a response [特情处置] must be introduced."[27]

Taken together, these exercises suggest substantial but incomplete progress in PLA jointness. The theater commands now appear capable of orchestrating large, multiservice operations that would have required experimental and ad hoc command arrangements a decade ago. At lower levels, however, joint training remains less institutionalized and distinctly ad hoc. Units are responding to leadership priorities by building relationships, procedures, and mechanisms for autonomous joint training, while PLA assessments continue to identify predictability and insufficient exposure to unexpected situations as shortcomings. Thus, the principal question is no longer whether the PLA can organize joint operations, but how effectively its forces can adapt organically and spontaneously to unexpected developments.

## MISSION COMMAND (任务式指挥) AND PLA CULTURE

As the PLA has looked to accelerate transformation since 2015, it has simultaneously undertaken reforms that, in other militaries, have been sequenced more gradually over decades. In the case of command, Chinese leaders are simultaneously establishing the permanent command structures that allow unified joint command while also moving toward more decentralized execution. In a military culture that has long emphasized relatively rigid top-down command relationships, the transition to more unified command structures may be easier than the move toward decentralized execution under the rubric of mission command.[28]

Chinese military writers argue that modern warfare "imposes higher requirements on command in terms of strategic judgment, jointness, professionalism, timeliness, and precision."[29] Since 2010, and especially since 2020, Chinese military writing has taken increased interest in mission command as an essential response to what Chinese analysts see as ever-tighter OODA loops (the military decisionmaking cycle described as observe, orient, decide, act).[30] PLA writers acknowledge the German origins of mission command, as well as its importance in modern U.S. practice. Much of the Chinese literature on the subject identifies obstacles and problems on the road toward Chinese adoption. Mission command requires highly competent leaders throughout the chain of command, but "some [Chinese] commanders still suffer from 'two insufficiencies' and 'five incapables,'" which would disqualify them from mission command.[31] Simply put, the quality of leadership is inadequate to the task.

Chinese analysts observe that the PLA can draw on a history of decentralized mission-based execution. Throughout much of the revolutionary period, army commanders enjoyed considerable autonomy due to the difficulties of communication across different parts of China. However, most commentators also acknowledge that command styles shifted toward "democratic centralism" during the latter stages of the revolution. For most of its post-revolutionary history, democratic centralism has involved a somewhat plodding system of "repeated exchanges of views" between lower and higher echelons. Yet "in joint operational command," these analysts note, "it is necessary to move beyond the rigid authority structures of the past, in which responsibilities were strictly divided by echelon."[32] Even some ostensible advocates today take greater note than Western observers of the need to "regulate actions through direct command" and provide "focused guidance" as required.[33]

More than perhaps any other part of the reform agenda, introducing mission command requires going beyond technical education and involves an important cultural shift. As two PLA authors noted in 2023, implementing mission command requires trust. And trust "cannot be created simply by defining command relationships or granting authority." Rather, "it must be built through repeated interactions, frictions, adjustments, and coordination during major missions and joint training exercises."[34] Both the technical skills necessary to implement mission command and the cultural changes necessary to give it free rein will take many years to achieve. As one U.S. analyst has observed, even those Chinese officers who underwent their military education shortly after the 2017 reforms—well before mission command was emphasized in curriculum—will not reach their first major field commands until 2035.[35]

## IMPLICATIONS FOR MILITARY EFFECTIVENESS

While China's adoption of theater commands undoubtedly represents an important step on the road to jointness, both doctrine and the practice of joint operations remain relatively new and unevenly institutionalized within the PLA. Within the current PLA system, jointness appears better developed for operations that can be extensively planned and coordinated in advance than for those requiring rapid, decentralized integration at the tactical level. The PLA has put in place a system of cross-representation that extends in some cases to the battalion level, though with substantially less institutional depth than in the U.S. system. Not only will more dynamic jointness require skilled operators, it will require officers who understand when and how to capitalize on the available resources to synchronize and coordinate their actions with capabilities from other services.

**Both doctrine and the practice of joint operations remain relatively new and unevenly institutionalized within the PLA.**

The extent to which deficiencies impinge on Chinese military effectiveness will depend heavily on circumstances. One set of circumstances would be the type of campaign being conducted. Some campaign types will be more amenable to centrally planned joint operations than others. For example, a blockade of Taiwan that is conducted largely by long-range fires may permit theater commands to plan and adjust the orchestration of service components centrally. Such a campaign might be conducted largely by elements operating within or close to Chinese territory and, possibly, enjoying robust communications. ISR on ship movements might come primarily from satellites or other means that are directly plugged into the theater command JOCC.

An invasion of Taiwan, however, would place greater demands on forms of decentralized inter-service coordination that appear less mature within the PLA. Units, especially ground and naval elements, would be operating at a distance from the theater command—and across a significant maritime barrier. Intelligence might come from a variety of local sources, and communications with the JOCC might be spotty. Under these circumstances, jointness would need to be organic, regular, and practiced. It would benefit from sufficient combat experience to work out the kinks.

Moreover, the requirements for jointness would be particularly high in an amphibious operation. A battalion or brigade ashore may suddenly require supporting fires under rapidly changing conditions, and the headquarters coordinating the action may be degraded or separated from the unit in need by the vagaries of landing mechanics. And during the vulnerable transition from ship to shore, landing forces have only a fraction of the organic fires they will eventually possess ashore and therefore depend unusually heavily on aviation, naval fires, missiles, and other supporting capabilities.

A blockade would therefore place a premium on centralized joint integration at the theater command level, while an invasion would increasingly require distributed integration among subordinate units and commands.

A second set of circumstances that will influence the extent of difficulties with jointness would be the duration and phase of operations. The initial phases of operations, particularly offensive operations, will be preplanned and carefully orchestrated prior to launch. In a Taiwan invasion, for example, the sequencing of preparatory fires and landings would be established and deconflicted geographically and temporally to reflect movement schedules and appropriate intervals between tasks. As an operation continued, however, the cumulative effects of combat would increasingly cause actual circumstances to diverge from the assumptions embedded in the original plan. Unexpected attrition, failed suppression, unusable landing sites (or exits out of landing areas), displaced units, or unexpected enemy concentrations or activities could all require major real-time adjustments to service coordination.

Finally, the adversary gets a vote in how effective Chinese joint operations will be, and the state of the battle therefore represents a third set of circumstances. Anything that presents the PLA with unanticipated requirements for the coordinated action of different services will challenge Chinese jointness. Counterattacks, for example, may require the PLA to coordinate quickly and unexpectedly the actions of ground units, with ISR and firepower support from air and naval elements. Ambushes could destroy or disrupt elements expected to accomplish a task and require another service to compensate. Jamming or attacks against command and ISR capabilities could be consequential, especially if they degraded the centralized mechanisms through which the PLA coordinates service activities, forcing subordinate commands to improvise cross-service solutions with degraded information and communications. Such disruption would simultaneously test jointness and mission command, since subordinate commanders would have to coordinate capabilities across service boundaries while exercising greater initiative in the absence of detailed direction from above.

In summary, a short, centrally managed blockade relying heavily on long-range fires against a relatively passive opponent could place relatively modest stress on remaining weaknesses in joint-

ness. A prolonged amphibious invasion against an opponent deliberately disrupting command and control and generating unexpected threats places almost the maximum possible stress on them. In general, the operational consequences of incomplete jointness are therefore likely to increase as operations become more decentralized, prolonged, disrupted, and divergent from prewar plans.

**The deep changes necessary for thorough going jointness will require continuous efforts to shift command paradigms and relationships and establish new institutional mechanisms.**

Chinese military leaders have sought to strengthen military jointness at least since the early 1990s, though with only limited success until 2015 given a lack of organization that would permit implementation. Structural reforms since 2015 have significantly improved prospects by introducing the PLA's first standing joint commands and regularizing the service structure. It is, however, unreasonable to expect that the broad range of practices and cultures built over decades can be transformed by the structural reforms of a handful of years. The deep changes necessary for thoroughgoing jointness will require continuous efforts to shift command paradigms and relationships and establish new institutional mechanisms. Moreover, should the leadership climate change in ways that provide leverage vis-à-vis the military bureaucracy, changing culture may prove a Sisyphean task.

"The Party's absolute command is the soul of a strong military, and forging that soul is the unshakable central task of military political work."

"It must be recognized that the Party committee system, the dual command system, and the political commissar system are institutional arrangements, all the more so, a political design."[1]

–Xi Jinping



# CROSSCUTTING ISSUES THAT IMPACT MILITARY EFFECTIVENESS

Vice Chairman of the Central Military Commission Gen. Zhang Youxia waves as he arrives for a group photo before the opening of the Western Pacific Naval Symposium on April 22, 2024 in Qingdao, China.

▶ Kevin Frayer/Getty Images

# 3

**A number of problems cut across the areas covered in this report.** The sections below address three such areas. The first is the explicitly political nature of the PLA and the mechanisms that the CCP has traditionally employed to maintain command of the gun. Those mechanisms affect all aspects of the military's operations. The second is widespread corruption, which was in some parts evident and acknowledged prior to Xi Jinping's accession to general secretary. And third are the measures that Xi Jinping has taken to reduce corruption, strengthen party control, and ensure the loyalty of the officer corps to Xi personally. The changes implemented to address these three interests, taken alongside the reforms designed to improve the PLA's combat effectiveness, are complementary in some respects but also exhibit tensions between the different priorities. Measures intended to strengthen political control or combat corruption, for example, may simultaneously reduce commanders' discretion, inhibit initiative, and complicate the PLA's efforts to develop genuine mission command.

After discussing the dilemmas presented by corruption and party control, the chapter examines the potential impacts on military effectiveness. The impacts on combat effectiveness are unlikely to be uniform. Corruption and party control will not render the PLA incapable of effective operations, but they will constrain how it employs increasingly sophisticated forces. In particular, weaknesses in professional competence and training, together with overlapping systems of political oversight, may inhibit the trust, initiative, and decentralized execution required for fast-moving combined and joint operations. These constraints are likely to encourage tight scripting of operations and top-down control and will matter most when battlefield conditions diverge from plans and require rapid adaptation.

## CONUNDRUM OF PARTY CONTROL

As the CCP proverb states, the party commands the gun (党指挥枪). The PLA is, above all else, a party army, and that status introduces complex and overlapping chains of authority. The political system affects combat effectiveness through several mechanisms. Shared authority complicates rapid decisionmaking, political oversight diffuses responsibility, political officers influence the selection and evaluation of operational commanders, and the extensive party apparatus diverts manpower and attention toward political tasks. These effects will become increasingly important as the PLA strives to be able to conduct fast-moving joint operations requiring decentralized execution and rapid adaptation.

The PLA is, above all else, a party army, and that status introduces complex and overlapping chains of authority.

Until 2016, the General Political Department (总政治部), one of four so-called general departments, stood at the apex of the political system within the PLA. The director of the department was typically a member of the CMC. Below the General Political Department, the political work system was replicated down to the brigade level, with political departments at the military region, group army, division, and brigade levels. At the battalion and company level, the political system is represented by a party committee and party branch, respectively. At the level of platoons, political work is guided by a party group if and when enough party members are present. As discussed further below, this system has been modified, but many core elements remain unchanged.

At each level, a director manages the work of the political department, while the political commissar (or political officer at the battalion and company levels) is the senior political leader of that echelon. (Political commissars are career political officers, while political leaders are not yet tracked and may move back and forth between operational and political positions.)

Importantly—and in contrast to the old Soviet system—political commissars and leaders share equal authority with the commander in the unit. For the sake of convenience, this report refers to the system as "dual command," a translation of 双首长制. Chinese sources also sometimes employ the term 军政双首长制, or "military-political dual leadership system" (and sometimes shortened to "dual leadership system") to refer to both this and the larger system of political control. Within the Soviet system, such dual control was abolished during World War II and never restored. In Chinese units, the political and operational commander must work together to lead the unit, and neither is subordinate to the other.

Within this system, authority is often described as "Party committee leadership, with principal leaders dividing responsibility" (党委领导，首长分工负责). Accordingly, the primary responsibilities of political officers and operational commanders differ, with the former taking the lead on political work, financial oversight, and morale and discipline, as well as other personnel matters, including, importantly, promotions. Operational commanders have the lead on intelligence and operational matters.[2] Despite this general division of labor, responsibilities intersect at a number of points, and political officers have input into training plans and, especially, post-exercise evaluations, while commanders have an important say in promotions. And, in the event of a dispute, there is no clear arbitration except through recourse to higher headquarters (within which the political officer and operational commander again hold equal authority).

The political officer's responsibility for personnel and soldier welfare also has implications for the development of leadership at lower levels. In the U.S. military, responsibility for soldier welfare rests heavily with non-commissioned officers (NCOs) and is closely connected to their role as small-unit leaders.[3] In the PLA, by contrast, many of these responsibilities have traditionally fallen within the political-work system. China's introduction and subsequent expansion of an NCO corps has created a professional enlisted cadre and strengthened technical expertise within the ranks, but it has not necessarily produced an enlisted leadership role comparable to that found in Western militaries. To the extent that responsibility for soldiers remains concentrated in the political-work system, one important avenue through which NCOs acquire authority, responsibility, and leadership experience remains constrained.

The Chinese system offers more costs than benefits to military effectiveness. On the positive side, political officers provide greater attention to soldier welfare than would be the case without such a system. They provide in-house oversight over moral rectitude, though as discussed below, political units have also become clearinghouses for certain forms of corruption. Political officers are also charged with ideological education intended to give soldiers a clear understanding of why and for whom they fight, strengthen their political commitment, and thereby sustain morale and "fighting spirit" (战斗精神). Such efforts can plausibly strengthen cohesion and motivation, although the extent to which formal political education actually produces these effects is difficult to assess. Finally, political officers can provide additional leadership in combat; they can lead troops into fire without risking the unit's operational brain trust and serve as a motivated backup command element in case the operational commander becomes a casualty.[4]

However, the system has costs. Past failures of party control led to civil-military disjuncture. Under Deng Xiaoping, the PLA was granted considerable autonomy. This led to diplomatic embarrassments when the PLA conducted tests or otherwise engaged in operations that were poorly

timed for China's diplomatic initiatives and created frustration among political leaders.[5]

More broadly, political branches, committees, and officers come with costs to efficiency and other forms of capabilities. At a minimum, they represent an additional, and sometimes duplicative, layer of organization. At higher levels, the manning of political departments will include dozens of officers, and even party branches or committees at the company level will generally include between three and seven members, all of whom have other positions within the unit.

Despite a division of labor that ostensibly limits political officers to activities within their areas of competence, Chinese sources also acknowledge that "to effectively conduct political work in combat, political officers must first understand military training and possess battlefield command capabilities." Yet, according to the same 2025 report, a common refrain with regard to political officers was that they did not understand operational issues and were thus "unable to participate, unable to speak, and unable to exert influence."[6] Such reports have been a staple going back to at least the 1950s, and the problem has been particularly acute in the technical services and branches. In 1951, the navy's deputy commissar emphasized that "political officers must study technology. . . . Discussing the PLAN's politics without understanding technology will produce only vacuous dialogue." Political officers with poor technical knowledge were reportedly labeled "ballast."[7]

Most of the articles about the weakness of operational knowledge among political officers come with "life hacks" for political departments intended to rectify the problem. For example, assigning political officers to lead "blue" elements (opposing forces) during exercises provides them with at least some operational leadership experience.[8] But the recurring appearance of such articles over more than seven decades suggests that the problem is a persistent structural challenge rather than a transient training deficiency. Moreover, the implications extend beyond the conduct of political work itself. Because political officers play a central role in evaluating, assigning, and promoting officers, limitations in their operational competence may also affect their ability to assess the professional performance and potential of the commanders whose careers they help shape.

This creates a dilemma. The PLA expects political officers to supervise, evaluate, and help select operational commanders while simultaneously assigning many political officers to career paths that provide fewer opportunities to develop the operational expertise needed to make those judgments.

A corollary of this problem is that at the grassroots level, where members of party organizations are party members but have primary jobs that are operationally focused, these individuals often have only limited understanding of their political tasks. One PLA training manual on the conduct of party work observed that according to some surveys of grassroots political work, "More than 80 percent of Party branch committee agenda items were confined to the narrow business of routine Party affairs and specific administrative matters, at the expense of deliberation on major issues and leadership over the unit's comprehensive development."[9] In other words, most of the political work conducted by party branches involved managing the unit's party branch rather than addressing combat readiness, personnel management, discipline, and ideological work.

Party control comes with costs and tensions in terms of military effectiveness. The dual-leadership system institutionalizes consultation and shared authority, reducing commanders' unilateral discretion and potentially slowing decision-making.[10] More broadly, overlapping political and operational authority may complicate the development of the trust, initiative, and delegation required for decentralized command. These operational implications are considered in greater detail in the concluding section of the chapter.

**Party control comes with costs and tensions in terms of military effectiveness.**

Given these real and potential costs to operational effectiveness, it is reasonable to ask why the CCP maintains its aggressive promotion of such a pervasive approach to political control of the military. The answer is that the Chinese leadership fears that sentiment in favor of nationalizing the military (putting it under state rather than party control) will gain traction within the military and reduce its reliability as a backstop against threats to party power. Such a scenario came dangerously close to unseating the party during the Tiananmen pro-democracy protests of 1989.

The period leading up to the demonstrations was a time of great change. The 1982 constitution, introduced by Deng Xiaoping, had created a state CMC alongside the party CMC, and had thereby given the state an ostensible voice in military oversight. When the CMC decided to declare martial law and suppress the pro-democracy demonstrations, it ordered the 38th Group Army, based around Beijing, to enforce the order. General Xu Qingxian, the 38th Group Army's commander, refused and later cited the lack of authorization from state authorities. During Xu's subsequent trial for disobedience, prosecutors asserted that Xu told CMC representatives that an order of this magnitude "should be discussed by the Standing Committee of the National People's Congress and the plenary meeting of the State Council to determine whether taking such action is right or wrong."[11] The National People's Congress and State Council are state organs that exist alongside the Central Committee and Politburo Standing Committee, both of which are political organizations belonging to the CCP.

While Xu denied making such definitive statements, he observed in his own defense: "Now that the army has been brought under the state system [under the 1982 constitution], of course the Standing Committee can also deliberate." Sympathy for this position was rumored to be widespread, and even the *PLA Daily* admitted that "during the turmoil and counterrevolutionary rebellion, their [the protesters'] leading figures openly argued. . . . 'The military is the state's military and the people's military, not the military of the Communist Party alone.'"[12]

Within the PLA today, there are no known advocates of putting the PLA under state control; such a position would not be career enhancing. However, to the extent that professional officers prioritize combat effectiveness, institutional arrangements that constrain initiative or complicate command relationships create continuing pressure for a more professionally autonomous military. It is not, then, surprising that every year, Chinese military publications—controlled by party organs within the military—publish articles that reaffirm the call to "firmly oppose the erroneous views of 'de-Partyizing the military,' 'depoliticizing the military,' and 'nationalizing the military'" (旗帜鲜明抵制"军队非党化、非政治化"和"军队国家化"等错误观点).[13]

The PLA has consciously accepted the operational costs inherent in its system of dual control because party leaders place political reliability above battlefield efficiency whenever the two conflict. The result is an institutional compromise: greater confidence in party control, but potentially slower decisionmaking, weaker initiative, and more cumbersome command relationships during high-tempo joint operations.

## CORRUPTION

Corruption affects military effectiveness through different mechanisms than does political control. Whereas party institutions primarily constrain decisionmaking and organizational flexibility, corruption degrades the quality of personnel, equipment, and training. These three areas constitute the basic inputs comprising military capability. Corruption therefore reduces combat effectiveness not only by wasting resources but also by distorting incentives throughout the force.

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Corruption in societies, economies, and states correlates closely to the level of the state's economic development, and the level of military corruption correlates in turn to the broader levels of corruption in the state.[14] Despite the size of China's economy and its manufacturing prowess, it was ranked 73rd in GDP per capita in 2025. According to Transparency International's scores for public sector corruption in 2025, China was ranked 76th in the world, with 1st being the least corrupt. This is little changed from China's ranking of 80th place in 2013, the year Xi Jinping began his corruption crackdown (and when China was 110th in the world for GDP per capita).[15]

It is impossible to provide any reliable metric of how corruption in the Chinese military compares to that in the militaries of other countries. But Xi's rectification campaign has shed light on the scale and

nature of the problem within China. Needless to say, some caution is in order, given that Xi's crackdown may be motivated as much (or more) by a desire to cement his personal position as it is by the imperative to eliminate corruption. Nevertheless, corruption charges are almost certainly real, even if they are selectively described and enforced unevenly.

The crackdown has come in several waves, each with a different focus, and the scale has been immense. According to data compiled by CSIS, 101 officers who served as members of the CMC, held theater command, or served in positions at the deputy theater command grade were purged or had gone missing between January 2022 and February 2026.[16] As Taylor Fravel summarized, "all CMC positions and theater command level positions have experienced a purge. . . . And purges have occurred in approximately 38 percent of all theater command deputy level positions."[17] Several key areas of focus for the crackdown have emerged: personnel, procurement, and training.

### PERSONNEL ISSUES (PROMOTIONS AND ASSIGNMENTS)

During the early stages of the corruption crackdown—from 2013 to about 2022—the focus was largely on bribery and the exercise of patronage in appointments and promotions. While more recent purges have included those charges, the scope widened to more explicit charges of being "disloyal and dishonest to the Party" by 2018, and to corruption and kickbacks in procurement by 2023. The selling of rank is a long-standing problem running from the most senior ranks to the selection of NCOs.

Corruption in personnel appointments can resemble a pyramid scheme in which the sale of positions and assignments is necessary to recoup the cost of having purchased one's own rank. In a 2015 interview, roughly a year after the arrest of General Xu Caihou (the former vice chairman of the CMC), Major General Yang Chunchang of the Chinese Academy of Military Sciences said, "In the PLA, there was a price for joining the Party, and there were going rates and price tags for promotion to platoon-, company-, regiment-, and division-level positions." Speaking specifically of Xu Caihou, Yang said that "a military region commander gave him [Xu] 10 million yuan; then another gave him 20 million, and he no longer wanted the 10 million."[18] At the contemporary 2015 exchange rate, 20 million yuan would have amounted to about $3.2 million, or somewhere between 40 and 60 times the legitimate salary and benefits of a senior Chinese general in that year—impossible to pay out without recouping the loss through similar "special" means.

This problem is not new. As far back as the early 1990s, articles in China's military press reported on bribes given to officers by the families of enlisted personnel for everything from entering party branches to selection as a "long-service volunteer" (the contemporary equivalent of an NCO).[19] Three decades later, an article in the PLA Daily reported favorably on the disciplinary element of a unit that had instituted mechanisms to report potential violations in six sensitive areas: officer promotions, NCO selection, party and academy admission, external interactions, food procurement, and the operation of post exchange stores. It noted that "a harsh punishment system [for infractions] is in place, but relationship-based favoritism and patronage remain problems."[20]

Ironically, the very system that was built to ensure not just party control but also political and moral rectitude became a locus of corruption. Because political officers have responsibility for both personnel affairs and discipline, the system created opportunities for promotions and appointments to become a conduit for bribery and political departments to become the clearinghouse for corruption. The campaign ultimately reached the highest levels of the political work system, ensnaring a former director of the General Political Department as well as senior leaders of the Political Work Department, the organization that inherited most of the General Political Department's functions after 2016.[21]

Corruption in personnel management weakens military effectiveness in several ways. It promotes officers for political connections or financial resources rather than competence, discourages talented officers who lack patronage, reduces confidence in the promotion system, and encourages risk-averse behavior among officers whose careers depend more on relationships than performance. Over time, these practices will, if uncorrected, produce a leadership that is disconnected from battlefield competence and lacks the confidence of the people it is supposed to lead.

### PROCUREMENT CORRUPTION

Not surprisingly, corruption has also been found in procurement and contracting.[22] In 2023, nine generals were dismissed for corruption involving procurement. At the top of the list were two members of the CMC: Li Shangfu, who served as minister of defense, and Wei Fenghe, his immediate predecessor in that role. Li had previously served as head of the Equipment Develop-

ment Department and, before that, as the commander of China's Manned Space Program. He was charged with "severely polluting the political ecology in the military equipment sector" (严重污染军队装备领域政治生态).[23] Notably, he was accused not only of accepting bribes but also of offering them to obtain improper benefits. He was also charged with corruption in personnel appointments, a crime that appears to run through most cases.[24] The PLARF has been targeted the hardest, with all four of its past commanders, as well as a number of deputy commanders and political commissars, having been purged.[25] In some instances, these individuals were replaced by officers from other services, indicating a lack of confidence in PLARF officers across a much broader range of ranks.

The campaign against violations in procurement and contracting quickly expanded beyond the PLA itself. Senior executives from major state-owned defense industrial enterprises—including the China Aerospace Science and Technology Corporation, China Aerospace Science and Industry Corporation, and Aviation Industry Corporation of China—were investigated or subjected to intensive investigations by the party's Central Commission for Discipline Inspection, suggesting that Beijing viewed corruption as extending across the entire military procurement ecosystem rather than being confined to uniformed officers.[26]

Procurement corruption affects more than costs. Inferior equipment, delayed modernization, distorted procurement priorities, and weakened confidence in the reliability of military systems all reduce operational effectiveness. In a force attempting to conduct highly integrated joint operations, weaknesses in a single subsystem can propagate throughout the larger combat network.

### COMPROMISED TRAINING INTEGRITY

Training is another area in which fraud impinges on command relationships and the possibility of mission command. The reporting of fraudulent training results is common enough within the PLA that it goes by many labels, including fake training, fabrication, and false reporting. Terms for formalism in training, or training displays that do not reflect unit capabilities, are more numerous and include, among others, the evocative phrase "Bonsai-style training." More than 1,200 articles have been published in the *PLA Daily* on the topic of falsification of training since 2001, and more than 2,500 have been published on formalism in training.[27]

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The litany of specific cases is long and goes back many years, but a few examples are illustrative. A PLAAF SAM battery conspired with evaluators at a live-fire missile competition to use the "automatic tracking" mode rather than the stipulated "manual tracking" mode and won its competition. When discovered, the unit commander coordinated false reporting to cover his tracks.[28] In another example, leaders of a professional (full-time) "blue" (opposing) unit bemoaned the frequency of cheating by the "red" units that trained against them—often by disabling laser sensors on their equipment harnesses or by shadowing exercise referees and exploiting their ability to have obstacles removed for freedom of movement.[29] Apropos of formalism, and a preference for show over real capability, the evaluation of integrated command information systems was scored largely on graphics and font sizes instead of content, a phenomenon in which "formalism puts on the cloak of informatization."[30]

Unlike in the case of corruption in personnel appointments, where the top leadership was all but annihilated in the rectification campaign, it is difficult to assess how pervasive fraud and formalism are in Chinese military training. Such practices do exist in all militaries. Moreover, the introduction of new training support technologies, such as instrumented ranges, as well as the PLA's recent emphasis on unscripted exercises, almost certainly signals improvement. Nevertheless, the frequency with which pathologies in training practices continue to be reported suggests that the problems of fraudulent reporting and, especially, formalism are widespread. As discussed below, military leaders believe the problem sufficiently severe to increase disciplinary surveillance by party elements, a development that may improve training but also carries different sorts of pernicious effects.

Among all forms of corruption, compromised training may have the most immediate consequences for combat effectiveness. False reporting deprives senior leaders of accurate assessments of readiness, prevents organizational learning, and creates unrealistic assumptions about unit performance.

## XI'S SEARCH FOR CONTROL: RECTIFICATION AND ITS TRADE-OFFS

Xi's institutional changes to the military have been numerous and multifaceted. Many of the changes address long-standing obstacles to Chinese operational effectiveness and are treated elsewhere in this volume. This section focuses on a narrower set of adjustments related to the control of the Chinese military.

In addressing those changes, it is useful to consider Xi Jinping's overlapping priorities: reducing corruption, reinforcing party control, and ensuring the loyalty of the PLA brass to Xi personally. Xi's assault on the three areas of corruption outlined above has produced some synergies with his other priorities but also comes with costs and internal tensions between them. The following sections examine these trade-offs.

### *BREAKING UP THE GENERAL DEPARTMENTS AND SEPARATING OVERSIGHT*

Prior to the 2016 restructuring of the CMC, the four general departments—the General Staff Department, the General Political Department, the General Logistics Department, and the General Armaments Department—were powerful, self-contained fiefdoms that were difficult for even the CMC chairman to penetrate or manage. Xi's 2016 reforms broke the general departments into 16 independent elements. The oversight elements were separated out from and made independent of the parent organizations that they were supposed to monitor.

To address corruption in the procurement system, the General Logistics Department was broken into the Audit Office and the Logistics Support Department. Far more consequential was breaking the old General Political Department into three independent bodies: the Political Work Department, the Discipline Inspection Commission, and the Political and Legal Affairs Commission. Notably, the first two of these post-2016 organizations were designated as organizations at the theater command level—the highest designation possible—while the Political and Legal Affairs Commission was designated at the theater command deputy commander level.[31]

Like most organs of the CMC, all of these new organizations are replicated down to theater commands, group armies, and brigades. The Discipline Inspection Commission in particular is very much a party organ, and a powerful tool that Xi has wielded against high-ranking targets. As of October 2026, the only member of the CMC (other than Xi) who had survived the purges was General Zhang Shengmin, the head of the CMC Discipline Inspection Commission itself. However, high-level disciplinary investigation is not the only significance of the commission's new autonomy. It is first and foremost a party disciplinary organ, with members elected by the Party Congress at each level and serving under the dual leadership (双重领导) provided by the party committee at its own level and by the Discipline Inspection Commission belonging to the echelon above its own.

By separating oversight mechanisms from the organizations they are designed to supervise, Xi's reforms address the "fox guarding the henhouse" problem. But the changes have simultaneously created a far more powerful, pervasive, and vertically integrated supervisory system. The result is a significant increase in the number and authority of party actors capable of monitoring commanders and intervening in unit affairs. From the standpoint of combat effectiveness, this may improve organizational integrity, but it also reduces a commander's sphere of autonomous authority.

### *REINFORCING PARTY CADRE OVERSIGHT OVER THE MILITARY'S LEGAL SYSTEM*

Closely related to both anti-corruption and the issue of party control of the military is the question of how laws, party rules, and military regulations should be enforced. In this area, as in virtually all aspects of national and military activity, parallel state and party structures exist. Xi has sought to strengthen professional law enforcement within the military as well as political oversight of it. As in other areas, the increased scope of party oversight may reduce the predictability of legal enforcement and induce a more cautious attitude among operational commanders.

Starting with Deng Xiaoping and continuing under Jiang Zemin and Hu Jintao, the national leadership attempted to regularize governance,

including through the employment and enforcement of law. In 1997, the 15th Party Congress adopted the slogan of "governing the country according to law," a phrase that was then included under an amendment in the state constitution. The legal profession expanded as a National Judicial Examination standardized entry, and there was a huge increase in legislation that included contract, property, and corporate law. Within the military, too, the injunction to "govern the military according to law" saw the expansion of the military legal profession and courts.[32]

Within the PLA, the military procuratorial (军事检察院) organs serve similar functions to prosecutors and the Judge Advocate General's Corps in the U.S. system. They form part of China's broader state (not party) procuratorial system. However, the PLA's procuratorial system is only part of the PLA's legal system, which must necessarily fall under party oversight. Prior to 2016, oversight was provided by the Political-Legal Office of the General Political Department.

The Xi Jinping era has seen the continued expansion of the procuratorial system, but in contrast to the trend under Hu Jintao and Jiang Zemin, Xi's reforms have produced a distinct shift toward greater political oversight and guidance. Under the Fourth Plenum of the Party's 18th Central Committee in 2014, the party adopted a decision on "comprehensively advancing the rule of law," which appealed to "implement Party leadership throughout the entire process and every aspect of governing the country according to the law." Its bottom line was that "Socialist rule of law must uphold Party leadership."[33]

Materially, two major shifts followed from the 2016 military reforms. First, the military procuratorate system was reorganized into a more vertically managed judicial hierarchy under the CMC's new Political and Legal Affairs Commission (中央军委政治发委员会), weakening the influence previously exercised by military regional and service commanders. Notably, the Political and Legal Affairs Commission is a party organ—having been a lower-ranked constituent part of the General Political Department prior to 2016.[34] And second, a separate chain of disciplinary inspection organs, headed by the CMC's newly promoted Discipline Inspection Commission (中央军委纪律检查委员会), was strengthened and centralized to enforce party discipline, investigate corruption, and supervise political loyalty.

**As party oversight expands, commanders face greater uncertainty regarding which mistakes will be judged as professional errors and which may become political failings.**

Xi's reforms preserved and, in some respects, strengthened the military's legal institutions, but they also shifted the center of gravity toward party supervision. The change has not occurred entirely without criticism. One Chinese legal scholar, Ke Ben, has argued that the balance has moved too far toward party control and that future reforms should "formally affirm the procuratorate's status as a branch of state judicial power."[35] However, this advice is not likely to be adopted.

As party oversight expands, commanders face greater uncertainty regarding which mistakes will be judged as professional errors and which may become political failings. Such ambiguity naturally encourages consultation, centralized decisionmaking, and procedural compliance at the expense of rapid battlefield adaptation.

### *WE ARE HERE TO HELP YOU: PARTY INSPECTORS EVALUATE TRAINING*

The PLA's answer to corruption in training practices is invasive disciplinary inspection that almost invariably impinges on the leadership oversight of unit commanders. Party officers and organs within the military have always been heavily involved in post-training evaluation. Since the breakup of the General Political Department in 2016, it appears that both political officers and disciplinary inspection commissions have a hand in evaluating training at the unit level.

A new feature of discipline inspection organs since 2016 is that they fall under the dual leadership of the party committee at their own level and the discipline commission of the higher echelon. In the case of sensitive issues (e.g., those that involve the rectitude of commanders),

teams will be dispatched from higher echelons. Also, formal organs exist only down to the brigade level; below that, inspections are carried out by grassroots teams supervised by the brigade's Discipline Inspection Commission (which likely numbers roughly 10 individuals).[36]

A 2026 article about training evaluation in a PLAAF brigade (the equivalent of a U.S. Air Force squadron-sized unit) suggests that the brigade's Discipline Inspection Commission has a regular and leading role in evaluating training at the brigade and battalion level. Moreover, the office's evaluation is not restricted to corrupt practices but includes areas that could be considered training efficacy and unit effectiveness.

The 2026 article was intended to be a guide to practices in training inspection. It begins with an acknowledgment that the unit's discipline inspection cadre were not, at the outset, capable of evaluating training. One of the cadre notes, "At the time, although I followed ground crews around every day, watching mechanics adjust equipment and observed ordnance personnel loading missiles, I still did not understand basic concepts." Faced with this problem, the party committee instructed that the "discipline commission secretary would lead a special working group composed of representatives from the discipline inspection, training, ground support, and flight operations departments" to create an inspection guidebook.[37]

What sorts of issues were these party discipline inspectors flagging? According to the eager cadre member cited in the article, "personnel responsible for information support left their front-end duty stations while adjusting data systems in the background, resulting in delays in acknowledging command messages from higher headquarters," an issue that they "immediately documented and then added to a new checklist item" concerning command delays.[38] For a party body charged with ensuring party discipline and combating fraud, this sort of invasive practice surely represents mission creep—enabled by Xi's emphasis on party dominance.

But mission creep does not apparently end with training evaluation. In the 2026 case discussed above, another finding by the unit's discipline inspection commission was that effective monitoring of training practices requires participation in training planning. How those on the operational side of the house view this growing involvement of discipline inspectors can be imagined from the reported comment of one staff sergeant, who asked, "You are attending the operational planning meeting too?"[39]

Unlike corruption investigations, which occur only occasionally, training is the routine business of military organizations. Once discipline inspectors become regular participants in planning meetings, evaluations, and flight-line activities, party supervision moves from episodic oversight to continuous involvement in operational affairs. The distinction between monitoring commanders and participating in command becomes increasingly blurred, and the pattern erodes just the sort of trust and autonomy that mission command requires.



**Two potential rivals to Xi Jinping, Bo Xilai (left) and Sun Zhengcai (right), succumbed to purges of party leadership in 2012 and 2017, respectively.**

PHOTOS: FENG LI/GETTY IMAGES AND LINTAO ZHANG/GETTY IMAGES.

### XI'S ARMY: THE QUEST FOR PERSONAL CONTROL

Still another priority behind Xi's initiatives with regard to PLA organization and operations is his apparent desire for personal control over the military. In one sense, Xi's efforts to buttress party control may serve to strengthen his own personal position with regard to the military, since he sits atop the party hierarchy. However, the party also has various traditions that can work against the general secretary if and when the stars align. The struggle for power at the top of the party is endemic, even if it has varied in intensity and stakes over time, and Xi's personal ambitions appear greater than those of any Chinese leader since Mao Zedong.

Xi has jettisoned the normative limit established by Deng Xiaoping for a maximum of two terms for the position of party general secretary (and the constitutionally mandated two-term limit for state president). He has purged natural rivals, including Bo Xilai (2012), the charismatic party secretary of Chongqing, and, five years later, Sun Zhengcai (2017), the youngest member of the 18th Politburo and an often-discussed potential successor. To prevent the emergence of future rivals, Xi has taken personal control of economic policy, an area traditionally directed by the premier.[40] Under Xi, discussion of a "collective leadership" at the top of the party, the formulation generally applied to Hu Jintao's tenure, has given way to a description of "Comrade Xi Jinping as the core of the Party Central Committee and the whole Party."[41]

Within the military, Xi has also increased the rotation of officers among units and assignments. Frequent rotation can disrupt entrenched personal networks, reducing opportunities for corruption while also making it more difficult for senior officers to develop independent power bases. But the same mechanism creates a potential operational trade-off: Frequent rotation limits the time officers serve together and can therefore inhibit the development of familiarity, cohesion, and trust within units and staffs.[42]

Centralization of authority has taken the form of Xi's assertion and redefinition of the "chairman responsibility system" (军委主席负责制), which gives ultimate authority within the CMC to the chairman. The chairman responsibility system was first written into the 1982 constitution under Deng Xiaoping as a way to combat the factionalism that, in the wake of the Cultural Revolution, posed a real threat to reform. However, Deng reportedly exercised a relatively collegial style of leadership within the CMC. And the term "chairman responsibility system" was almost never employed within the Chinese media. Under Jiang Zemin and Hu Jintao, it was never employed to suggest anything resembling full control over the military.

Xi's employment of the chairman responsibility system has been entirely different. The system has been invoked far more frequently—appearing in the pages of the *PLA Daily* an average of 331 times a year between 2012 and 2025 (versus an average of less than once a year prior to 2012). Xi has also employed the term as a tool of personal control and used it in conjunction with other ideas that emphasize his personal authority, such as the "two establishes" (两个确立), affirming Xi Jinping's role as the core of the party and establishing Xi's thought on socialism as guiding thought.

One 2021 article on the chairman responsibility system is quite clear on the connection between Xi, the person, and the authority vested in the larger system: "Entering the New Era, 'obey Chairman Xi's command, be responsible to Chairman Xi, and reassure Chairman Xi' has become the PLA's loudest pledge and its firmest guide to action." The same article describes the chairman responsibility system as "the fundamental institution—and the fundamental mechanism—for realizing the Party's absolute leadership over the armed forces," despite the recent origins of the system and the much more recent history of its emphasis in ideological and political writing on military affairs.[43]

Xi has invoked violations of the chairman responsibility system in his purge of senior military leaders. At least 13 senior generals have been cited as having "hollowed out the chairman responsibility system," "seriously destroyed the chairman responsibility system," or "seriously trampled upon and undermined the chairman responsibility system" (see Table 3.1).[44] The investigations and trials of these senior officers have been opaque. It is unclear if any of the officers listed have been formally charged with violations of the chairman responsibility system (or disobedience), and in all of these cases, other charges have been listed. For example, Chinese sources said Xu Caihou "took advantage of his official position to assist others in obtaining promotions, sought benefits for others, and accepted bribes both directly and through members of his family."[45]

Table 3.1

## Generals Cited as Having Undermined the Chairman Responsibility System

| NAME | DATE (PUBLIC REPORTS) | POSITION AT TIME OF PURGE | CHAIRMAN RESPONSIBILITY SYSTEM (CRS) CHARGE | SOURCE |
|---|---|---|---|---|
| **Xu Caihou** (徐才厚) | June 2014 | Retired, formerly CMC Vice Chair | Hollowed out the CRS (1) | (a) |
| **Guo Boxiong** (郭伯雄) | July 2015 | Retired, formerly CMC Vice Chair | Hollowed out the CRS (1) | (a) |
| **Miao Hua** (描花) | November 2024 | Director, CMC Political Work Dept | Seriously destroying the CRS (2) | (b) |
| **He Weidong** (何卫东) | October 2025 | CMC Vice Chair | Seriously destroying the CRS (2) | (b) |
| **He Hongjun** (何宏军) | October 2025 | Deputy Director, CMC Political Work Dept | Seriously destroying the CRS (2) | (b) |
| **Wang Xiubin** (王秀斌) | October 2025 | Southern Theater Commander | Seriously destroying the CRS (2) | (b) |
| **Lin Xiangyang** (林向阳) | October 2025 | Eastern Theater Commander | Seriously destroying the CRS (2) | (b) |
| **Qin Shutong** (秦树桐) | October 2025 | PLA Army Political Commissar | Seriously destroying the CRS (2) | (b) |
| **Yuan Huazhi** (袁华智) | October 2025 | PLA Navy Political Commissar | Seriously destroying the CRS (2) | (b) |
| **Wang Houbin** (王厚斌) | October 2025 | Rocket Force Commander | Seriously destroying the CRS (2) | (b) |
| **Wang Chunning** (王春宁) | October 2025 | PAP Commander | Seriously destroying the CRS (2) | (b) |
| Zhang Youxia (张又侠) | January 2026 | CMC Vice Chair | Seriously trampled upon and undermined the CRS (3) | (c) |
| **Liu Zhenli** (刘振立) | January 2026 | Chief, CMC Joint Staff Department | Seriously trampled upon and undermined the CRS (3) | (c) |

NOTE: ORIGINAL DESCRIPTIONS OF CRS VIOLATIONS: (1) HOLLOWED OUT THE CRS: 虚化军委主席负责制; (2) SERIOUSLY DESTROYING THE CRS: 严重破坏…军委主席负责制; (3) SERIOUSLY TRAMPLED UPON AND UNDERMINED THE CRS: 严重践踏破坏军委主席负责制.

SOURCE: (A) "党指挥枪的制度"龙头"——怎么看全面深入贯彻军委主席负责制" (THE INSTITUTIONAL 'KEYSTONE' OF THE PARTY'S COMMAND OF THE GUN: HOW TO UNDERSTAND THE COMPREHENSIVE AND THOROUGH IMPLEMENTATION OF THE CHAIRMAN RESPONSIBILITY SYSTEM), 解放军报 (PLA DAILY), OCTOBER 15, 2021; (B) "坚定不移把军队反腐败斗争进行到底" (RESOLUTELY CARRY THE MILITARY'S FIGHT AGAINST CORRUPTION THROUGH TO THE END), 解放军报 (PLA DAILY), OCTOBER 18, 2025; AND (C) "坚决打赢军队反腐败斗争攻坚战持久战总体战" (RESOLUTELY PREVAIL IN THE MILITARY'S ANTI-CORRUPTION STRUGGLE AS AN ASSAULT CAMPAIGN, A PROTRACTED CAMPAIGN, AND AN OVERALL CAMPAIGN), 解放军报 (PLA DAILY), JANUARY 24, 2026.

On the other hand, violations of the chairman responsibility system have not been universally applied, and when applied, the language employed implies various degrees of damage to the system, leaving open the question of its meaning.[46]

Former Central Party School newspaper editor Deng Yuwen, now an overseas political commentator, offers perhaps the clearest argument about how Xi Jinping's quest for personal control and his invocation of the chairman responsibility system are tied to his thoroughgoing attack on senior political leaders. As Deng Yuwen observed, the chairmanship system is an elegant mechanism for personal control but contains a fatal contradiction, since Xi has neither the knowledge nor bandwidth to exercise detailed control. He must, therefore, rely on trusted subordinates who will develop networks of their own as they exercise practical or detailed authority and thus become a secondary or alternative power structure within the military.[47]

Under Xi, the discussion of "factionalism" and the need to combat it has grown severalfold in Chinese military media.[48] A 2024 *PLA Daily* article warns, "The Party must never engage in the feudal practices of personal dependence; it must never engage in the practices of creating small strongholds, small circles, or small cliques; and it must never engage in the practices of cultivating retainers, patron-client relationships, or personal followings."[49] Sometimes the connection between corruption and factionalism is explicit: "Many of the cases investigated since the 18th Party Congress reveal that . . . some corrupt officials became entangled with one another through murky relationships, forming cliques, engaging in factional activity for private interests, and building patronage factions."[50]

After the purge of Zhang Youxia and Liu Zhenli, official commentary accused the two of many crimes:

> They seriously violated political discipline and political rules, formed cliques and factions, and were disloyal and dishonest toward the Party. They seriously violated organizational discipline by using the convenience of their positions to assist others in matters including promotions and appointments and accepted enormous sums of money. They seriously violated integrity discipline by improperly accepting gifts and monetary payments.[51]

Deng Yuwen concludes his essay on Xi's purges by summarizing a vicious circle that ultimately undermines military capability:

> The more the chairman centralizes, the more he depends on proxies; the more he depends on them, the more he fears them; the more he fears them, the more he purges them; and the more he purges them, the harder it becomes to find proxies who are capable, willing to take responsibility, yet absolutely safe. Military and political security may look tighter under ferocious purges, but it may also become more fragile as truthful information and real capabilities drain away.

This circle of dependency and destruction leads, ultimately, to the paralysis and atomization of senior command when the necessity of having relationships collides with the danger of having those relationships defined as "factionalism."[52]

**Every senior officer purged has a patronage network that will be investigated and potentially rectified.**

Whether or not Xi's diagnosis of factionalism is correct, the scale and ferocity of his attack on it have implications. The most obvious is disruption and churn. Every senior officer purged has a patronage network that will be investigated and potentially rectified. At a minimum, the network of relationships—and the legitimate activities that they are responsible for—will be shorn of its core and destabilized. In principle, rectification may make room for younger and better-educated officers to be promoted. But the indirect effects on behavior may carry the most important implications. The work environment produced by rectification is likely to encourage caution among senior commanders. Officers whose careers depend heavily upon demonstrating political loyalty rather than operational success have powerful incentives to avoid independent judgment, conceal problems, and seek guidance from above. These tendencies run counter to the decentralized decisionmaking required for complex joint campaigns.

## IMPLICATIONS FOR MILITARY EFFECTIVENESS

Corruption and party control will not render the PLA incapable of fighting. The most consequential effects will instead be on force employment. They will make it harder for the PLA to develop and exercise the decentralized command, common professional competence, and trust necessary to conduct fast, flexible, combined, and joint operations. The result is likely to be a force that is considerably more effective when executing well-prepared operations than when responding to unexpected battlefield developments. The deficits in this system may prove particularly problematic when facing adversaries with more flexible systems of command or when undertaking particularly complex operations, such as amphibious operations. Viewed in this light, an amphibious invasion of Taiwan against U.S. opposition would present daunting challenges.

### BEST PRACTICES FOR MODERNCOMBINED ARMS

The ability to conduct combined and joint operations flexibly, at speed, and continuously to achieve important unified objectives defines military effectiveness in the modern era.[53] On the modern battlefield, each arm and weapon enjoys comparative advantages against others, and the ability to bring particular capabilities or combinations of capabilities against vulnerable targets characterizes such operations.[54] Combined arms warfare represents an asynchronous variant of "rock-paper-scissors" in which intelligence, communications, and decision speed determine whether one side or the other enjoys systematic advantages.

Executing combined arms warfare, and orienting it toward unified ends, requires coordination. As Eitan Shamir has observed, coordination can be achieved in a variety of ways. Perhaps the most obvious of these is through tightly centralized control and meticulous scripting of operations, or what Shamir calls "direct supervision."[55] But while coordination can be achieved by tight top-down coordination, it can only be maintained continuously on a rapidly evolving battlefield by delegating authority to subordinate commanders and empowering them to act within the context of a higher commander's intent.

Although this style of command is associated with and often called *Auftragstaktik*, or "mission command," the decentralized approach to execution has evolved in fits and starts since the early nineteenth century and can involve degrees of delegation.[56] Although the ingredients of effective modern force employment are relatively simple, they are not easy to achieve. They require a high degree of competence, commonly understood doctrine and training, and trust between subordinates and higher commanders—all things that are acquired through intensive and realistic training, sound doctrine, and wargaming.[57] Shamir refers to this as coordination through the "standardization of skills."[58]

### INSTITUTIONAL CONSTRAINTS ON DECENTRALIZED EXECUTION

As noted in the chapter on PLA jointness, Chinese military leaders have long understood the need for combined arms and joint warfare and have sought to push joint operations to progressively lower echelons. Chinese military thinkers also recognize that modern warfare places a premium on speed. As one recent article put it, "Victory in modern warfare increasingly depends on achieving a tempo advantage over the enemy through agile combat deployment."[59] Chinese discussions of shortening the PLA's OODA loop have become increasingly common, while PLA writers have also shown growing interest in mission command. The problem, therefore, is not principally one of doctrinal recognition. Rather, several institutional characteristics examined in this chapter are likely to make the prerequisites for decentralized execution—professional competence, common skills and practices, and trust—particularly difficult to develop and sustain.

Corruption has perhaps its most direct effect on the first two of these requirements. The sale of appointments and promotions necessarily weakens the relationship between advancement and professional competence. Even if only a minority of positions are literally purchased, a promotion system widely perceived as corrupt creates uncertainty about whether officers have reached their positions because of demonstrated ability. Corruption and other dysfunctional practices in training compound the problem. Effective decentralized operations require that officers and units share sufficiently common doctrine, training, and professional standards. Yet the "bonsai" exercises described earlier in this chapter—exercises trimmed and shaped to produce favorable results for visiting superiors—work directly against this process. Units that script exercises conceal deficiencies. Higher commanders' information about subordinate capabilities will be less reliable, while subordinates receive less practice responding to unexpected situations. The result is precisely the opposite of Shamir's "standardization of skills."

**The frequency of corruption allegations in procurement might have a particularly direct impact on the quality and reliability of sophisticated weapons.**

Corruption can affect military performance through channels beyond those emphasized here. Recent research identifies effects such as

reduced quantity and quality of military materiel, uncertainty about actual unit capabilities, and problems related to discipline, morale, and social trust.[60] The frequency of corruption allegations in procurement might have a particularly direct impact on the quality and reliability of sophisticated weapons. The severity of these effects should vary with the extent and character of corruption, however, and there is little reason to expect the PLA to exhibit the extreme pathologies found in severely corrupt forces such as the Russian Army.[61]

In the Chinese military, party control mechanisms pose a difficult and potentially more enduring obstacle to decentralized execution.[62] Party committees and branches extend down to the platoon level, political officers to the company level, and discipline inspection commissions to the brigade level, with inspection teams reaching still lower. These institutions serve different functions and should not simply be treated as interchangeable checks on commanders. Collectively, however, they create overlapping channels through which commanders remain accountable not simply to operational superiors but to the party organization embedded throughout the force.

Political officers possess authority formally equivalent to that of operational commanders at corresponding levels. In practice, functional specialization means that every tactical decision need not be jointly made, and the system therefore should not be understood as requiring two-person approval for every battlefield action. Its effects are likely to be subtler. An operational commander works in an institutional environment in which another officer of equivalent formal authority bears explicit responsibility for political reliability and also has significant authority over issues that are closely related to operational decisions, such as the impact of those decisions on personnel welfare. Such a system creates incentives for consultation, conformity, and caution, particularly when circumstances require actions that depart substantially from established plans or instructions.

Mission command depends in part on a subordinate's confidence that reasonable actions taken in pursuit of a commander's intent will be supported even if they produce an unfavorable result. An officer who expects unusual decisions to receive scrutiny from multiple institutional channels has greater reason to remain within understood boundaries. Conversely, senior commanders operating within such a system, and also subject to the oversight of political officers and committees at their own level, have less reason to surrender control completely to subordinates. The issue is consequently not simply whether party organizations formally "veto" operational decisions, but whether the structure encourages the habitual exercise of discretion on which decentralized command depends.

Nor is the system of party control, which has survived nearly a century of PLA history, likely to change fundamentally in the foreseeable future. The Tiananmen experience reinforced concerns about the political reliability of the armed forces. Xi Jinping has repeatedly invoked the collapse of the Soviet Union as a warning of what can happen when ideological commitment and party institutions weaken.[63] Under Xi, discipline inspection and political education have been strengthened rather than relaxed, and he has described obedience to the party as the "foremost requirement of military development."[64] Existing regulations already require military units to devote roughly 20–30 percent of training time to political education, and newly established training requirements for political officers may increase compliance with these standards.[65] From the party's perspective, whatever operational costs these institutions impose are the price of political insurance.

### COORDINATION THROUGH CENTRAL CONTROL

The cumulative effect is therefore less likely to be simple paralysis than a bias in the way the PLA coordinates military operations. Where competence is uneven, common skills uncertain, and delegation institutionally risky, centralized planning and control represent a better alternative. Historically, militaries for which the "best practice" of mission command has simply produced chaotic and uncoordinated results tend to fall back on the second-best practice of centralized control. Kenneth Pollack observes that, after attempts to introduce more fluid operational designs resulted in battlefield failures, Iraqi forces launched a series of offensives in 1988 that relied on "detailed scripting by the General Staff" to regain the al-Faw Peninsula. Combined arms actions were written into the plan. However, Pollack adds, "whenever Iraqi tactical units were caught off guard by Iranian ambush, counterattack, or unexpected defensive position, this cooperation disintegrated, leading to heavy losses."[66]

**The PLA has a historical legacy of top-down coordination that may predispose it to adopt the route of centralization and tight scripting, especially in the face of obstacles to the more flexible alternative.**

In China's case, because party leaders will never compromise on the mechanisms of party control, centralized control will be a particularly attractive option. PLA leaders also appear to believe that modern communications, surveillance, and information-processing technologies can speed decision cycles and mitigate command problems. Moreover, the PLA has a historical legacy of top-down coordination that may predispose it to adopt the route of centralization and tight scripting, especially in the face of obstacles to the more flexible alternative. Typical of Chinese doctrinal writings, the 2006 *Science of Campaigns* stipulates that "full preparation" is the first of nine principles listed in the section on general principles for all campaign types. Commanders and staffs are told to "thoroughly and precisely formulate the campaign plan, conceive a variety of courses of action, and conduct in advance the multitude of preparations."[67] This is consistent with Lin Biao's injunction on "four quick and one thorough" (or, more literally, "one slow"), which insists upon thorough preparation prior to launching a general assault.[68]

The PLA's institutional characteristics and history suggest that the PLA may be most comfortable conducting prepared operations in which centralized planning establishes the framework for execution, while subordinate initiative remains bounded. Future actions will likely mirror the campaigns fought by China since 1950. Historically, Chinese forces have repeatedly demonstrated a propensity to prepare intensely, strike rapidly, pause, reorganize, and strike again. They have shown less consistent ability to sustain fluid, continuously adaptive offensive operations. Typically, each pulse or campaign has lasted roughly one to two weeks, followed by operational pauses to adjust and recalibrate.

Under ideal circumstances, tight scripting of "pulsed" campaigns can produce strategic outcomes, as they did against India in 1962 and against UN forces during the Second Phase Campaign in November and December 1950. Even under less propitious, but still advantageous, circumstances, such operations may produce predictable and steady territorial gain and attrition against an adversary, as they arguably did—at great cost—against UN forces during the Korean War's Third and Fourth Phase Campaigns.[69] But this style of warfare limits the ability of the practitioner to capitalize on unexpected success or adjust in real time to setbacks, especially if the adversary fails to behave as predicted or, worse still, moves to counterattack or otherwise seize the initiative. The Chinese Fifth Phase Offensive during the Korean War—which ran from April 22 to June 10, 1951, and was designed to retake Seoul and drive UN forces far beyond the 38th parallel—is a case in point. General Ridgway's stubborn defense, followed by a counterattack after the Chinese offensive had reached culmination, threw Chinese forces back to positions farther north than when they started and inflicted heavy casualties.[70] China's war against Vietnam in 1979 offers even more vivid illustrations, though with the Cultural Revolution having recently gutted training regimes, failure was overdetermined in that case.

An amphibious invasion of Taiwan would pose special challenges for China's tightly scripted way of war. Historical cases of amphibious operations, such as the Normandy (Omaha Beach) and Anzio landings, show that amphibious operations almost never go according to plan, and success in gaining a beachhead is often determined by junior officers seizing the initiative and designing solutions to unexpected problems. Perhaps more importantly, historical cases also demonstrate that gaining a beachhead may be a lesser problem than moving from the beachhead to deeper operational objectives.[71] Central to success is the ability to transition from one type of operation to another quickly and seamlessly, a lesson reflected in the U.S. Marine Corps' concepts of Operational Maneuver From the Sea and Ship-to-Objective Maneuver, which seek to eliminate the traditional operational pause between the amphibious landing and maneuver toward objectives ashore.[72]

Because military effectiveness is relative and will fall somewhere on a continuum, one might compare the institutional obstacles to performance discussed in this chapter to those found in other countries. Strengths must be acknowledged. Relative to the militaries of most developing states, the Chinese military enjoys a literate base of enlisted recruits—most of whom are effectively volunteers—as well as a well-educated officer class.[73] And while there is corruption in the PLA, there are no indications that Chinese units are bereft of basic necessities as were China's nationalist armies of the 1930s and 1940s. Indeed, much of what we know about corruption within the PLA is due only to the Xi Jinping's actions.

**Both corruption and the mechanisms of party control will prevent the PLA from becoming the sort of dynamic world-beating force that it wants to become.**

In combat with Taiwan's understrength units, it is entirely possible that the PLA would perform comparatively well. There is no indication that Taiwanese units are any better equipped or trained to fight rapid or flexible combined arms battles than those of the PLA. Taiwan's conscript soldiers serve only half as long as those of China. Its units are severely understrength, and its reserves seldom engage in meaningful tactical training. However, this potential qualitative advantage must be weighed against the disadvantages of fighting an amphibious operation across a significant body of water. Moreover, in contrast to potential military effectiveness advantages against Taiwan, the PLA is unlikely to perform as well against U.S. forces, which are well equipped in terms of personnel quality, training, doctrine, and practice to operate flexibly and at a high tempo of operations. Indeed, although the U.S. military is surely the "world-class" standard mentioned by Xi Jinping as the target for the PLA by 2049, the obstacles outlined in this chapter will likely prevent it from fully meeting that definition.

Both corruption and the mechanisms of party control will prevent the PLA from becoming the sort of dynamic world-beating force that it wants to become. The institutional weaknesses described in this chapter do not imply that the PLA will be uniformly ineffective in combat. Rather, they suggest a force whose effectiveness may decline disproportionately as battlefield conditions diverge from those anticipated in its plans and rehearsals.



# THE MARITIME DOMAIN



Chinese aircraft carrier Liaoning carry out a regular real-combat training in the high seas in late October 2024.

▶ Pu Haiyang/Xinhua via Getty Images

# 四

## The PLAN has substantial capabilities in the maritime domain.

After more than a decade of intensive modernization, the PLAN has a large and highly capable navy with such ships as the Type 055 Renhai-class cruiser, Type 003 *Fujian* aircraft carrier, a growing number of nuclear-powered submarines (such as Type 095 and Type 096 next-generation platforms), and unmanned and autonomous vehicles. The PLA is also developing capabilities to improve the PLAN's ability to conduct far seas operations and become a veritable blue water navy.[1]

In addition, China has a massive military and commercial shipbuilding capacity, thanks in part to military-civil fusion and an effort to combine the commercial and defense shipbuilding efforts.[2] As Xi Jinping remarked in 2018, "the task of building a powerful navy has never been as urgent as it is today."[3] Like other services, the PLAN is also increasingly using advanced technology, such as AI and AI-enabled technology, for such functions as surface warfare, strike warfare, and maritime air and missile defense.[4]

The data on shipbuilding itself should be understood in context. Shipbuilding is a labor-intensive industry with relatively low margins compared to industries in sectors such as electronics, semiconductors, and software. The distinction—and the comparative advantages of different parts of China's commercial and defense industries—is evident in export figures. China accounts for 11 percent of global warship exports, while the United States accounts for 4 percent. However, the United States accounts for larger shares of naval weapons (50 percent versus 1 percent), sensors (31 percent versus 3 percent), engines (22 percent versus 0 percent), and missiles (50 percent versus 6 percent).[5] While military exports are influenced as much by politics as by cost-effectiveness, the distinction between the types of military exports is instructive. Many of China's naval sales often see the fitting of third-party equipment to Chinese hulls.[6]

Still, China's maritime capabilities do not directly translate into battlefield effectiveness. To better understand PLAN effectiveness at the operational level of war, this chapter examines several functional areas:

- **Submarine and Anti-Submarine Warfare:** Detect and neutralize enemy submarines and unmanned underwater vehicles.
- **Strike and Surface Warfare:** Attack enemy surface and land targets from the sea.
- **Amphibious Warfare:** Project power ashore by landing troops and equipment to seize or control terrain.

- **Maritime Air and Missile Defense:** Defend against aircraft, missile, and drone threats.
- **Mine and Anti-Mine Warfare:** Deploy sea mines, as well as detect and clear mines to ensure open waterways.
- **Information and Electronic Warfare:** Conduct information and electronic warfare.
- **Maritime Domain Awareness:** Detect, track, and identify enemy surface vessels, subsurface vessels, and aircraft in the maritime domain.

The chapter concludes that the PLAN is working to improve its warfighting capabilities in these seven areas through a combination of technology, training, exercises, wargames, and deployments in the Indo-Pacific, Middle East, Africa, and other locations.[7] In addition, the PLAN has closely studied the U.S. Navy, including its capabilities, battlefield effectiveness, and historical strategic thinkers, such as Alfred Thayer Mahan, as well as examined lessons from other navies and modern wars.[8] The PLAN likely has several operational competencies in wartime, such as information and electronic warfare, maritime domain awareness, and elements of strike and surface warfare.

Nevertheless, this chapter concludes that the PLAN likely has operational weaknesses in such areas as submarine and anti-submarine warfare, amphibious warfare, integrated air and missile defense, and mine and anti-mine warfare. Several cross-domain areas—such as joint operations and the impact of corruption—are examined in more detail in Chapters 2 and 3. The CCP remains preeminent to all the services, including the navy; as one Chinese article concludes: "The People's Navy is loyal to the Party, and its ships will sail thousands of miles without losing their way. From its inception, the People's Navy clearly stated that 'the primary task of political work in the Navy is to ensure the leadership of the Party within the Navy.'"[9] Finally, the PLAN likely has weaknesses in other areas, such as maritime combat search and rescue, which could impact recovering personnel in wartime.

The rest of this chapter is divided into the seven functional areas listed above.

## SUBMARINE AND ANTI-SUBMARINE WARFARE

Undersea warfare is a core aspect of Chinese naval strategy to enable both defensive operations (such as near seas control and protection of ballistic missile submarines) and offensive operations (such as strikes and the interdiction of sea lanes).[10] Within the first island chain, undersea warfare is critical to achieving the PLAN's aim of achieving sea control during wartime. Beyond the first island chain, effective undersea operations are necessary to deter and, if necessary, fight Chinese adversaries, especially the United States.

To catch up to the United States in the areas of submarine warfare and anti-submarine warfare (ASW), China has increased efforts to produce more nuclear-powered submarines, such as the Type 041 Zhou-class attack submarine, Type 093 Shang-class attack submarine, Type 094 Jin-class ballistic missile submarine, Type 095 guided-missile submarine, and Type 096 ballistic missile submarine.[11] The newer submarines, including the Type 095 and Type 096 submarines, have improved in such areas as sensors, propulsion, quieting, and advanced weapons systems, including pump-jet propulsors, long-range precision strike capability, and more advanced reactors.[12] The PLAN has significantly increased submarine production at three main shipyards in China: Bohai Shipbuilding Heavy Industry Company in Huludao, Wuchang Shipyard in Wuhan, and Jiangnan Shipyard in Shanghai. U.S. Navy assessments conclude that the PLAN submarine force could grow to 70 submarines by 2027 and 80 by 2035—with roughly half nuclear powered by 2035.[13]

In addition, China has made progress in ASW, though the PLAN is far behind its partner, the Russian Navy. New PLAN frigates, destroyers, and cruisers are equipped with towed-array sonar, variable-depth sonars, and quieter electric propulsion that earlier vessels lacked. In addition, the PLAN has developed rotary- and fixed-wing ASW aircraft equipped with optical infrared sensors, seabed sensor arrays, and other capabilities. China has also deployed a growing number of fixed-wing ASW aircraft, such as the Y-9 aircraft, and Z-9, Ka-28, Z-18, and Z-20 helicopters.[14] The PLAN is developing future surface ships, such as destroyers, with more sophisticated sonar systems, towed sonar array, anti-submarine helicopters, and

long-duration unmanned systems capable of monitoring the air, surface, and subsurface.[15] Finally, the PLAN has expanded its efforts to conduct deep-sea mapping and place sensors in the Pacific, Indian, and even Arctic Oceans, including the use of such ships as the Dong Fang Hong 3.[16]

Nevertheless, the PLAN still has operational weaknesses in submarine and anti-submarine warfare, and Chinese sources have been candid about shortfalls.[17] The following weaknesses could impact battlefield effectiveness in wartime.

First, China's lack of overseas bases limits the PLAN from stationing fixed-wing patrol aircraft in distant theaters, forcing it to rely on onboard sensors and helicopters for ASW in far seas. China's only major support bases abroad are in Cambodia and Djibouti. Consequently, the PLAN is likely to be more capable at conducting ASW within the first island chain in a war than outside of it because of China's lack of power projection. This may be less of a problem inside the first island chain—and particularly around waters close to the Chinese mainland. But it would become a more serious problem if a conflict occurred elsewhere or expanded horizontally to the second island chain and beyond.[18]

Second, the PLAN is still relatively weak in bathymetry and broader oceanographic and meteorological intelligence and analysis, though the PLAN is improving and PLA ships have been increasingly involved in mapping the ocean floor across the Pacific.[19] The PLAN has used the Type 636 hydrographic survey ship, or Shupang class, for naval and oceanographic research—including conducting oceanographic, bathymetric, and hydrographic surveys. Yet the PLAN has not yet fully taken advantage of ocean currents and broader oceanographic information, making Chinese submarines easier to track.[20] In modern navies, the oceanography community maps and monitors the ocean with oceanographic survey ships, underwater drones, satellites, and a global network of fixed and drifting sensors on the seabed, sea surface, and within the water column. Oceanographic surveys are important because the bathymetric and sedimentary features of the seafloor, as well as dynamic changes in the distribution of seawater properties over time, affect the performance of the undersea acoustic and optical sensors used to detect and target an adversary's ships. Such ocean intelligence is an essential enabler in ASW.[21]

**Personnel weaknesses could increase performance errors during wartime.**

Third, the PLAN submarine force faces some personnel challenges, including the recruitment, training, and proficiency of submarine crews.[22] PLAN submarine officers are selected from applicants with among the lowest college entrance examination scores of any PLA education institution.[23] As one study concludes, "the PLAN submarine force appears inherently more susceptible to error-likely events due to 'individual capabilities' error precursors since it appears that the submarine force draws its leaders from some of the worst-performing officer cadets."[24] These challenges would likely impact PLAN operations during wartime. During the Cold War, for example, the relatively low skill level of some Soviet recruits negatively impacted equipment maintenance.[25] The PLAN also faces serious recruitment limitations, which could reflect undesirable submarine conditions and limited transferability of skills upon discharge or retirement. These personnel weaknesses could increase performance errors during wartime.[26]

Fourth, Chinese submarines are still vulnerable to detection because of U.S. layered surveillance that can integrate multiple, overlapping sensor technologies across surface, subsurface, and aerial domains.[27] Overall, China's technological progress in submarine construction has likely been uneven, with weaknesses still in propulsion and quieting.[28] China has tried to exploit its partnership with Russia to obtain more access to cutting-edge submarine technologies.[29]

## STRIKE AND SURFACE WARFARE

Strike warfare involves targeting enemy land targets from the sea using aircraft, missiles, unmanned systems, and other platforms. Surface warfare involves the use of aircraft, missiles, and unmanned systems to attack surface

ships—what the PLA sometimes refers to as "sea mobile operations" or "maritime maneuver operations" (海上机动作业).[30] The PLAN has likely improved its ability to conduct strike and surface warfare. Such surface platforms as the Type 055 Renhai-class cruisers are equipped with YJ-21 and YJ-20 hypersonic anti-ship ballistic missiles in their vertical launch system cells, and they are capable of long-range strikes against maritime and land targets.[31] In addition, the PLAN has increasingly used AI to link data from satellites, unmanned platforms, and radars to provide targeting for missiles.[32]



**China's Type 055 guided-missile destroyer *Nanchang* sails during the naval exercise Joint Sea-2021 in the Western part of the Pacific Ocean.**

PHOTO: SUN ZIFA/CHINA NEWS SERVICE VIA GETTY IMAGES.

But the PLAN would likely face challenges in some areas, such as with aircraft carriers and carrier strike groups.[33] Except for the Type 003 *Fujian*, the PLAN does not have advanced carriers. The *Fujian*, like the *Liaoning* and *Shandong*, is conventionally powered (not nuclear powered) with traditional steam turbines and diesel generators, which limits its operational endurance for far seas operations and requires a massive logistics tail that could be vulnerable to attack. While the *Fujian* will enhance China's carrier aviation capabilities, it will likely take several years for the PLAN to develop carrier strike groups able to conduct offensive operations in far seas areas.[34] In addition, multiple operators report that the performance and effectiveness of PLAN pilots—including those flying off of aircraft carriers—decrease in poor weather, at night, and when U.S. forces "go dark" and shut down shipboard systems that emit signals such as radar, radio, and satellite communications.[35] Finally, PLAN aircraft carriers continue to struggle with carrier-capable tactical airborne early warning (AEW) and carrier-based aviation. The PLAN's ability to conduct dynamic targeting against surface vessels is still limited compared to navies of some great powers, such as the United States, though it is likely to improve with such technology as AI and additional experience.[36]

The PLAN—and the PLA more broadly—also faces logistical challenges, especially for far seas operations. PLAN ships have a limited ability to replenish at sea, including to secure additional fuel, medical supplies, fresh water, spare parts, munitions, and other matériel.[37] Logistical challenges may be particularly significant for some types of PLAN ships, such as destroyers, which require substantial maintenance and have a limited capacity for storing fresh water, ammunition, fuel, and other matériel for far seas operations compared to the U.S. Navy's Arleigh Burke–class destroyer. Primary surface combatants such as the Type 052D Luyang III–class destroyers and Type 054A frigates depend on frequent supply ships for maritime resupply, which creates a significant vulnerability.[38] In wartime, this deficiency could pose significant operational risks.[39] The lack of overseas bases to support global naval deployments also impacts at-sea replenishment.[40] High-intensity operations would further tax PLA logistics since replenishment ships would likely be targeted in combat, leaving combatant ships at risk of being stranded.[41]

The PLAN developed a self-reliant approach, called the "autonomous support model" (自主保障模式), that was adopted to support anti-piracy patrols in the Indian Ocean.[42] Prior to departure, the fleet receives matériel from large- to medium-sized naval ports and nearby airfields. When in transit or on escort duty, comprehensive supply ships deploy alongside the combatants to conduct at-sea replenishment. In some circumstances, the warships rendezvous with logistics vessels at a predetermined location at sea to obtain fuel, food, and other matériel. As one Chinese assessment concluded, "It is very difficult to rely exclusively on autonomous support to fulfill the urgent needs of distant overseas operations."[43]

In addition, the PLAN could have difficulty with dynamic targeting in wartime, especially early on in a conflict. The PLA has limited experience in quickly identifying, engaging, and assessing targets that are not preplanned, though AI and other technology could be helpful. In addition, the PLAN does not have wartime practice in

executing a kill web, including striking targets, rapidly conducting battle damage assessments, moving information from sensors to shooters, and quickly reattacking. There are also questions about the PLA's fire control discipline, including the ability of the PLAN to calculate firing solutions, assess the trade-offs of fires, and coordinate fires to maximize effect. Finally, some PLA surface ships, such as the Type 052D Luyang III–class destroyer, likely lack the sustained firepower of such ships as the U.S. Navy's Arleigh Burke–class destroyer. As one Chinese assessment concludes:

It should also be noted that the tonnage and number of VLS cells of the Type 052D still show a significant gap compared to the U.S. Navy's Arleigh Burke class. This results in a prominent deficiency in endurance and, particularly, sustained firepower. The combined number of VLS cells on three Type 052D destroyers is only roughly equivalent to that of two Arleigh Burke–class destroyers. This means that when executing missions of the same nature, a larger number of Type 052D destroyers must be deployed to achieve the same firepower density or sustained combat capability as the Arleigh Burke class.[44]

## AMPHIBIOUS WARFARE

Amphibious warfare includes the ability to project power ashore by landing troops and equipment to seize or otherwise control terrain.[45] The PLA sometimes refers to this functional area as "island operations" or "island warfare" (岛屿作战). As the 2020 *Science of Military Strategy* concludes, "Island operations are joint operations conducted on large islands or important islands and reefs by comprehensively using various elite forces. The purpose of island operations is to seize control of important islands, achieve national unity and territorial integrity, and effectively control related sea areas."[46]

The PLAN has likely improved in some areas of amphibious warfare through training, simulations, and exercises. China's civil maritime industry has advanced core capabilities for the large-scale lift of PLA troops and equipment into undefended or captured ports. The PLA has also exercised an improved floating causeway system utilized by roll-on/roll-off (RO-RO) ships for a beach landing.[47] In addition, the PLAN has heavily invested in new amphibious warfare ships and units, improving its ability to conduct amphibious operations.[48] The PLA likewise increasingly uses camouflage, concealment, and deception to obscure its activity.[49]

**The PLAN likely still lacks the required amphibious lift, logistics, matériel, and assault ships for a large-scale invasion.**

Yet limitations remain.[50] For example, the PLAN likely still lacks the required amphibious lift, logistics, matériel, and assault ships for a large-scale invasion, and it has likely not yet constructed a sufficient number of landing ship tanks (LSTs) and landing ship mediums (LSMs).[51] If an invasion of Taiwan were launched in 2026, China would depend on a dozen landing platform docks (LPDs) and landing helicopter assault ships (LHAs), supplemented by fewer than 40 LSTs and LSMs and a contingent of civilian ships (such as RO-RO ships and shallow-draught coastal ships). The entire amphibious fleet would amount to fewer than 100 ships, supported by another 80 landing craft designed to move troops and equipment from offshore ships to the beachhead. For an invasion, this amphibious fleet can be considered China's center of gravity, and it is a relatively small target set for the large number of missiles and drones in the Taiwanese and U.S. inventories (and even more if such countries as Japan or Australia become involved).

The PLA's employment of civilian ships is notable but certainly not unique, and it is no more a magic bullet for China's amphibious problem than it has been for others.[52] The distinction between amphibious assault (attacking a defended beach) and sealift (the ability to move from one port to another) is important. Civilian ships are well suited to the latter.[53] In the former, amphibious assault vehicles can be deployed from modified RO-RO ships. But the RO-RO ships are far less useful for the more difficult problem of deploying logistics to a beachhead.[54] For logistical offload, China has developed floating piers. These, however, would require the type of permissive environment that the proliferation of missiles and drones makes less likely. China has

also begun employing civilian shallow-draught cargo ships, though these too would likely require the use of ports or piers.[55]

Some PLA exercises have taken place under highly controlled conditions in Chinese ports with favorable sea and weather conditions, along with limited lift capacity from civilian RO-RO ships.[56] Although China's amphibious exercises are organized by higher headquarters and conducted in phases that may see different units employed during each exercise, the individual phases of the exercise are generally battalion-sized or, at most, brigade scale.[57] These are a far cry from the amphibious dress rehearsals carried out by the U.S. military during World War II, such as Exercise Fabius prior to the Normandy invasion, which saw a total of five divisions and a logistical buildup employed across six exercise phases, or the training exercises conducted off Maui, Oahu, and Hawaii between 1943 and 1945.

Some exercises also do not appear to have sufficiently integrated enemy operations, strikes or sabotage at ports, or other problems that could occur in wartime.[58] In addition, the PLAN and PLA Marine Corps lack significant experience conducting opposed landings under fire, and PLA exercises, simulations, and wargames have likely not fixed this gap.[59] The reserve civilian fleet may also face severe challenges conducting significant amphibious landings under fire.

An amphibious invasion of Taiwan, for example, would be a complex undertaking and require the PLA to organize a massive naval fleet capable of transporting tens of thousands of personnel across the Taiwan Strait while under fire. This operation would involve overrunning prepared defenses, executing successful landings, and ultimately seizing control of the island. A contested amphibious invasion is one of the most difficult military maneuvers to execute. It demands seamless synchronization across various domains—land, air, sea, space, and cyber—while hitting precise windows of favorable weather and sea conditions. Large amphibious vessels would likely stay in deeper waters to avoid coastal artillery, using smaller helicopters and landing craft to reach Taiwan's beaches. The PLA might focus its elite units and advanced weaponry on specific landing zones, utilizing rapid and continuous waves of reinforcements to shatter local defenses. This high-risk cycle would have to be sustained until a secure beachhead is established. Only then could Chinese forces move inland to engage in the broader campaign to occupy the island.[60]

At the same time, PLA paratroopers would likely conduct airborne operations aimed at capturing strategic airfields, securing vital geography, and potentially decapitating the government in Taipei. By striking coastal defense positions, these airborne units would facilitate the amphibious force's push inland from the shoreline. Chinese forces would have to aggregate their power and advance toward the capital to dismantle the existing government. The military would need to simultaneously build a robust maritime supply chain to provide the massive amounts of fuel, ammunition, and equipment required for a sustained conflict. Even with a secure foothold on the island, the path to Taipei remains arduous. The PLA would face significant geographic hurdles. Advancing troops would be forced through narrow mountain passes and across multiple river crossings. Forces would likely engage in high-intensity combat within densely populated urban environments. Because the sheer volume of personnel, medical supplies, and matériel exceeds what can be transported by air, the PLA plans to bridge the gap using civilian sealift.[61]

**The PLA would likely face serious challenges with a complex amphibious invasion of an island such as Taiwan.**

Yet according to some wargames of a PLA amphibious invasion, the PLA would likely face serious challenges with a complex amphibious invasion of an island such as Taiwan. In every iteration of one series of CSIS wargames, for example, U.S. and partner forces were able to destroy shipping before the forces ashore were large enough to conduct sustained offensive action against defending forces flowing toward the beachhead. Anti-ship missiles delivered by Taiwanese shore batteries, U.S. aircraft, and U.S. and partner submarines all took a heavy and rapid toll. Sound Chinese strategy could mitigate, but not eliminate, this attrition of the amphibious fleet.[62]

## MARITIME AIR AND MISSILE DEFENSE

The PLAN's ability to defend its ships from air and missile threats has improved in recent years. Newer Chinese ships, such as the Type 052D Luyang III–class destroyer and Type 055 Renhai-class cruiser, are equipped with modern phased-array radars and long-range surface-to-air missile (SAM) systems, giving the fleet better area air defense coverage than in the past.[63]

However, some weaknesses likely remain for a wartime environment. Much of China's carrier force still lacks AEW fixed-wing aircraft, narrowing the detection and air defense window. China's Type 003 *Fujian* aircraft carrier, however, is capable of launching fixed-wing AEW aircraft.[64] The PLAN would also likely face challenges in far seas operations. In regional waters, the PLA can combine coastal radars, reconnaissance aircraft, satellite coverage, and ship patrols to assess surface and air threats.[65] But as the PLAN operates farther from the Chinese mainland without land-based radar sites or carrier-launched AEW aircraft, the PLAN's intelligence picture becomes more tenuous and relies on satellite and other capabilities.[66] Integrating new air defense capabilities into a cohesive network will likely be a learning process, especially for far seas deployments.[67]



**A U.S. Air Force B-2 stealth bomber deploys an AGM-158C Long Range Anti-Ship Missile to support Valiant Shield 2026.**

PHOTO: TSGT THOMAS BARLEY/DVIDS.

Some CSIS wargames suggest that the PLAN ships would likely struggle to defend against a combination of long-range missiles, such as the Long-Range Anti-Ship Missile (LRASM), and unmanned air, surface, and undersea vehicles.[68] To be clear, defending against complex attacks from a combination of missiles and unmanned systems would be difficult for any navy, not just the PLAN. Nevertheless, PLAN surface ships would likely struggle against a high volume of stand-off weapon systems, including ones capable of "precise mass."[69] Other long-range missiles capable of conducting anti-ship strikes, such as the Tomahawk Block V and AGM-84H/K Standoff Land Attack Missile-Expanded Response (SLAM-ER), would also present a serious challenge to the PLAN.

## MINE AND ANTI-MINE WARFARE

The PLAN has made some advancements in mine and anti-mine warfare.[70] It has developed and produced modern mine countermeasure (MCM) ships with remote operating vehicles and a full catalog of sweeping equipment and unmanned systems, as well as at-scale mine delivery capabilities. In addition, the PLAN has a large and diverse inventory of sea mines—such as submarine-launched mobile mines, contact mines, magnetic mines, acoustic mines, and remote-controlled "smart" mines—and trains extensively in minelaying.[71]

But the PLAN is likely unprepared for MCM in high-intensity warfare, especially in far seas operations.[72] The PLAN's MCM forces are primarily designed for operations near China, such as within the first island chain, and lack the capability to address mine threats in distant waters.[73] A significant deployment of mines could severely stress the PLAN's MCM capabilities and threaten its operational effectiveness.[74] In addition, the PLAN would likely face serious challenges with undersea mines, especially detecting and disabling them.[75]

## INFORMATION AND ELECTRONIC WARFARE

Information and electronic warfare include a range of activities, from conducting information and disinformation operations to electronic attacks, such as jamming enemy radar and communications.

The PLAN—and the PLA more broadly—is highly capable in information warfare. One of the core concepts is "three warfares" (三战).[76] It includes three components: public opinion warfare (舆论战), psychological warfare (心理战), and legal warfare (法律战).[77] The first component, media warfare, involves the use of broadcast, print, and online efforts to influence domestic and international public opinion in ways that support Chinese interests and undermine its competitors.[78] Overseas, China has the capability to wage media warfare through broadcasts of the state-run China Central Television (CCTV) and China Global Television Network (CGTN), government-sponsored inserts in newspapers, and educational institutions.[79] The second component, psychological warfare, is designed to sow dissent, disaffection, and discord among soldiers and the civilian population of competitors.[80] As one analysis in the PLA journal *China Military Science* concluded, the goal of psychological warfare should be to "sap the enemy's morale, disintegrate their will to fight, ignite the anti-war sentiment among citizens at home, heighten international and domestic conflict, weaken and sway the will to fight among its high-level decision makers, and in turn lessen their superiority in military strength."[81] The third component, legal warfare, involves the exploitation of international and domestic law to assert the legitimacy of Chinese claims. *The Science of Military Strategy* argued that for the PLA, "international law is a powerful weapon to expose the enemy, win over sympathy and support of the international community [for China], and to strive to gain the position of strategic initiative."[82] The PLAN has extensively prepared for information warfare and has numerous outlets—both overt and covert—to conduct information, misinformation, and disinformation operations.

In addition, the PLAN is likely to be effective in wartime at electronic warfare, as well as the integration of cyber- and space-based capabilities into maritime operations.[83] PLAN forces have integrated offensive and defensive cyber warfare, electronic warfare, and space and counterspace warfare into maritime exercises.[84] Still, the PLAN likely has some weaknesses. As discussed in more detail at the end of this chapter, the PLA's dual command structure (with a political commissar and military commander) and lack of initiative and flexibility at lower levels of command could create vulnerabilities if adversaries use electronic warfare, space and counterspace weapons, and offensive cyber operations.[85]

## MARITIME DOMAIN AWARENESS

Maritime domain awareness includes the ability to detect, track, and identify enemy vessels in the maritime domain. PLAN ships, such as the Type 055 Renhai-class cruiser, already possess advanced radar, sophisticated signals intelligence capabilities, and a high level of informatization.[86] The radar capabilities of the Type 055 and some other PLAN ships—including their detection range, the number of targets they can track at the same time, and their anti-jamming capabilities—are already advanced and would be helpful in wartime. Their electro-optical, sonar, electronic warfare, helicopter, communication, navigation, and other capabilities allow such PLAN ships as the Type 052D Luyang III–class destroyer, Type 055 Renhai-class cruiser, and Type 003 *Fujian* aircraft carrier to quickly detect, track, and assess multiple enemy targets.[87] And the systems on these ships are capable of full automation functionality.[88] In addition, the PLAN has developed seabed sensor architectures, such as the Blue Ocean Information Network (or 蓝海信息网络), that include undersea sonar arrays, buoys with satellite connections, unmanned underwater vehicles (UUVs), and fixed and floating platforms.[89]

Nevertheless, PLAN surface ships could struggle to quickly identify numerous stealthy fifth- and sixth-generation attack aircraft, unmanned aircraft systems (UASs), unmanned surface vehicles (USVs), UUVs, and submarines. The U.S. Navy, on the other hand, has recently faced a variety of new threats, including ballistic missiles, cruise missiles, and drones, in actual combat in the Middle East.

## CONCLUSION

While the PLA is steadily improving its maritime capabilities—from destroyers and aircraft carriers to nuclear-powered submarines, long-range strike, and UUVs—material capabilities do not directly translate into combat effectiveness. As Table 4.1 summarizes, the PLAN is likely competent in some functional areas, such as information and electronic warfare, maritime domain awareness, and surface and strike warfare. Nevertheless, the PLAN likely has operational weaknesses in such areas as submarine and anti-submarine warfare, amphibious warfare, integrated air and missile defense, and mine and anti-mine warfare. A major question in wartime is how quickly the PLAN and Chinese leaders more broadly could adapt.

Table 4.1

## Overview of PLAN Weaknesses and Strengths in the Maritime Domain

| AREA | EXPLANATION | SUMMARY ASSESSMENT |
|---|---|---|
| Submarine and anti-submarine warfare | Detect and neutralize enemy submarines and UUVs. | Submarine and anti-submarine warfare likely remain an Achilles' heel for the PLAN for several reasons. China's lack of overseas bases limits the PLAN from stationing fixed-wing patrol aircraft in distant theaters. In addition, the PLAN is still relatively weak in bathymetry and broader oceanographic intelligence. |
| Strike and surface warfare | Attack enemy surface and land targets from the sea. | The PLAN has likely become proficient at strike and surface warfare, especially using naval forces to attack enemy targets with aircraft and missiles. However, the PLAN may struggle with dynamic targeting. |
| Amphibious warfare | Project power ashore by landing troops and equipment to seize or control terrain. | The PLAN likely faces several challenges in conducting amphibious warfare, such as launching offensive operations from the sea onto hostile shores using coordinated efforts between naval, ground, air, and other forces. |
| Maritime air and missile defense | Defend against aircraft, missile, and drone threats using advanced systems. | In regional waters, the PLAN can combine coastal radars, reconnaissance aircraft, satellite coverage, and ship patrols to maintain a reasonable picture of surface and air threats. But the PLAN's limited power projection capabilities will likely create challenges for far seas operations. |
| Mine and anti-mine warfare | Deploy mines, as well as detect and clear mines to ensure open waterways. | The PLAN would likely struggle with anti-mine warfare in high-intensity operations. A significant deployment of mines could severely stress the PLAN's capabilities and threaten its operational effectiveness. In addition, the PLAN would likely face serious challenges with undersea mines, which it might struggle to detect and disable. |
| Information and electronic warfare | Conduct information and electronic warfare. | The PLAN is likely to be highly competent in information, disinformation, and misinformation operations, and it is likely improving in electronic warfare. |
| Maritime domain awareness | Detect, track, and identify enemy surface vessels, subsurface vessels, and aircraft in the maritime domain. | The PLAN is likely to be competent in detecting, tracking, and identifying adversary vessels in wartime. |

SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

In addition, there are other functional areas that the PLAN might struggle with in wartime. For example, maritime combat search and rescue (CSAR) involves recovering personnel from hostile or dangerous environments within or near combat zones. PLAN efforts in this area are evolving through some training and exercises, the development of specialized CSAR kits for carrier-based helicopters, and the creation of active-duty CSAR detachments to provide a more responsive recovery force.[90] However, the PLAN's long-range CSAR capabilities and development of operational concepts have largely been neglected, raising questions about its ability to quickly and competently recover personnel during wartime—especially during far seas operations.[91] PLAN ships and aircraft would likely struggle to save the lives of downed aircrew or sinking sailors, potentially impacting personnel morale, force preservation, and even operational success.[92] Nevertheless, it is possible that senior CMC and PLA officials may not prioritize CSAR as much as some Western militaries, including the United States, and would tolerate higher casualties in wartime.[93] There are also some indications that the PLAN could struggle with battle damage repair during wartime because of problems with poor damage control plans, insufficient training, and unrealistic simulations and exercises.[94]

A final challenge for the PLAN is in the dual leadership structure, which is discussed elsewhere in this report and involves a political commissar and military commander. Their roles are different, though they are deeply interlinked. The political commissar is typically the same grade and, in most situations, the same rank as the military commander. Both officers follow direction and guidance from superior party standing committees.[95] The military commander is normally in charge of operational and tactical military matters, while the political commissar has authority in all party matters, provides inputs for the evaluation of the military commander's performance, and manages discipline, morale, and welfare of soldiers, sailors, and aircrew. The political commissar's role is particularly important because the Chinese system focuses on maintaining party control. Commissars serve as the secretary of the party standing committee, the supreme decisionmaking body in the unit, while the military commander generally serves as the deputy secretary. In an emergency, the military commander can decide and issue orders independently. However, the military commander must report back to the party standing committee later and agree to party inspection.[96]

Within the PLAN, each submarine flotilla, surface flotilla, squadron, destroyer, submarine, and frigate at the operational and tactical level has a political commissar.[97] On a submarine, the political commissar is the co-equal of the commander alongside the submarine captain. However, the commissar does not typically get involved in tactical decisionmaking in peacetime. Instead of dictating how the submarine operates, the political commissar dictates how the crew operates. During routine operations or while ashore, the submarine's political commissar is mainly responsible for running the submarine's party committee and overseeing boat-wide political work. In many ways, the political commissar's job is to ensure that the submarine's activities are aligned with the intent of higher headquarters and to maintain the personnel readiness of the boat.[98] Political work can include a wide range of activities, such as managing personnel and judging the political sensitivities associated with operational plans.[99]

There are some potential benefits of the dual command structure in wartime, such as the political commissar's focus on personnel management and strengthening the party's ability to maintain political control. However, there are several potential weaknesses in wartime of this Leninist organizational structure in the PLAN.

First, administrative and operational time delays could occur. Instead of seeking approval from one person, the crew may have to seek a second approval (or even multiple approvals, including one from the party standing committee) to carry out a critical action or task. The dual command structure could limit the commander's ability to quickly execute a war plan and make adjustments; lead to fragmentation between the theater command and the national, service, and external theater forces needed to support it; and create a lack of proficiency in joint operations among the commanders and staff officers at the theater and national levels.[100]

**The dual command structure could lead to confusion and even disagreement in wartime.**

Second, the dual command structure could lead to confusion and even disagreement in wartime. The political commissar has a vote in decisionmaking and can change decisions in some instances.[101] There have been—and will likely continue to be—disagreements between the commanding officer and political commissar. Decisions that deliberately skirt the line between the two lanes of responsibility could create temporary uncertainty among lower-ranking officers.[102] In addition, miscommunication between the commanding officer and political commissar may also occur, especially in cases where there is a need to obtain written or even verbal concurrence from both officers.[103]

Third, the dual command structure could undermine proficiency, particularly if less competent political commissars become heavily involved in operational and tactical decisions. The fact that the commissar is primarily trained in politics, not military operations, raises questions about the efficacy of a divided command system in which an officer trained in ideology and politics has veto power over a co-leader. Anecdotal reports suggest that operational competence remains a serious deficiency among political commissars.[104] Some individuals reportedly lack basic knowledge about military procedures, such as how to issue commands, while others have been criticized for lacking the physical fitness necessary to operate at the front lines.[105]

Fourth, the structure potentially limits flexibility and crew initiative during wartime. The entire system is about maintaining control and following party intentions. Instead of fostering an environment that empowers individuals to take the initiative, the crew may wait for direction by the commanding officer or political commissar before taking appropriate actions. In a single-command system, the commanding officer relies on the crew to follow the commander's intent and can also delegate to individuals to make decisions on their behalf in time-sensitive situations.

As this chapter has argued, the PLAN has significant capabilities in the maritime domain. But it also likely has several weaknesses that could be exploited, as examined in more detail in Chapter 7.

# THE AIR AND MISSILE DOMAIN



A Chinese J-20 stealth fighter performs at the Airshow China 2018 in Zhuhai in southern China's Guangdong province on November 6, 2018.

▶ WANG ZHAO/AFP via Getty Images

# 5

**The PLAAF and the PLARF are vital to overall PLA operational concepts such as "systems confrontation" (体系对抗) and "system destruction warfare" (体系破击战), which call for disrupting an adversary's operational systems to weaken its effectiveness.**[1] To these ends, the PLAAF is rapidly modernizing its forces and improving the quality of its personnel, transforming what was once a third-rate air force and secondary service within the PLA into one of the most powerful air forces in the world. The PLAAF is fielding increased numbers of advanced fighters; developing its electronic warfare, airborne early warning and control, strategic lift, and bomber capabilities; and deploying large numbers of unmanned aircraft systems (UASs). Compared with its maritime counterpart, China's aviation industry is underdeveloped. Yet it is growing, producing high-quality airframes and improved jet engines, reducing Beijing's long-standing dependence on Russia. Similarly, the PLARF is rapidly expanding the range and quality of its systems, drawing on China's impressive commercial space sector.[2]

These capabilities have improved the PLAAF's and PLARF's battlefield effectiveness, and their performance is likely to improve further in the coming years. At the same time, many weaknesses remain that will reduce the PLAAF's and PLARF's ability to fight effectively.

To advance China's military objectives, the PLAAF and PLARF must be able to establish total or at least local air superiority, project power and strike against both near and distant targets, ensure intelligence and information flows for strike and situational awareness, and provide sustainment and reach for Chinese forces. This chapter examines the following five functional areas:

- **Air Superiority and Counterair:** Suppress or destroy enemy air defenses (SEAD/DEAD), ensuring advancing PLA ground forces are not vulnerable to adversary air strikes, and strike enemy aircraft and bases.
- **Offensive Strikes:** Conduct strikes on leadership, infrastructure, supply lines, and reserve forces, and provide close air support (CAS) to PLA ground forces, paving the way for amphibious assaults, interdicting enemy forces before they reach the front lines, and dynamically retasking to strike enemy forces in real time. The PLAAF is also responsible for creating and training airborne units.[3]
- **Protecting Friendly Airspace:** Ensure the safety of China's leadership, military bases and non-frontline forces, logistics, critical infrastructure, and population centers.

- **Intelligence, Surveillance, and Reconnaissance:** Use airborne, space, and ground-based assets for targeting, battle damage assessment, and situational awareness.
- **Airlift and Mobility:** Provide both strategic and tactical lift and extend the range of the PLA's fighting force, much of which falls under China's concept of "strategic delivery" (战略投送).[4]

For the PLAAF and PLARF, many of these tasks will be judged in the context of operations in a Taiwan scenario, although operations against Japan, the Philippines, South Korea, and other regional states also must be considered, along with out-of-area operations and humanitarian missions. As with the U.S. Air Force, the range of potential missions is vast and grows along with the services' improving capabilities. The Taiwan mission, however, would be challenging, particularly if the forces of the United States and its regional allies are added to the mix. The PLAAF and PLARF would have to penetrate and suppress Taiwan's air defense network, manage reconnaissance to support joint operations, conduct high-tempo strikes on leadership, infrastructure, and military targets, prevent outside reinforcement, transport airborne troops, protect naval and amphibious forces, and otherwise conduct a wide array of difficult missions in a contested environment. All of this must be done in the face of potential U.S. and partner electronic warfare and cyber operations as well as direct opposition with air and air defense assets.

The chapter concludes that the PLAAF and PLARF are making important strides in their warfighting capabilities in these five areas, with improved technology and better training. The PLAAF and PLARF leadership are also aware of their deficiencies and are trying to remedy them. In wartime, the PLAAF and PLARF will be able to deploy large numbers of high-quality assets, using advanced intelligence, surveillance, and reconnaissance (ISR), especially space-based, to target a wide array of U.S. and allied assets, threaten U.S. regional allies, and challenge U.S. power projection.

The PLAAF, however, probably suffers from several operational weaknesses. These include limited pilot skill and initiative, insufficient airborne ISR, poor airborne assault, limited airlift and transport capabilities, difficulties with CAS, and weak dynamic targeting. In addition, the PLAAF's contribution to joint and coalition operations is still developing, with many limits. As with other services, issues such as corruption and politicization pose many challenges to the PLAAF.

This chapter first notes several areas of PLAAF and PLARF improvement. It then examines possible PLAAF and PLARF performance in the five functional areas listed above. Section three discusses general areas where the PLAAF and PLARF are getting stronger, as well as crosscutting areas where they remain weak. Although this chapter tries to assess both the PLAAF and PLARF, there is more information available from open-source materials and from interviews on the PLAAF, and thus most of the analysis focuses on that service.

## AREAS OF IMPROVEMENT

The PLAAF is rapidly modernizing. It has developed and deployed a wide range of advanced fighter aircraft, airborne early warning and control (AEW&C) systems, and improved strike capabilities and has quickly phased out most of its second- and third- generation aircraft in favor of fourth- and fifth- generation aircraft. China has introduced and built large numbers of upgraded J-16 and J-20 aircraft and is set to produce far more: At the end of 2025, China had around 450 J-16s.[5] The J-16 is a multirole strike fighter, with impressive radar and avionics, and the J-16D is configured for electronic warfare. The J-20 is a stealth fighter designed to gain air supremacy and optimized for long-range engagements. China has also expanded its tanker fleet, with YY-20As replacing the dated HY-6 tankers and Y-20 transports entering the force in large numbers.[6] The PLAAF is also expanding its AEW&C with the KJ-500, building out its electronic attack platforms, and outfitting its aircraft with advanced active electronically scanned array radars, which are less vulnerable to jamming.[7] The PLAAF is likewise emphasizing long-range strike with its improved H-6 bombers, and at some point after 2030, its H-20 stealth strategic bomber will enter the force in large numbers. The PLAAF is also deploying large numbers of UASs, and conceptually its ideas about UASs mirror those of American experts.[8] Although China's aerospace industry is not as dominant as its maritime counterpart, it is large and growing.



**An H-6 bomber attends a flight rehearsal ahead of the 2025 Changchun Air Show on September 16, 2025.**

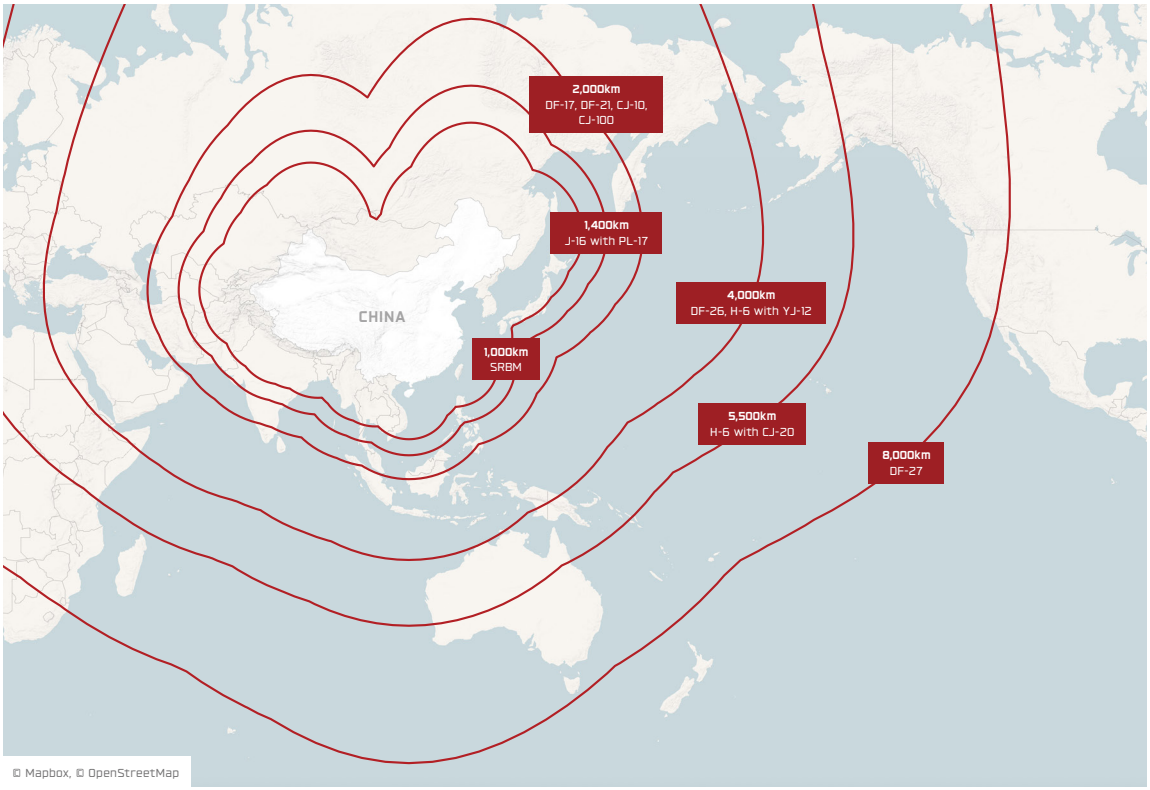
PHOTO: CAO NAN/VCG VIA GETTY IMAGES

The PLARF, too, is greatly expanding its capabilities. China upgraded the PLARF to a full service at the end of 2015, and it has built up its forces and greatly expanded the range and precision capabilities of many of its systems as well as its overall C4ISR—and it has done so unencumbered by arms control treaties.[9] China has also invested in advanced SAMs, modern radar, electronic countermeasures, and other systems. Its brigades in eastern China have DF-17 medium-range missiles with a highly maneuverable hypersonic glide vehicle. The PLARF is also expanding the number of dual-capable DF-26 intermediate-range ballistic missiles, which can threaten distant targets such as Guam (see Figure 5.1 below).

The PLAAF has greatly improved the quality of its air-to-air and air defense munitions and is incorporating AI to improve targeting. The Chinese military has invested heavily in supersonic and hypersonic missiles as well as various advanced anti-ship and land-attack cruise missiles. It often seeks to use speed to penetrate adversary air defenses.[10]

Figure 5.1

## PLA Conventional Strike Capabilities and Ranges




SOURCE: OFFICE OF THE SECRETARY OF DEFENSE, ANNUAL REPORT TO CONGRESS: *MILITARY AND SECURITY DEVELOPMENTS INVOLVING THE PEOPLE'S REPUBLIC OF CHINA* (WASHINGTON, DC: U.S. DEPARTMENT OF DEFENSE, 2025), 85, HTTPS://MEDIA.DEFENSE.GOV/2025/DEC/23/2003849070/-1/-1/1/ANNUAL-REPORT-TO-CONGRESS-MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA-2025.PDF.

The PLAAF has also improved the number of training exercises and their sophistication. These include competitions and major exercises such as Blue Shield, Golden Dart, Golden Helmet, Qingdian, and Red Sword. These competitions and exercises focus on a wide range of capabilities: Golden Helmet attempts to improve pilot skills through air-to-air conflict, Qingdian focuses on electronic warfare, and Red Sword is a force-wide effort akin to the U.S. Air Force's Red Flag. All this is being done alongside more joint and integrated air defense exercises.[11] China has also employed U.S., UK, Australian, and other foreign pilots through companies such as the Test Flying Academy of South Africa and Stratos to train PLAAF pilots, improving their skills.[12] In general, interviews suggest the PLAAF is slowly but steadily increasing its flexibility at the tactical level.[13]

The PLA has also made organizational changes that affect the PLAAF. Many of these are likely to cause organizational disruption in the short term but, in the long term, will probably improve Chinese military effectiveness. In 2023, the PLAAF received control of all PLAN land-based aircraft as well as responsibility for mainland air defense.[14] The PLAAF also went from 15 to 3 flight academies and changed its training schedule—both of which are likely to produce a higher-quality force but cause short-term disruption.[15]

Perhaps most important, the PLAAF is aware of many of its weaknesses and is trying to improve. Outside experts have noted the tensions between a conservative organizational culture and the need for innovation, and Xi has increased this tension since coming to power in 2012, trying to balance party loyalty with force modernization.[16] Nevertheless, the PLAAF has made important strides in its efforts to improve. After-action reports are often brutal, and even many newspaper articles are often critical of unit performance.[17] One interviewee noted that there is a "hectic, self-flagellation after exercises," and after deficiencies are identified in exercises, at least some problems are fixed.[18] Another interviewee noted, "the pace of progress is alarming."[19] As discussed in section three of this chapter, the PLAAF has made huge strides in the last 15 years.

## AREAS OF EVALUATION

This section details more specific strengths and weaknesses of the PLAAF and PLARF, focusing on five broad areas: air superiority and counterair, offensive strikes, protecting friendly airspace, ISR, and airlift and mobility. These capabilities would be useful for Taiwan scenarios and for other contingencies in the Indo-Pacific area.[20]

### AIR SUPERIORITY AND COUNTERAIR

Improved aircraft, munitions, and training will help the PLAAF defeat enemy air forces. In addition, the PLAAF and PLARF will be able to better suppress adversary air defenses and strike adversary bases, supporting infrastructure, and any aircraft on the ground, using large numbers of precision strikes in the form of rockets and missiles. This will be especially effective against fixed targets where the PLAAF and PLARF can plan and script attacks. The sheer size of the PLAAF and PLARF and the large number of munitions they can employ will compensate for some weaknesses. As one official noted, "How good do you have to be if you only need to hit one out of ten times?"[21] In addition, some munitions such as the PL-15 (long-range air-to-air missile) and PL-17 (ultra-long-range anti-support [e.g., AWACS] missile) are high quality and operate at ranges comparable to or longer than their U.S. equivalents.[22]

The PLAAF may be able to obtain local air supremacy, according to interviews.[23] This may enable naval and ground operations against Taiwan or another target, although it would need to be sustained for a cross-strait operation to succeed. It might also enable the use of larger airborne formations, which in turn would secure territory for the PLA Marine Corps or other forces.[24]

The PLAAF, however, will have more difficulty against mobile air defenses and when facing adversary pilots who are more experienced, have more flying hours in general, and are better able to use individual initiative. The improving quality of Chinese aircraft and ISR has narrowed this gap considerably, however, and the growing number of platforms also offers China advantages.

### OFFENSIVE STRIKES

Modern combat platforms such as J-16 and J-20 fighters, improved space-based ISR, better precision-guided munitions, and platforms such as the YY-20 tanker that facilitate air-to-air refueling improve the PLAAF's ability to conduct CAS, battlefield air interdiction, and deep strike.[25] The PLAAF is also steadily improving its training and exercises for offensive strikes and is increasing efforts to integrate its aircraft for long-range power projection.[26] This capability is likely to be especially strong closer to the first island chain

and otherwise nearer to China's territory, where it can employ the full weight of its arsenal. The expansion of PLARF, PLAAF, and PLAN missile systems holds most U.S. forward bases in the Asia-Pacific region at risk.

The PLAAF's bomber fleet is made more advanced by H-6K, H-6J, and H-6N variants, but these are improvements of an aging platform, not a next-generation bomber.[27] China has produced more H-6 aircraft variants that are capable of in-flight refueling, but the H-20 stealth bomber, which will improve China's long-range air-strike capability, will not enter service until the 2030s.[28] As a result, China's ability to conduct long-range airborne strike missions against a country with advanced air defenses remains limited.

The PLAAF has improved its ability to conduct CAS to PLA ground forces, but this is from a low base. Such cooperation is still developing: There is no service-wide doctrine for CAS, and individual units often develop their own tactics, techniques, and procedures for working with nearby units that do not extend across the service.[29] Although PLAAF airborne electronic warfare capabilities are improving with newer aircraft such as the Y-9LG, this requires line of sight to perform effectively, limiting survivability in many combat scenarios.[30] The PLAAF faces many challenges with CAS and battlefield air interdiction, and it has difficulty executing all stages of a kill web.[31] For example, multiple operators assess the PLAAF as unable to consistently conduct precision strikes and hit moving targets. They also judge that it often lacks over-the-horizon tactical awareness, particularly for longer-range strike.[32]

PLAAF coordination with the PLAA remains limited. In the past, the PLAA relied on organic artillery for close-in effects, with the PLAAF more focused on interdiction farther from the front line.[33] When airpower was used for CAS, the PLAAF sent its own units to direct air support for ground operations, and only recently is it training to allow PLAA personnel to use the PLAAF to support ground operations. In general, the PLAAF does not appear to be training for combined arms with other services on a regular basis.[34] Aviation branch helicopters only recently began to train with other combat arms and do high-tempo training.[35] In part because of PLAAF limits, the PLAA is developing its own longer-range strike systems such as the PCH-191 (similar in some ways to U.S. ATACMS and HIMARS) in order to ensure long-range strike support if its forces are on the beaches in Taiwan.[36]

Interviewees noted that the PLAAF will face difficulties when it cannot pre-script operations, such as when a pilot needs to maintain radio silence and cannot receive guidance from higher echelons. In peacetime, the pilot might get in trouble if something embarrassing happens, leading to caution on the part of the pilot and by those controlling the pilot's actions—habits that might prove costly to the PLAAF in wartime.[37]

The PLAAF has insufficient air-to-air refueling. This limits its ability to maintain a high operational tempo for long-range attacks, which in turn makes it difficult for the PLAAF to engage in large-scale, sustained operations outside the first island chain.[38]

**In general, interviewees, often based on assessments of exercises, believed that the PLAAF is far better at hitting fixed targets than anything that is mobile.**

Dynamic targeting requires a high degree of pilot independence, which is still questionable for the PLAAF. It is trying to increase the flexibility of its command and to make its forces more modular, allowing for greater flexibility in general, but this remains an area of weakness.[39] U.S. officers interviewed for this report expressed skepticism that the PLAAF was ready to transition from a focus on preset targeting to dynamic targeting, with pilots taking more initiative without direction from controllers.[40] In addition, one official argued that the PLA cannot yet do "BDA [bomb damage assessment] at the speed of war" to make the most of dynamic targeting. In general, interviewees, often based on assessments of exercises, believed that the PLAAF is far better at hitting fixed targets than anything that is mobile.[41]

Dual control likely slows down decisionmaking when the PLA deviates from plans and makes dynamic targeting more difficult, according to interviews. One official noted that dynamic

targeting requires trust in personnel and risk tolerance, or else officials may fear that it will lead to the destruction of targets that leads to unwanted escalation.[42] Deep attack is also difficult because it is harder to coordinate with the control tower.[43] As several interviewees suggested, "Chinese problems increase the farther they are away from the mainland."[44]

The PLAAF is also responsible for airborne forces, and the PLAAF Airborne Corps is considered an elite force. However, by U.S. standards it has limited training, and the paratroopers often do not jump from low altitudes, making them vulnerable.[45] They also lack sufficient transport capability, and only a small portion of transport aircraft train for large-scale airborne operations. The airborne units also do not regularly train with fixed-wing combat aircraft providing cover or fire support.[46]

### PROTECTING FRIENDLY AIRSPACE

China has greatly increased its air-to-air and SAM capabilities. The PL-15 and PL-17 missiles outrange their American and NATO equivalents using AIM-120C/D AMRAAMs and are otherwise highly sophisticated and lethal. Chinese systems performed well in the 2025 clash between India and Pakistan, with Pakistan using PL-15E missiles.[47]

As with air superiority and offensive strikes, improved aircraft, missile systems, and munitions make the PLAAF far better at protecting China's airspace. The PLAAF and PLARF concentrate their forces along China's eastern coast, but they also take advantage of the depth of the Chinese mainland to make their bases and forces more difficult to target. The PLARF disperses systems such as the DF-26 intermediate-range ballistic missile and DF-17 medium-range ballistic missile to threaten targets throughout the Indo-Pacific from interior launch sites. It also has extensive underground facilities to protect its forces.[48]

The PLAAF faces internal coordination difficulties when protecting its airspace. The PLA has increasingly practiced flying against adversary SAMs, but in the past less effort has been put into working with PLA SAMs against a hostile force. It is not clear how much this has changed.[49] SAMs and anti-aircraft artillery units rarely share their engagement zones with friendly aircraft.[50] PLA media outlets report on SAM engagements with incoming aircraft and aircraft engaging another aircraft, but not on both at the same time.[51] One expert believed that the PLA is reluctant to allow pilots to fly when their own SAMs are active, an attitude that is only slowly changing.[52] PLA analysts have identified "siloed management" among PLA air defense systems as a continuing problem.[53]

There are also questions about the overall quality of Chinese air defenses. PLA analysts have identified radar cover gaps and dependence on a few key nodes as areas that could lead to a poor response.[54]

### INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE

China has greatly increased its ISR capabilities. China's space-based ISR is extensive and growing, enabling China to have far more awareness of enemy forces throughout the theater and improving PLAAF and PLARF abilities to conduct strikes.[55]

The PLAAF's targeting support system for precision strike relies on space-based ISR rather than persistent airborne platforms, hindering dynamic targeting.[56] For now, China lacks carrier-based AEW&C platforms, hindering its ability to conduct air surveillance. PLAAF drone and other airborne ISR assets, while improving, are vulnerable to directed energy, electronic warfare, and kinetic countermeasures.[57] The PLAAF is trying to increase the capabilities of aircraft such as the KJ-500 to direct aircraft and is building a large fleet.[58] The KJ-500, however, is not used in the same way as U.S. AWACS with regard to battle management. Controllers on the KJ-500 do not talk to all aircraft—only the commander of the unit is able to do so.[59]



**A PLAAF KJ-500 airborne early warning aircraft takes part in the China-Egypt joint air force training.**

PHOTO: YU HONGCHUN/VCG VIA GETTY IMAGES

### AIRLIFT AND MOBILITY

The PLAAF has identified the importance of "strategic delivery" (战略投送), defined as "action aimed at achieving certain specific strategic goals that integrates all sorts of transportation means to project forces to war zones or areas at risk."[60] Strategic delivery emphasizes that "enhancing the military's remote strategic delivery capability is not only part of preparations for war but also an effort to ensure battlefield initiative, advantageous positions, and winning conditions."[61] Such capabilities improve joint and far seas operations and military operations other than war.[62] The PLAAF has over 100 medium-sized transports, and China has a large commercial aviation sector. The PLAAF has rapidly expanded its lift fleet and is increasing its use of Y-20 tankers and aerial refueling to extend the range of its forces.[63]

However, not all units train to support airborne operations in wartime, and the PLAAF may still lack adequate load capacity to transport the necessary number of airborne troops in a major contingency such as an invasion of Taiwan.[64] It also lacks sufficient specialized loading and unloading teams and has complicated procedures that delay the delivery of materials.[65] Although civil aviation would bolster the Chinese military's overall capacity in a crisis, China's commercial aircraft have less ability to assist with heavy lift due to smaller cabin doors, cargo compartments, and floor load capacity.[66] Similarly, military and civil aviation facilities do not have the same standards and requirements—many civil cargo planes have smaller cabin doors and cargo compartments than their military counterparts.[67]

In addition, China has not trained at scale for long-term logistics efforts, one official noted, and the PLAAF has not deployed in real-world crises that require sustained logistics. Similarly, it has not prepared for the phasing of logistics even though different stages of a difficult operation such as a Taiwan invasion require different logistics needs.[68]

The PLAAF is heavily focused on combat aircraft over support aircraft: Only 17 percent of PLAAF aircraft were support aircraft in 2025, compared with 31 percent for the U.S. Air Force. However, the PLAAF may have fewer tankers and transport aircraft because its mission set is regionally focused and because many of its older fighters and bombers are not refuellable in air.[69]

Finally, China lacks an overseas basing network and has few firm allies. As a result, it is more difficult for the PLAAF to project power far from China's shores, and it has little practice doing so. This has the potential to change: The Chinese military has facilities in Cambodia, Pakistan, and Djibouti, and it is investing and building commercial ports and other infrastructure around the world that could, if the host government agreed, be converted into dual-use facilities.

## CROSSCUTTING WEAKNESSES

Although the PLAAF has made great strides in recent years, it suffers from several weaknesses that reduce its effectiveness and otherwise limit the organization across the above areas of evaluation.

### A WEAK LEGACY

The PLAAF only began to modernize in the 1990s. Historically—and far more recently than for the U.S. Air Force—the PLA was a ground-centric force with a primarily defensive mission.[70] The PLA has not fought a war since its conflict with Vietnam, where combat peaked in 1979, and the PLAAF played a minimal role in that conflict. The last time the PLAAF shot down a manned aircraft was against the United States in Vietnam in 1967, and the last time a SAM unit downed an aircraft was in 1987 against Vietnam.[71]

**Because of its inexperience, the PLAAF's knowledge of flying and war is more theoretical and derived from training exercises than for the United States, Israel, Russia, or many other air forces around the world.**

Even more than most Chinese services, the PLAAF has dealt with a legacy of political suspicion. From 1960 to 1989, over a dozen pilots defected with their aircraft to Taiwan. As a result, political leaders restricted the fuel for PLAAF aircraft through the 1980s.[72] Suspicion of pilot loyalties also led Chinese leadership to ban flying over the water in general until 1998.[73]

Because of its inexperience, the PLAAF's knowledge of flying and war is more theoretical and derived from training exercises than for the United States, Israel, Russia, or many other air forces around the world, many of which have flown in some sort of conflict.

### UNEVEN TRAINING

In the past, PLAAF training was highly scripted.[74] Chinese studies described this as "nanny-style" preparation ("保姆式"准备) and recognized that, as a result, PLAAF pilots would not function well in wartime. When pilots were learning to fly, flight instructors would take the stick if a cadet's aircraft stalled or had another problem—pilot candidates did not even learn to recover from a tailspin. For many years, PLAAF training pilots did not have operational experience and were on a different career track than operational pilots. Officers scripted maneuvers, and markers on the ground often mapped a path to a target. One PLAN newspaper reported that a pilot on strip alert was assigned a fixed target and, after flying there and locking on, had to request permission from his commander in a control tower to launch a missile.[75] As one study noted, "they could competently pilot an aircraft, but they were woefully underprepared to fight in one."[76]

To remedy this, PLAAF training began to change in 2017, doing more to encourage pilot autonomy with independent decisionmaking and "free air combat" (自由空战) for at least some of its pilots. There are more unscripted exercises, and pilots now often fly entire sorties without guidance from controllers in a control tower. Pilots now train in poor weather; pilot candidates learn how to recover from a tailspin and otherwise fly with less interference; and pilots practice fighting (as opposed to just flying) in formation, flying as part of larger strike packages, and maneuvering while maintaining radio silence.[77] In addition, there is a greater willingness to criticize senior pilots for mistakes during training than in the past.[78]

The PLAAF has also begun to use operationally experienced pilots to train new pilots.[79] Likewise, it has increased its use of dedicated opposing forces in training to improve the quality of its exercises.[80] And it has introduced competitions designed to highlight the achievements of pilots in unscripted air missions independent of ground control—the so-called Golden Helmet (air-air) and Golden Dart (ground-attack) events. However, the PLAAF still lacks an air weapons school or an intensive system for "training the trainer," as exists in the United States (and, under different names, in the UK and Australian air forces). The absence of such thoroughly trained trainers at the unit level leaves planning for unit-level training largely in the hands of commanders, who may have received their training years previously.

Interviews suggest Chinese military forces still operate in a top-down manner despite improvements.[81] When the PLAAF did conduct training and exercises with more autonomy, it found that some pilots lacked innovation skills and that senior commanders were poor at designing overall tactics and control. Training guidance is highly centralized, flowing from party and headquarters and prioritizing political control over operational innovation. Much of the training is still scripted. Pilots are told specifically what to do in a briefing room or are, at most, given several options to choose from, as opposed to having more complete freedom of action; as one expert put it, "there is always someone telling you what to do" while you are in the air.[82] Another study concluded that "centralized control remains a persistent problem."[83] Another expert noted that there is a cycle of media articles that point out how training is over-scripted, claim the problem is solved, and then return to claims that training is over-scripted.[84]

**Much of the PLAAF training is not for combat-realistic scenarios, and there are reports that some training exercises are largely fraudulent.**

The overall PLAAF culture is risk averse. As one expert noted, "only one screwup will end your career."[85] The same expert noted that the risk aversion is greater than in the United States, and it has increased due to the various corruption probes. This manifests in concerns about accidents in training and avoiding rocking the boat or embarrassing senior officials. As they explained, "you know what the outcome of an exercise is supposed to be, and so you act accordingly."[86]

Much of the PLAAF training is not for combat-realistic scenarios, and there are reports that some training exercises are largely fraudulent.[87] In addition, the PLAAF has a high washout rate—50 percent—between when pilot cadets enter the service and when they begin operational activity seven years later.[88]

Flying hours are often insufficient. Some fighter pilot units average up to 150 hours a year, but in most cases, it is between 100 and 125 hours.[89] The U.S. Air Force historically has tried to ensure combat pilots have 200 or more training hours per year.[90] In the PLAAF, much of this training time is instead spent fulfilling basic requirements, reducing the number of flying hours for more difficult, unscripted tasks.[91]

The PLAAF has made efforts to increase training against multiple types of aircraft, but this remains a work in progress.[92] Many PLAAF airfields have only one runway and host only one type of aircraft.[93] This limits combined air operations as well as efforts to practice combined arms.[94] However, as the quality of PLAAF aircraft has improved, it has had useful second-order effects. In the past, every aircraft was handmade, leading each airframe to fly differently. As a result, pilots tended to be paired with a particular airframe. Thanks to improved manufacturing quality, pilots can now fly any airframes belonging to their regiment.[95]

The PLARF, like the PLAAF, has improved its training to be more realistic in recent years, doing more with other services and practicing in difficult weather and terrain conditions. However, it lacks centralized training facilities, with personnel trained at each of the PLARF's nine main bases.[96]

### RECRUITMENT AND RETENTION

For much of its history, the PLA struggled to build a high-quality military, but this was hindered by the poor socioeconomic conditions of China. Through the 1950s, only a small number of PLA officers were literate, and the CCP considered many of these to be politically suspect. It was not until the Deng Xiaoping era that distrust of educated officers began to decline.[97]

In general, the PLAAF and the PLARF rely heavily on conscripts, which one expert called the "weakest link" in these services.[98] In the past, about two-thirds of the PLA's total enlisted forces had only a ninth-grade education. This is changing today—in 2020, 57 percent of the PLA had a post-secondary education (and post-secondary education quality varies in China, with rural areas in particular having limits). Many PLARF NCOs face difficulties meeting the technical requirements important for their service. Often they are educated by the PLARF during their time in service.[99]

The PLAAF developed programs to draw graduates from civilian universities, especially those with engineering and technology backgrounds, and the program was highly competitive.[100] However, it abolished this program in 2016 and has yet to find a replacement.[101] Because officers now exclusively come from PLA academies rather than some coming from civilian institutions, education tends to be specific and hinders cross-PLAAF knowledge, with pilots and logisticians, for example, attending different schools.[102]

Conscription cycles also hinder advanced training and reduce institutional knowledge.[103] A 2022 study estimated that among the PLAAF's almost 400,000 members, over 120,000 were two-year conscripts, meaning that 60,000 conscripts entered and left the force each year.[104] The large number of conscripts reduces the overall skill level of the service, leads to high turnover, and requires regular basic-level training.[105] In addition, most PLAAF officers spend their careers in a single unit, reducing cross-unit learning and adaptability.[106]

Retention is also a problem. Many PLAAF personnel in general feel their skills are not well employed, and this increases the number who leave for civilian jobs.[107] The PLAAF does write off the tuition debt of recruits and helps them find post-military jobs, the latter increasing incentives for trained forces to leave the PLAAF.[108]

### INEFFICIENT MAINTENANCE AND SYSTEM QUALITY

China has had problems producing advanced turbojet engines, and the PLAAF has long relied on Russian engines, limiting its capabilities in thrust and sustained supersonic performance and creating maintenance issues. In recent years, however, China has begun to improve the quality of domestically produced engines, reducing its reliance on Russian technology and improving its ability to do long-range operations and its performance in general.[109]

Table 5.1
## Overview of PLAAF Weaknesses and Strengths

| AREA | EXPLANATION | SUMMARY ASSESSMENT |
|---|---|---|
| Air superiority and counterair | Conduct SEAD/DEAD, counter enemy air, and strike enemy aircraft and bases. | The quality and quantity of platforms and munitions are improving, as is pilot quality. There is an increasing ability to hit fixed targets, but this is likely to be more limited regarding mobile targets. |
| Offensive strikes | Attack leadership, infrastructure, supply lines, and reserve forces; provide CAS; conduct dynamic targeting; and deploy airborne forces. | The PLAAF and PLARF have improved offensive strike capabilities, but CAS and other coordination with ground forces are questionable. Unscripted operations and dynamic targeting probably remain weak, limited in-flight refueling reduces the range of some forces, and airborne assault capability likewise probably remains weak. |
| Protecting friendly airspace | Ensure the safety of China's leadership, military bases and non-frontline forces, logistics, critical infrastructure, and population centers. | Air defense capabilities are improving significantly, but coordination between aircraft and SAMs remains limited. |
| ISR | Use intelligence assets for targeting, battle damage assessment, and situational awareness. | There have been significant improvements in the scale and speed of collection, especially with space-based systems, but air-based ISR capacity remains limited. |
| Airlift and mobility | Provide both strategic and tactical lift, and extend the range of the PLAAF's fighting force. | The PLAAF is improving both the number of lift aircraft and their range. However, overall capacity is still inadequate, and there is limited training for large-scale operations and no global network. |

SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

**There are also questions about the quality of aircraft, especially given corruption issues. As one expert noted, "often stuff in China is not built to last."**

Frequent crashes due to maintenance and pilot error problems pose an ongoing challenge for the PLAAF.[110] Maintenance has improved considerably but is often slow, which drives flight time, as units are evaluated on their flight safety records.[111] Every airframe has a dedicated ground crew. If a pilot and their airframe go to a new base, the maintenance unit must go with them.[112] A rigid approach to maintenance also makes it more difficult to integrate different aircraft within the same brigade.[113] There are also questions about the quality of aircraft, especially given corruption issues. As one expert noted, "often stuff in China is not built to last."[114]

## CONCLUSION

The PLAAF is steadily improving its capabilities, including deploying advanced air-to-air and strike aircraft, developing improved munitions, and conducting more realistic training, among other important advances. As a result, the PLAAF is far more capable than it was a decade ago. However, the newness of the missions, uneven training, and maintenance and recruitment issues pose ongoing challenges for the PLAAF. In addition, several qualitative weaknesses limit its combat effectiveness. As Table 5.1 summarizes, the PLAAF is competent in some areas, such as striking fixed targets and space-based ISR, but it has weaknesses regarding protecting friendly airspace, offensive strikes and CAS, and air mobility. However, as noted, the PLAAF is aware of many of these weaknesses and is working to correct them.

The PLAAF would play an important role in any contingency regarding Taiwan and would otherwise be a formidable threat in a potential conflict with the United States and its allies, especially close to China's shores. In addition, for contingencies where advance planning is possible, the PLAAF's and PLARF's ability to hit numerous fixed targets could prove devastating.

The PLAAF, however, may struggle in several ways. It could face difficulties adjusting to fast-changing conditions and coordination with other services and its own air defenses. Its ability to use airborne forces to seize airfields may be limited. In addition, the PLAAF will find it harder to operate farther from China's shores with its limited lift and mobility. Mobility and creativity on the adversary side may pose significant challenges for the more scripted PLAAF and PLARF.

"Being able to win wars is the core direction of the party's goal of strengthening the army in the new era, and it will inevitably require our army to comprehensively improve its ability to prepare for war. . . . However, at the same time, we must be soberly aware that the orientation of some units to focus on war has not been firmly established, and the phenomenon of insufficient time, energy, and resources still exists to varying degrees."[1]

–Che Xingfei



# THE LAND DOMAIN



Type 99B tanks during a V-Day military parade in Beijing.

▶ VCG/VCG via Getty Images

# 6

**Landpower remains critical for militaries to control territory, populations, and resources.** The PLA's *Military Encyclopedia on Army Strategy* defines "land superiority" (制陆权) as seizing and controlling land to obtain freedom of action and prevent the adversary from controlling that land.[2] As one PLA article noted, "The land battlefield is the core arena of war, and the control of a specific piece of land within a given timeframe often becomes the objective of the entire war or operation."[3] The PLA views modern warfare as a "systems confrontation," rather than as just a confrontation between forces or platforms. It depends on ground forces for territorial defense and offense, amphibious assault, and many of the coordinating functions for combined arms (based on PLAA dominance of command positions). The PLAA and other maneuver forces, such as the PLAN Marine Corps and PLAAF Airborne Corps, are modernizing their capabilities, from tanks and artillery to air defense systems.[4]

Nevertheless, platforms are important. Chinese defense companies, such as the China North Industries Group Corporation, are building significant land capabilities. Examples include the ZTZ-99A/B (Type 99) and ZTZ-100 (Type 100) main battle tanks; ZBD-04A amphibious infantry fighting vehicles; PCH-191 modular long-range rocket artillery system and QLG-91B and QLG-10 under-barrel grenade launchers; FK-3000 and Type 625 counter-drone systems; and HQ-29 air defense system. The PLAA has also stepped up its investment in AI and other advanced technologies, such as quantum computing and robotics, as part of its effort to pursue military intelligentization (智能化) for ground force command, fires, ground-based air and missile defense, and other areas. In addition, the PLAA has utilized unmanned systems and autonomy—including developing networked swarming—in land warfare.[5]



**ZTZ-100 (Type 100) tanks as part of a ground assault formation during the V-Day military parade on September 3, 2025, in Beijing.**

PHOTO: VCG/VCG VIA GETTY IMAGES

While the PLAA fields roughly 1 million soldiers, only a small number of PLAA troops have deployed abroad, mainly for peacekeeping, counterpiracy, security cooperation, and humanitarian assistance operations.[6] These operations provide some practical experience for Chinese troops in a low-risk environment. UN peacekeeping operations, for example, provide the PLAA with experience working with multinational forces overseas. The PLAA has also ramped up training and exercises to improve readiness, as well as closely studied lessons from U.S. wars and other conflicts, including Russia's war against Ukraine.[7]

Chinese land forces have engaged in limited conflict, such as the 2020 border clashes with India in the Galwan Valley and the 2022 clashes with India in the Tawang sector. But these operations were small-scale. Soldiers on both sides of the Line of Actual Control were equipped with sticks wrapped with barbed wire, iron batons and rods studded with nails, clubs, machetes, and other melee weapons, rather than artillery, drones, and main battle tanks, due to Indian and Chinese restrictions within two kilometers of the line.[8]

The PLAA is technically a conscripted force, though it functions primarily through a voluntary model. While the government maintains the legal authority to draft citizens to fulfill its personnel requirements, high levels of voluntary enlistment ensure that forced service is generally unnecessary.[9] Nevertheless, the PLAA does have conscripts, which is likely a weakness since conscripts are generally less educated and technically skilled than professional soldiers.[10]

This chapter examines eight functional areas at the operational level of war that are critical for battlefield effectiveness in the land domain:

- **Movement and Maneuver:** Synchronize and integrate the use of military capabilities, such as direct fire and close combat of forces, to achieve broader effects.
- **Sustainment and Logistics:** Provide ammunition, fuel, spare parts, medical support, food, and other critical elements to the force.
- **Fires:** Use weapons systems, such as long-range precision fires, to create lethal or nonlethal effects.
- **Command:** Integrate such land warfighting functions as movement and maneuver, intelligence, information, sustainment and logistics, and fires.
- **Information and Electronic Warfare:** Utilize information and electronic warfare to gain a competitive advantage by manipulating or denying an opponent's information while protecting one's own.
- **Intelligence:** Collect, analyze, and understand the enemy, terrain, weather, and other important aspects of the operational environment.
- **Ground-Based Air and Missile Defense:** Defend land forces against aircraft, missiles, unmanned aircraft systems (UASs), unmanned ground vehicles (UGVs), and other threats.
- **Amphibious Assault:** Conduct ship-to-shore operations and lodgment to facilitate follow-on land operations.

Assessing PLAA operational weaknesses in these areas may be more difficult than in the air and maritime domains since PLA ground forces have conducted limited action overseas and have little interaction with foreign forces.[11] Nevertheless, interviews with operators, as well as primary and secondary sources, provide some indication of operational strengths and weaknesses in wartime.

**The PLAA as a whole is likely unevenly equipped to execute some of the complex and time-sensitive operations envisioned in PLA concepts of modern war.**

This chapter concludes that the PLAA likely has several operational competencies in wartime, such as fires, information and electronic warfare, intelligence, and ground-based air and missile defense. In these areas, the PLAA is likely to present a formidable challenge in wartime. But the PLAA would likely be hampered by some weaknesses in wartime, including movement and maneuver, sustainment and logistics (especially for power projection), ground force command, and amphibious ground assault. The weaknesses manifest most clearly in the kinds of fast-paced, multidomain operations central to China's evolving doctrine, where a land force must combine arms at speed, adapt to shifting conditions, push down command to lower levels, and maintain momentum in contested environments and across bodies of water. Most land forces around the globe—including the U.S. Army and Marine Corps—would struggle to operate effectively in heavily contested environments. While new technologies and a structural overhaul have improved PLAA capabilities in some areas, the PLAA as a whole is likely unevenly equipped to execute some of the complex and time-sensitive operations envisioned in PLA concepts of modern war.

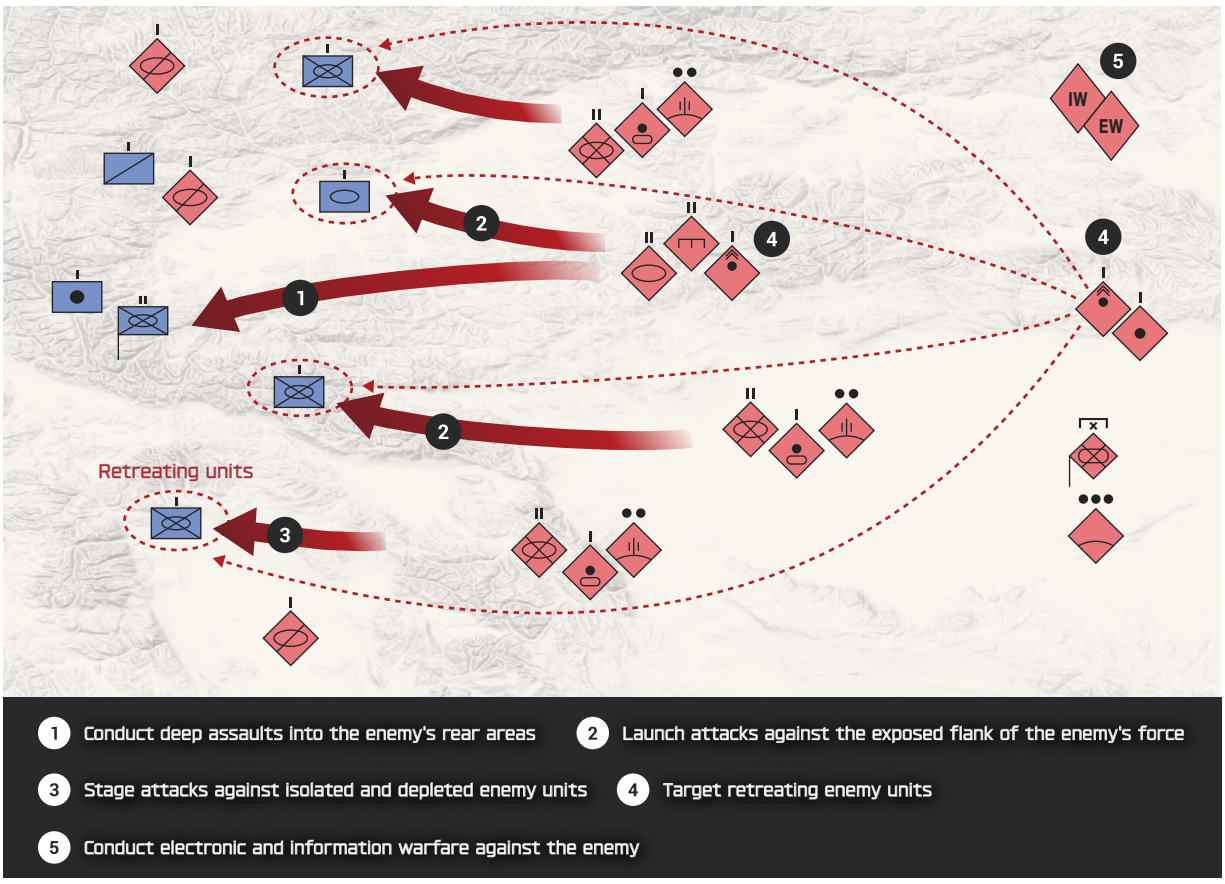
The rest of this chapter is divided into the eight functional areas listed above, which are important for battlefield effectiveness at the operational level of war.[12]

## MOVEMENT AND MANEUVER

Movement and maneuver involve the employment of forces to achieve relative advantage over the enemy, including gaining control of key terrain. Examples include synchronizing and integrating the use of military capabilities, such as direct fire and close combat of forces, to achieve broader effects. Effective maneuver operations typically require a mix of reconnaissance, surveillance, and security operations to provide early warning and protect the main body of the force.

Figure 6.1

### Example of PLAA Maneuver Operations




SOURCE: U.S. ARMY, *CHINESE TACTICS*, ATP 7-100.3 (ARLINGTON, VA: DEPARTMENT OF THE ARMY, AUGUST 2021), 7–15, HTTPS://ARMYPUBS.ARMY.MIL/EPUBS/DR_PUBS/DR_A/ARN34236-ATP_7-100.3-001-WEB-3.PDF.

Most PLA maneuver forces, including those from the PLAA, PLA Marine Corps, and PLAAF Airborne Corps, use a brigade-battalion structure for maneuver, with the combined arms brigade as the primary ground maneuver unit.[13] The PLA's approach to movement and maneuver has evolved thanks to a greater reliance on technology, and the PLAA has designed a system that it hopes can facilitate greater initiative and decentralized warfighting. PLA sources have used such terms as decentralized (分散), directive (训令), and delegated (委托).[14] Figure 6.1 provides an example of a PLAA maneuver operation with deep strikes by PLAA artillery against adversary command posts, supply areas, and artillery.[15]

Based on interviews with operators and a review of primary and secondary sources, it is unclear—and perhaps unlikely—that PLAA units are highly proficient in complex movement and maneuver under fire. These types of operations require high levels of skill, training, and ideally operational experience, including for dispersion, cover, concealment, suppression, and small-unit independent maneuver. Movement and maneuver can be particularly complicated for breakthrough and exploitation operations, which require a sophisticated infrastructure of logistics and sustainment. In addition, there is a great need for independent decisionmaking by junior officers and senior enlisted personnel.[16]

Indian officials report that the PLAA struggled to conduct movement and maneuver in areas such as eastern Ladakh along the Line of Actual Control.[17] The PLAA's reliance on conscripts also posed challenges in ensuring sufficient military discipline and tactical proficiency of some PLAA units to conduct complex movement and maneuver, even with training and exercises.[18] For conscript-heavy formations, Chinese military planners could rely disproportionately on technological superiority and rapid initial gains.[19]

The result is a PLAA force that may be able to generate considerable combat power but could struggle to integrate that power effectively across domains or adapt it to the most challenging operational environments. Consequently, the PLAA would likely struggle to coordinate otherwise proficient small units into effective combined arms teams at the battalion and brigade level. The severity of this weakness would likely depend on the Chinese scheme of maneuver. If the PLA focuses on mass attack against a weak adversary, it may not need to maneuver in a series of small units.

**The result is a PLAA force that may be able to generate considerable combat power but could struggle to integrate that power effectively across domains or adapt it to the most challenging operational environments.**

Joint operations with other services also remain a potential weakness, as discussed in more detail in Chapter 2. Though the PLAA is conducting increasing numbers of training exercises, relatively few are genuinely joint at the brigade or division level. Many PLAA officers lack joint command experience or familiarity with the capabilities of the PLAN, PLAAF, or PLARF. As a result, critical joint functions are likely limited. For example, naval firepower is not always sufficiently incorporated into PLAA planning, leaving ground forces to rely on their own capabilities.[20] Similarly, the PLAA has mixed experience with CAS, and its attack helicopter capabilities remain low in number and relatively poorly integrated with ground forces.[21] These deficiencies likely limit the PLAA's ability to adapt fire and maneuver in combat operations.

In a Taiwan invasion, the PLAA would have to coordinate amphibious landings, inland advances, urban operations under intense time pressure, and air-to-ground operations. Only a fraction of the PLAA's combined arms brigades are dedicated to amphibious formations, and the PLA likely lacks the lift capacity to move its full complement of personnel and vehicles in a single wave.[22] Taiwan's geography compounds these operational challenges. There are few suitable landing beaches on the west coast of the island, the terrain rapidly transitions to mountainous or urban, and the road network is interspersed with rice paddies and dense infrastructure. These geographic realities create choke points for ground forces and slow mechanized movement.

PLAA special operations forces could also encounter challenges in a Taiwan scenario. Although PLAA special operations forces train with army aviation units, they lack the broad range of fixed- and rotary-wing capabilities available to U.S. and some other foreign special operations forces and might struggle to conduct expeditionary operations. In addition, PLAA special operations forces lack proficiency and have limited training for such missions as unconventional warfare, foreign internal defense, and direct action.[23] In a Taiwan or far seas expeditionary scenario, the PLAA cannot readily conduct deep raids, surgical strikes, or special reconnaissance forward of conventional lines without heavy reliance on other services' lift and support.

Urban and subterranean warfare also presents potential operational challenges.[24] PLA writings describe these environments as "human meat grinders" for attackers and concede that operations in such cities as Taipei would likely be "extremely difficult."[25] The PLAA lacks sufficient specialized equipment for underground combat, such as breathing apparatus, drones adapted for subterranean navigation, earth excavators, and demolition tools.[26] Moreover, amphibious PLAA units optimized for beach assaults might be challenged to transition rapidly to urban fighting.

Overall, the PLAA's operational challenges would likely increase in joint operations. The lack of mature joint integration may limit the PLAA's ability to combine arms and maneuver at speed, while environments such as littoral areas and urban centers could expose gaps in training, equipment, and capabilities.

## SUSTAINMENT AND LOGISTICS

Sustainment and logistics include the provision of ammunition, fuel, spare parts, medical support, food, and other critical elements. In wartime, one of the biggest challenges for the PLAA—and any force—is how to rapidly provide this support when the adversary is aggressively targeting air, maritime, and ground supply lines. The geography of the Western Pacific and the need to move material across bodies of water make protecting lines of communication particularly important and difficult.[27] As one PLAA brigade commander declared, "second-rate units focus on performance, and first-rate units focus on gaps." He continued, "bottlenecks hinder combat effectiveness; failure to remove them will inevitably leave hidden dangers."[28]

The PLAA has made numerous changes over the years to logistics, including as part of the "below-the-neck" reforms in 2017.[29] But the PLAA's ability to sustain combat operations is likely constrained by a combination of logistics and maintenance weaknesses, including corruption (which is examined in Chapter 3) and power projection challenges. PLAA sustainment remains optimized for operations near the Chinese mainland, not for prolonged, high-intensity operations across bodies of water that require rapid throughput of supplies and maintenance. Even though the PLAA has conducted joint exercises and simulations involving air and sea movement, the PLAA nevertheless appears to be highly dependent on land transport, which could pose significant challenges for power projection to such locations as Taiwan, the Philippines, and Japan.[30] However, it may pose less of a challenge for possible PLAA operations against India, on the Korean Peninsula, or in other locations where the PLAA can rely on land transport.

**The "final mile" of delivery, especially under enemy fire or in routes constrained by geography, is where the PLAA could particularly experience logistics and sustainment challenges.**

Artillery operations provide an example of possible PLAA logistics and sustainment limitations. The PLAA's strike doctrine relies heavily on massed tube and rocket artillery to deliver fires in support of maneuver forces.[31] This approach depends on maintaining a high tempo of fire over long periods, which requires a resilient logistics network to move and distribute large volumes of ammunition, fuel, and spare parts. Yet compared to Western militaries, the PLAA has a lower density of dedicated logistics units and fewer transport assets relative to its artillery strength.[32] In a prolonged fight, particularly in contested or geographically constrained environments, this imbalance could limit the duration and intensity of artillery

support and force commanders to ration fire or risk exhausting stocks prematurely. The "final mile" of delivery, especially under enemy fire or in routes constrained by geography, is where the PLAA could particularly experience logistics and sustainment challenges.

Maintenance is another possible operational vulnerability. The PLAA's modernization drive has rapidly introduced advanced weapon systems, but maintenance capacity does not appear to have kept pace. PLAA units often field new systems before operators and maintenance staff have had sufficient time to master their upkeep, leading to a reliance on ad hoc fixes, dubious proficiency, and time-consuming evacuations to depots or manufacturers.[33] These challenges not only impact equipment availability in combat but also disrupt training schedules and prevent units from building proficiency on the very systems they would depend on in war. In addition, the PLAA faces potential challenges with medical support, since PLA group army hospitals do not appear to be fully prepared for treating wartime casualties.[34]

The PLAA—and the PLA more broadly—also has a tendency to centralize decisionmaking, which could decrease flexibility and lengthen the reaction time of lower-level logistics units. The PLAA heavily relies on a small cadre of highly experienced senior NCO logistics personnel, while junior personnel often lack the training and confidence to operate independently.[35] High turnover at the junior level means that much of the force may not develop the institutional depth required for sustained operations. This turnover creates the potential for single points of failure. When key maintenance personnel are absent or leave the service, unit readiness drops sharply.[36] In high-tempo operations, these cultural traits could translate into logistics delays and stall PLAA battlefield maneuvers.

A final weakness is corruption, which potentially touches all landpower functions and could impact battlefield performance. Corruption is examined more comprehensively across the PLA in Chapter 3. Examples of PLA corruption include promotion through bribery, falsified training certifications and records, and falsified logistics books. In a war, the result of endemic corruption could be poor or uneven performance among PLAA leaders, who were promoted because of bribery or loyalty, not merit; lagging performance among PLAA units that achieved higher-than-deserved praise for exercises, simulations, or wargames because of fraud; equipment that breaks down if logistics books were falsified; and insufficient spare parts or other matériel because of fraud.[37] The problem for the PLA is that corruption has a significant—and negative—impact on battlefield performance.[38]

Knowing that discovering problems is a primary training objective and the way to please their superiors, some leaders and units develop long lists of weaknesses at the beginning of training but do not expend similar efforts to correct them.[39] Others "train for show" or "train for the test."[40] The PLA calls such activity a "chronic illness" (沉疴顽疾).[41] Promotion-buying among officers and NCOs has also been a serious threat to the PLAA and the military more broadly.

Some research has found that corruption is associated with low morale, lackluster training, poor quality of weapons, and command challenges for combat forces.[42] As one study concludes, "Corruption directly influences combat performance by decreasing the quality and quantity of material available to forces, complicating tactical and strategic decision-making, and creating command and control issues."[43] There is also related research that heavily politicized promotions—including promotion practices that are not based primarily on merit—can undermine military effectiveness.[44] As one analysis concludes, "promoting on quality other than merit worsens performance, as officers are lower caliber, reducing military leadership quality at all levels."[45] Competent military leaders are critical to strengthen morale and inspire troops to fight harder, master tactical and operational skills of combat, and select high-quality subordinates.

**Promotion-buying among officers and NCOs has also been a serious threat to the PLAA and the military more broadly.**

Taken together, these weaknesses suggest that the PLAA could face serious logistics and sustainment challenges in wartime, particularly when it has to project power and rapidly move material across air, ground, and especially sea lines of communication. The transport of ground forces and material appears to be heavily dependent on

land transport, including railway and highway infrastructure, rather than air and sea logistics. These challenges raise serious questions about the PLAA's ability to effectively execute sustainment and logistics for expeditionary operations in the Western Pacific.

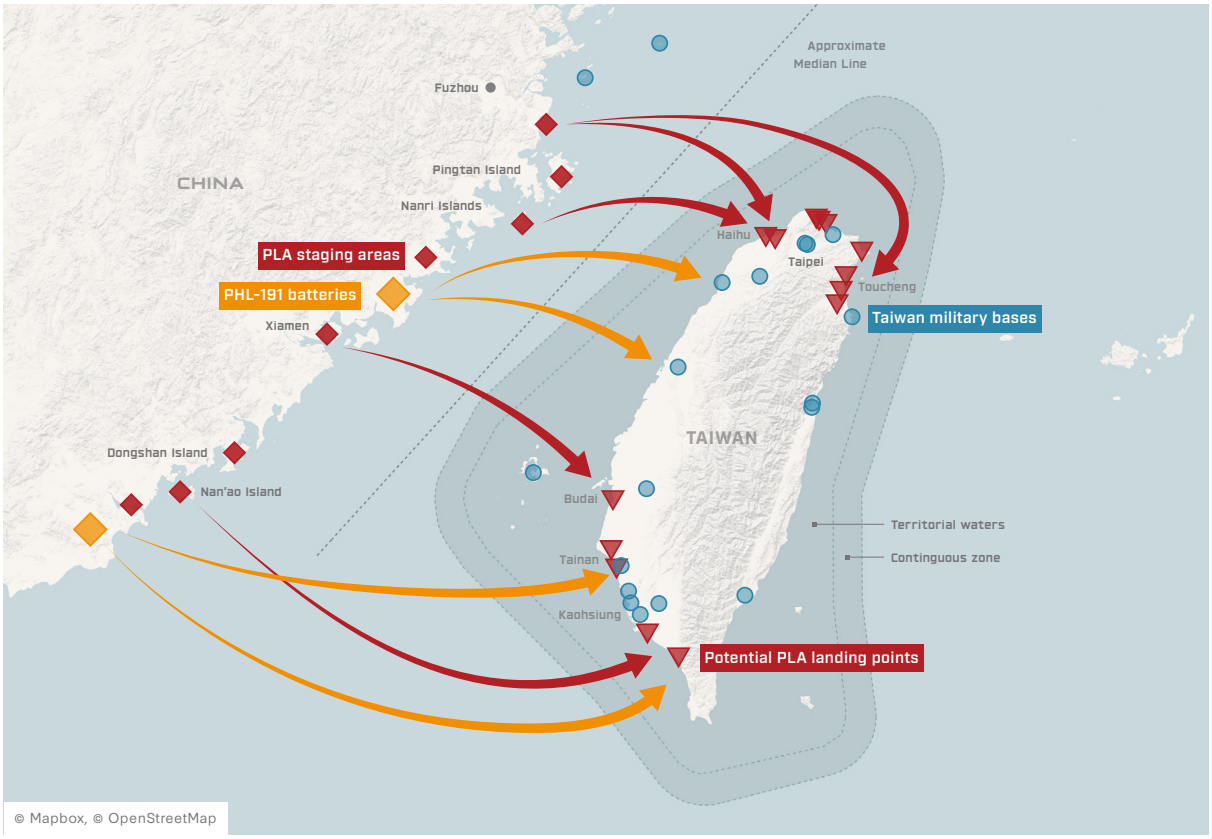
## FIRES

Fires include the use of weapons systems, such as rockets and missiles, to create lethal or nonlethal effects. The PLAA's firepower-strike system, including multidomain precision warfare, is designed to deliver massive volumes of kinetic fires across multiple domains. On land, fires involve identifying enemy targets and using overwhelming firepower to destroy, neutralize, or suppress them, thereby protecting friendly forces and helping them achieve their objectives. PLAA forces have also integrated UASs into training and doctrine and would use them in warfare for kinetic strikes, spotting for fires, battle damage assessment, and other tasks.[46]

The PLAA has integrated AI into fires, including developing networked swarms to support ground forces.[47] As one analysis concludes, "In the process of combat, based on the situation in the battlespace and the targets to be attacked, [drones] will dynamically adjust task assignments and cooperative tactics, autonomously select targets to strike, and on their own initiative adapt to the battlespace environment and dynamically reconstitute functional cooperation."[48] At the operational level, the PLAA's combined arms brigades and artillery brigades are likely to be formidable in warfare, with the ability to conduct precise, long-range fires with AI and other advanced technology. For example, PLAA ground-based fires, such as some of the munitions launched by the PHL-191 truck-mounted self-propelled multiple rocket launcher, are capable of striking the entire island of Taiwan.

Figure 6.2

### Example of PLAA Ground-Based Fires Reaching Taiwan




SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

Nevertheless, the PLAA likely faces some challenges. For example, it fields a mix of advanced platforms alongside legacy systems, which is sometimes referred to as "three generations under one roof" (三代同堂).[49] This could complicate training and produce disparities in capability between units of the same type. For example, the PLAA fields more tanks than any other country in the world, but a significant portion are outdated models of questionable combat value.[50] Some armored brigades operate modern ZTZ-99A/B (Type 99) main battle tanks, while others still field early Cold War–era designs.[51] In a conflict, such disparities could translate into uneven performance across units, limiting the PLAA's ability to mass combat power or rotate units without suffering sharp drops in capability. Maintaining these legacy platforms also diverts resources from modern systems while diluting the overall combat effectiveness of ground forces.

The scale and pace of the development and adoption of new equipment, such as artillery and UASs, have potentially outstripped the PLAA's ability to fully train personnel.[52] This is a challenge for most land forces, not just the PLAA. Even when new platforms are in service, commanders may default to familiar platforms and tactics rather than exploiting a system's full capabilities, as illustrated by the phrase "wearing new shoes, but traveling the old road" (穿新鞋走老路).[53] The challenge to effectively integrate new fire technology extends to the broader coordination of forces. PLAA reconnaissance units are also lighter and less well armed than Western equivalents, constraining their role.[54] These shortfalls likely limit the PLAA's ability to generate timely and actionable targeting data, reducing the effectiveness of precision fires and slowing the kill web. In fast-moving operations, this could mean missed opportunities to exploit fleeting targets or disrupt enemy maneuvers.

Communications shortfalls may be another operational limitation that impacts fire support. While modern terrestrial radios are increasingly available, the PLAA still faces obstacles in establishing secure and resilient networks, particularly in challenging terrain, over long distances, or under electronic attack.[55] As a result, some PLAA combined arms brigades may not be able to maintain continuous, high-quality communications beyond their immediate area, a critical weakness in modern combat operations. Counter-unmanned aircraft systems (C-UASs) represent another potential area of vulnerability.[56] Portable jamming systems are limited by line of sight, battery life, and target capacity. The PLAA is exploring swarm-on-swarm tactics and directed-energy laser weapons, but these capabilities are immature and, in the case of lasers, potentially vulnerable because they require storing, transmitting, and using large amounts of energy in contested environments.[57]

**Some PLAA combined arms brigades may not be able to maintain continuous, high-quality communications beyond their immediate area, a critical weakness in modern combat operations.**

Despite these challenges, however, the PLAA likely poses a serious threat in wartime. The PLAA can generate substantial lethal and nonlethal effects through the use of direct and indirect fires, including using land-based, long-range precision strike systems.

## COMMAND

For ground forces, command broadly includes the integration of such land warfighting functions as movement and maneuver, intelligence, information, sustainment and logistics, and fires. According to the PLA, command involves "activities undertaken by commanders at each echelon of the military and their command organs for organizing and leadership of subordinate units' combat operations and other activities."[58]

Like the PLA more broadly, the PLAA remains an army that serves the party. As one PLA Daily article concluded, "From a fundamental perspective, the absolute leadership of the Party over the military must always be upheld. Our army is an armed group that carries out the Party's political tasks; obeying the Party's command is the foremost requirement for our army's development and its lifeline."[59] The same is true of the PLAA more broadly. In the PLA's dual command structure, the military commander shares author-

ity with a political leader or commissar from the company level upward.[60] The CCP regards the role of political commissar as a source of strength and a comparative advantage for the PLA, including the PLAA.[61]

Political work is a core aspect of the PLAA and is the main source of party control over the military. In the army, political officers are responsible for conducting political education, maintaining unit morale, and enforcing discipline. Political officers are also involved in making decisions on promotions, career advancement, and the removal of officers for disloyalty, corruption, or violation of party rules. In addition, political officers can be involved in routine personnel issues, such as helping adjust to military life, offering counseling, and advising officers on ethics.[62] In the PLAA, the CCP has established party committees at the battalion level and in functional and administrative departments. Party committees are referred to as party branches at the company level and party small groups at the platoon level. In regiment-level party committees and above, membership can include the commander, political commissar, deputy commanders, deputy political commissar, and others.[63]

While China's political and military leadership view the dual command structure as a strength, the power of the CCP and centralized decision-making likely undermine flexibility, initiative, and speed in wartime. The system's persistence over decades suggests that the CCP is likely unwilling to trade political control for operational agility—or, at the very least, does not see it as a problem. At the PLA theater command and PLAA group army levels, decisionmaking remains committee based and consensus driven.[64] This approach risks creating delays in combat operations where rapid judgment and decisive action on the ground are required, such as those in high-intensity conflicts. Indian officers operating on the Line of Actual Control reported that PLA tactical commanders sometimes struggled with flexibility and initiative, and they frequently looked to their superiors for clarification, confirmation, and orders.[65]

In addition to slow decisionmaking, Xi Jinping's emphasis on absolute CCP control, political discipline, and anti-corruption enforcement could discourage some PLAA commanders from taking risks and making independent decisions in wartime. CCP and PLA leaders acknowledge this tendency in slogans such as the "three whethers" (三个能不能), which questions whether the armed forces can maintain CCP loyalty, fight effectively, and rely on competent commanders.[66] The fact that loyalty appears first in this list underscores the CCP's priorities and the extent to which political reliability overshadows operational initiative.

The tension between centralized political control and the demands of modern operations is most evident in the PLAA's adoption of new warfare concepts, such as target-centric warfare, information-firepower strike, and point-controlled annihilation warfare.[67] These concepts break down large military operations into components made up of multiple time-sensitive tasks and require that subordinate commanders understand broader operational intent, integrate multiple capabilities, and adapt force groupings to fluid battlefield conditions. Yet under current institutional practices, PLAA commanders may seek approval and avoid blame for their actions, limiting their ability to make decisions independently and quickly. Moreover, enhanced digital integration of command will only bolster the CMC and political overseers' ability to override decisions made in the field, reinforcing risk-averse attitudes.

Some argue that these weaknesses are likely overstated and miss a major transformation underway in PLA—including PLAA—personnel and the use of technology. As one assessment concludes, "the existing analyses of China's approach to military command reflect an understanding of PLA command systems, culture, and practices that is fairly static—and doesn't account for the significant transformation through talent and technology that the PLA has been undertaking in its recent history."[68] According to this view, the PLAA—and the PLA more broadly—has increasingly developed technology and training for human-machine collaboration that encourages lower-level initiative.[69]

While it is difficult to know with certainty how the PLAA will fight in a war, there are nevertheless good reasons to believe that the role of the party and the dual command structure may be more of a weakness than a strength in wartime. The result is an army caught between two imperatives: the need for flexibility and initiative on the one hand, and the party's insistence on political orthodoxy and control on the other. This contradiction is not new, and it has been present in PLA discourse for decades. But under Xi's leadership, the pendulum has swung toward CCP control. As long as political oversight permeates planning, training, and operations, the PLAA and other services may struggle to achieve the speed, integration, and initiative required for the concepts around which it has built its modern doctrine.

## INFORMATION AND ELECTRONIC WARFARE

Information warfare is the use of information to gain a competitive advantage over an adversary while protecting one's own use of, and access to, information. The PLA's information warfare system is designed to attain information dominance through informatization and includes a broad range of AI-enabled information capabilities, from public diplomacy and psychological warfare to electronic warfare, cyber operations, and space and counterspace operations. These capabilities involve influencing the cognitive domain to shape an adversary's decisionmaking by influencing its policymakers, military, and population. Overall, the PLA—including the PLAA—has powerful tools to conduct information operations in war and is likely to be a formidable adversary, particularly with its integration of AI.

PLAA information warfare includes several components, such as the concept of "three warfares" (三战). These include the use of media warfare, psychological warfare, and legal warfare to weaken an adversary.[70] In the land domain, it can include information, disinformation, and misinformation to manipulate public opinion, the adversary's military and policymakers, and international law to support PLAA operations. Building on Mao Zedong's contention that the military's goal is to carry out "the political tasks of the revolution," the three warfares concept offers a way for the PLAA to establish and expand Chinese political power and influence at home and abroad without necessarily resorting to armed conflict—or, at the very least, to supplement kinetic action with information operations.[71] The components of the three warfares are intended to be reinforcing rather than mutually exclusive, and the PLA has effectively leveraged AI in all of the areas.

In addition, Chinese doctrine emphasizes the need to gain an advantage over an adversary by disrupting their command and control capabilities through electronic warfare, cyber, and space-based operations.[72] Electronic warfare is action taken to impact an adversary's use of electronic equipment and command and control capabilities, as well as to protect one's own capabilities.[73] Within the PLAA, electronic warfare can include electronic offense, defense, and reconnaissance.[74] PLAA doctrine emphasizes the need to deploy electronic warfare assets at the tactical level, including with combined arms brigades. The PLA categorizes electronic warfare as a component of information operations. For combined arms brigades, electronic warfare missions include radio frequency jamming, precision-guided munitions jamming, radio direction finding, and neutralization of sensors—including from UASs. PLAA assets focus on disrupting the enemy's tactical communications, undermining enemy fires by disrupting enemy targeting or intelligence collection, and locating high-value targets.[75]

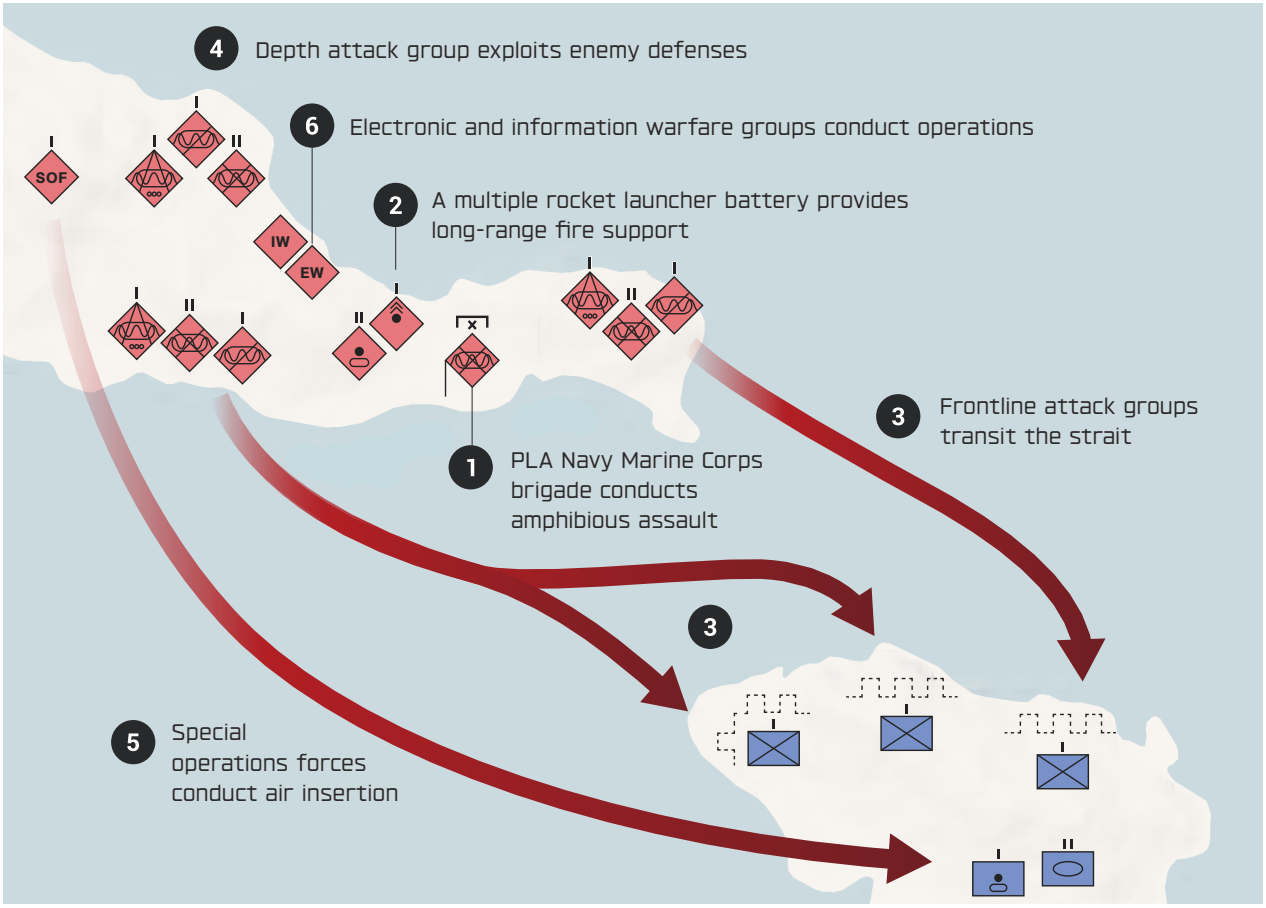
Overall, the PLAA and broader PLA have significant information warfare, electronic warfare, cyber, and space-based capabilities to conduct aggressive information campaigns and target an adversary's national and theater command centers, satellite communications, intelligence and reconnaissance assets, and logistics nodes in wartime.[76] These capabilities would likely help improve PLAA battlefield effectiveness in wartime.

## INTELLIGENCE

The goal of intelligence in the land domain is to collect and analyze information to understand the enemy, terrain, weather, and other important aspects of the operational environment. Starting around 2015, Xi Jinping ordered the army to accelerate transformation from regional defense to all-domain operations.[77] The PLAA is highly competent in intelligence at the operational level of warfare based on robust signals, human, imagery, and other types of intelligence—including the growing use of AI. Indian accounts during the Galwan incident indicate that the PLAA effectively used ISR to provide situational awareness of Indian positions.[78]

More broadly, PLAA forces have access to China's advanced space-based capabilities for on-orbit ISR—including signals intelligence collection. As part of military-civil fusion, China has mobilized government and commercial resources to build broadband satellite constellations and persistent surveillance networks with large numbers of satellites (reportedly including more than 500 ISR satellites).[79] The PLAA has integrated these capabilities to supplement its intelligence and analysis, including to close kill webs.[80]

Figure 6.3
## Example of Amphibious Landing Operation




SOURCE: U.S. ARMY, *CHINESE TACTICS*, 7–18.

## GROUND-BASED AIR AND MISSILE DEFENSE

Land forces need to defend against aircraft, missiles, UASs, UGVs, and other threats—including swarms. The PLAA uses a dense and layered air defense system, including with the integration of AI.[81] For low-level tactical defense against UASs and other threats, the PLAA uses medium- and short-range point defense systems—including gun-based defense systems, short-range air defense, advanced electromagnetic systems, UASs for counter-drone defense, and other air defense systems. PLAA tactical systems are supported by upper-tier systems primarily operated by the PLAAF. These systems include long-range SAM systems and fixed-wing aircraft operating in cooperation with one another to deny wide areas of airspace and deter or defeat enemy air threats.[82]

Virtually every PLAA maneuver formation larger than a company fields an organic air defense capability and focuses on mass and volume. The PLAA's overall approach is to establish a high density of systems and to create large areas of denial to maximize lethality or deter enemy aircraft systems from entering airspace in the first place. At the operational level, the PLAA will likely have formidable air and missile defense capabilities—including counter-drone capabilities—in wartime that could complicate adversary efforts to conduct maneuver operations and forward deploy aerial ISR assets.[83]

## AMPHIBIOUS ASSAULT

Amphibious assault for ground forces is part of a complex joint maneuver designed to project combat power from the sea onto a hostile

shore—one of the most difficult tasks for any military force. It involves ship-to-shore operations, including logistics, as well as a lodgment to facilitate follow-on land operations. For the PLAA, an amphibious assault could involve landing operations on the beachheads of Taiwan or other areas, such as the Philippines. While all the PLA services have a role in an amphibious landing campaign, each service's land component has an important role. Examples include the PLAN Marine Corps' amphibious brigades and air assault battalions, the PLAA's amphibious combined arms brigades, and the PLAAF Airborne Corps' airborne brigades. Their objectives include penetrating or circumventing coastal defenses, establishing a lodgment, consolidating combat power, and seizing and holding key inland areas.

The PLAA and other land forces would play an important role in an amphibious assault, as Figure 6.3 illustrates. Amphibious landings are typically supported by massive firepower, including deep strikes, and information warfare. Firepower can be generated from missiles, UASs, aircraft, surface vessels, or long-range artillery. Once ashore, the initial wave of attackers may try to establish firepower superiority over local enemy defenses, forcing enemy retreat and enabling the establishment of a beach security area. ISR occurs throughout the assault.[84]

Over the last several years, PLA modernization, wargaming, training, and refinements indicate that amphibious assaults remain a top consideration for the PLA. The PLAA has conducted regular amphibious assault and airborne training, sometimes with joint service counterparts. Training events have likely improved activities such as beach assault, logistics, fire support, and rapid loading and offloading of amphibious equipment. The PLA continues to use UASs and UGVs that can support combat objectives during an amphibious assault.

Nevertheless, the challenges already identified in this chapter on movement and maneuver, sustainment and logistics, and command would likely create a serious challenge for the PLAA in an amphibious assault. As the 2020 Science of Military Strategy notes, an amphibious assault "is one of the most complex military operations in modern warfare and requires strong mobility, air support, maritime transportation and logistics support, to effectively assault and attack the enemy."[85]

## CONCLUSION

The PLAA would likely be competent at the operational level in wartime in some areas, such as fires, information and electronic warfare, intelligence, and ground-based air and missile defense. But the PLAA is still likely deficient in such areas as movement and maneuver, sustainment and logistics, ground force command, and amphibious assault. Table 6.1 highlights some of the key conclusions.

There may be other areas, such as air mobility of PLA ground forces, where the PLA would face challenges in wartime.[86] Chapters 2 and 3 also examine broader PLA weaknesses—including PLAA weaknesses—in such crosscutting areas as joint operations and corruption.

Table 6.1

## Overview of PLAA Weaknesses and Strengths in the Land Domain

| AREA | EXPLANATION | SUMMARY ASSESSMENT |
|---|---|---|
| Movement and maneuver | Synchronize and integrate the use of military capabilities, such as direct fire and close combat of forces, to achieve broader effects. | The PLAA would likely struggle to conduct movement and maneuver in a highly contested environment, including operating jointly with other PLA branches. The result is a ground force that can generate considerable combat power but could struggle to integrate that power effectively. |
| Sustainment and logistics | Provide ammunition, fuel, spare parts, medical support, food, and other critical elements to the force. | The PLAA could face challenges sustaining combat operations because of logistics and power projection challenges. PLAA sustainment remains optimized for operations near the Chinese mainland, not for prolonged, high-intensity operations across bodies of water that require rapid throughput of supplies and maintenance. |
| Fires | Use weapons systems, such as long-range precision fires, to create lethal or nonlethal effects. | The PLAA's combined arms and artillery brigades are likely to be formidable in warfare, with the ability to conduct precise, long-range fires with AI and other advanced technology. |
| Command | Integrate such land warfighting functions as movement and maneuver, intelligence, information, sustainment and logistics, and fires. | While China's political and military leadership view the dual command structure as a strength, the power of the CCP and centralized decisionmaking would likely undermine PLAA flexibility, initiative, and speed in wartime. |
| Information and electronic warfare | Utilize information and electronic warfare to gain a competitive advantage by manipulating or denying an opponent's information while protecting one's own. | The PLAA has powerful and advanced tools to conduct information warfare and is likely to be a formidable adversary in wartime. The same is true of electronic warfare, including PLAA and broader PLA capabilities in the cyber and space domains. |
| Intelligence | Collect, analyze, and understand the enemy, terrain, weather, and other important aspects of the operational environment. | The PLAA has significant intelligence capabilities for wartime, including sophisticated signals intelligence, imagery intelligence, and other types of intelligence collection and analysis. |
| Ground-based air and missile defense | Defend land forces against aircraft, missiles, UASs, UGVs, and other threats. | The PLAA likely has formidable air and missile defense capabilities—including C-UAS—that could complicate adversary efforts to conduct maneuver and forward-deploy aerial ISR assets. |
| Amphibious assault | Conduct ship-to-shore operations and lodgment to facilitate follow-on land operations. | The PLAA would likely face serious challenges with amphibious operations in wartime because of challenges with movement and maneuver, sustainment and logistics, and command. |

SOURCE: CSIS DEFENSE AND SECURITY DEPARTMENT.

"In the event of a direct conflict with the U.S. military, the PLA still possesses some weaknesses that could be exposed in high-intensity confrontations, impacting operational effectiveness and strategic deployment."[1]

–Chinese military scholar



# EXPLOITING PLA WEAKNESSES



The Virginia-class attack submarine USS *California* underway during sea trials.

▶ Stocktreck Images via Getty Images

# 七

**Despite China's military advances and ability to bring mass and volume to a fight in the Western Pacific, the PLA has not fought a major war in nearly 50 years.** This reality makes it difficult to assess PLA performance in wartime, though it is important to avoid the trap of mirror imaging when assessing the Chinese military. Underestimating the PLA would be dangerous, but overestimating the Chinese military would also be problematic. This report aims to balance analyses of the PLA, which overwhelmingly focus on improvements and strengths, and to examine PLA weaknesses and vulnerabilities. Almost across the board, the PLA has improved its capabilities and operational competence. Yet, as this report highlights, it has weaknesses that can be exploited. The United States has not sufficiently focused on systematically understanding PLA weaknesses—including asymmetries—and designing operational concepts and plans to exploit those weaknesses.

This chapter pulls together several threads from this report and makes two main arguments.

First, the PLA likely faces several operational weaknesses that could impact its battlefield effectiveness: command, undersea capabilities, power projection and logistics, joint operations, corruption, and dynamic targeting. Some might argue that the PLA could overcome many of these weaknesses by focusing on stand-off attacks from missiles and drones, saturating key areas, and largely taking soldiers, aircrew, and sailors out of the loop. Alternatively, the PLA could aim to achieve its objectives by conducting irregular or political warfare rather than conventional warfare. Yet warfare is unpredictable, making it virtually impossible to foresee how it will unfold and difficult for states to control once it begins.[2]

Second, the United States and its allies should be prepared to exploit PLA weaknesses by imposing costs in several ways: disrupting PLA command networks, accelerating undersea acquisitions and procurement, preparing for horizontal escalation, conducting targeted information operations, and prioritizing intelligence collection requirements on PLA weaknesses. There is an urgent need to develop cost-imposing strategies on China. These actions should be integrated into a joint, multidomain operational concept to defeat the PLA in a war—and, consequently, to deter a war in the first place.[3]

The rest of this chapter is divided into three sections. The first provides a summary of some PLA weaknesses at the operational level of warfare. The second discusses opportunities to exploit those weaknesses. And the third outlines several questions regarding how the PLA might adapt and mitigate some of these challenges.

## PLA WEAKNESSES AND VULNERABILITIES

Battlefield success hinges on a complex interaction of factors, such as force employment, command, strategy, and initiative. Chapters 2 through 6 outline several potential PLA weaknesses. Within the maritime domain, for example, the PLA could face challenges in submarine warfare and some aspects of amphibious warfare, maritime air and missile defense, and anti-mine warfare. Within the air domain, the PLA might struggle with air superiority and counterair, offensive strikes (especially dynamic targeting), air-based ISR, and airlift and mobility. Within the land domain, the PLA would likely struggle with some components of movement and maneuver, sustainment and logistics, command, and amphibious assault. This section highlights several weaknesses that could be exploitable.

### COMMAND

China's dual command structure, with a military commander and political commissar of equal authority within each unit, likely has vulnerabilities in wartime—even though party leaders view this structure as a strength. The PLA's dual command structure may be particularly challenging in the undersea domain because of the inherent communications limitations of submarine crews.

First, there is a risk of disagreement and confusion in decisionmaking during combat. While the PLA commanding officer makes routine military decisions at the tactical and operational levels, the political commissar can drive the decisionmaking process in key moments and can change decisions if they conflict with party priorities. Interviews with operators identified multiple instances of disagreement and tension between political offices and PLA military commanders at the operational level. These instances of disagreement could become more frequent during periods of wartime when lives are at stake and there is increased party pressure, including from the CMC.

Second, the PLA's dual command system could limit rapid response and initiative during wartime. In a single command system, the commanding officer relies on the crew to follow the commander's intent and can delegate authority to individuals to make decisions on their behalf in time-sensitive situations. Instead of fostering an environment to empower individuals, lower-level PLA units may wait for direction by the commanding officer or political commissar—or even consensus—before taking appropriate action. The PLA's dual command structure could prove particularly challenging in contested environments. Lower-level PLA leaders may need to act quickly but cannot communicate with—or rapidly get approval from—higher-level party and other officials. These command problems are likely to be compounded by PLA challenges with flexibility and initiative. During wartime, lower echelons are expected to follow orders and adhere to their plan. However, wartime is unpredictable. Adversaries can conduct surprise actions through deception or unexpected maneuvers. In addition, command and control can be disrupted because of counterspace, cyber, electronic warfare, or kinetic strikes against leaders and command and control systems. Under these conditions, subordinate leaders need to take the initiative to adjust to a new situation and achieve their commander's intent. Battlefield effectiveness generally requires lower-level leaders to embrace flexibility and initiative.

Interviews with U.S. and other operators suggest that PLA pilots, surface commanders, and ground officers tend to be comfortable operating from scripts and in predictable situations but can freeze up and seek leadership guidance when adversary forces conduct unscripted actions. For example, the PLAA remains heavily centralized, limiting the ability of junior officers to exercise initiative at lower tactical echelons. Small-unit leaders are often unwilling to make decisions because of a zero-tolerance culture, and officers are often tentative about empowering subordinates out of concern that they might underperform and thus reflect poorly on senior officers.

### POWER PROJECTION AND LOGISTICS

The PLA faces significant challenges projecting power in far seas areas and sustaining operations because of limited overseas basing, logistics challenges, and other issues. PLA power projection capabilities, such as strategic airlift and sealift, remain relatively limited, reducing China's ability to execute operations outside the first island chain. The PLA also lacks a robust logistical support infrastructure to facilitate far seas operations. The PLA does not have sufficient at-sea replenishment capacity and overseas bases to support global naval, air, and ground deployments—including the ability to provide fuel, ammunition, medical supplies, spare parts, and other matériel. Wartime operations would further tax PLA logistics since replenishment ships and aircraft would likely be targeted, leaving surface ships, subma-

rines, aircraft, and ground units at risk of being stranded. A fully capable base would likely need to feature a military airfield, munitions storage and distribution, piers, maintenance and parts for large warships, intelligence and communications posts, military hospitals, hardened command facilities, SAMs, missile defense capability, and any number of other specialized platforms.

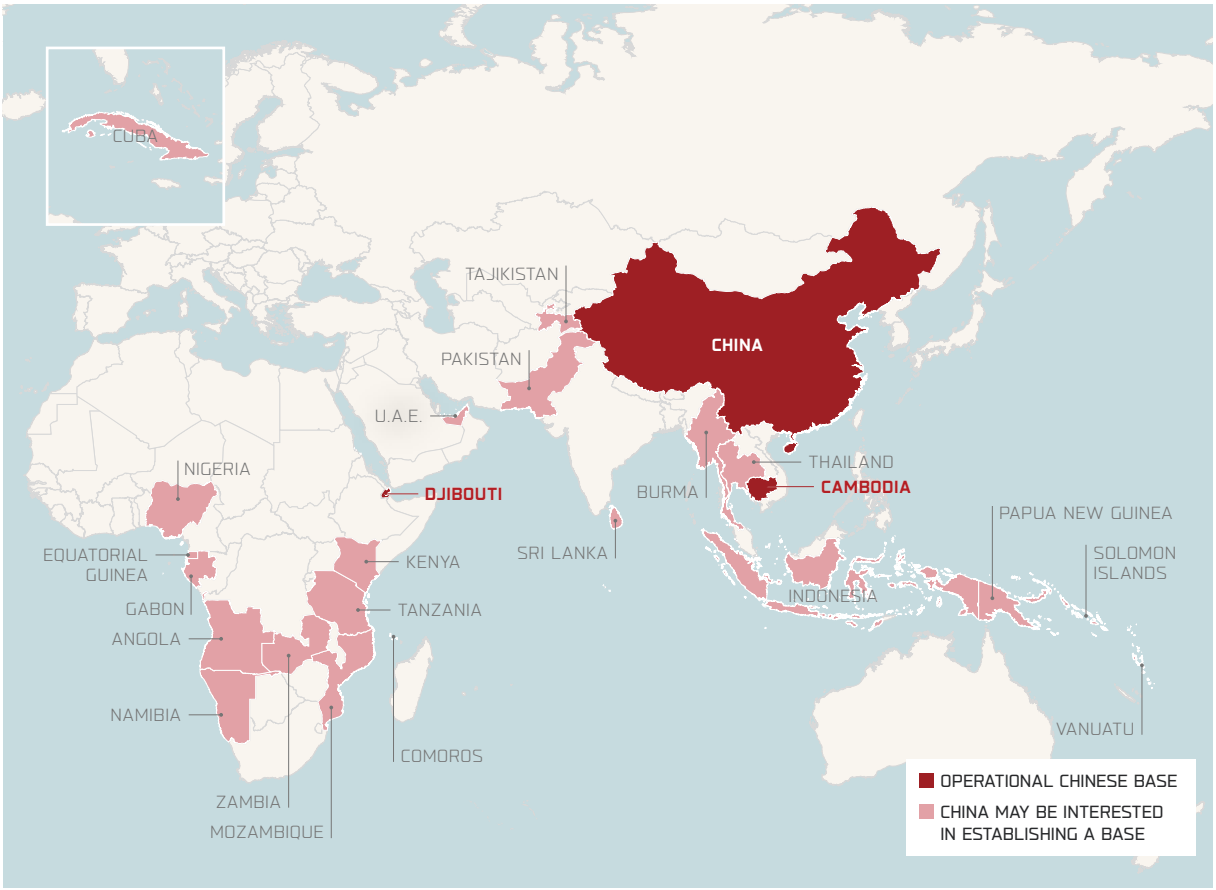
### *UNDERSEA*

The undersea domain is critical in the Pacific. China has made notable strides in submarine warfare and anti-submarine warfare (ASW). New frigates, destroyers, and cruisers are equipped with towed array and variable-depth sonars that earlier fleets lacked, and the Z-20F ASW helicopter will likely extend the range of China's ASW operations. But ASW still remains a weakness for the PLAN, which has been slow to develop modern ASW platforms and techniques to detect and counter submarines.

PLA surface vessels, submarines, and aircraft continue to have difficulty finding U.S. and partner submarines. China's lack of overseas bases limits the PLAN's ability to station fixed-wing patrol aircraft in distant theaters, forcing it to rely on onboard sensors and helicopters for ASW in far seas. The PLAN also appears to be relatively weak in bathymetry and broader oceanographic intelligence and analysis, which impacts the ability of PLA submarines to successfully hide on the ocean floor and leverage currents, the topography of the ocean floor, weather, and other factors. The PLAN's oceanography capabilities significantly lag behind those of the U.S. and Russian navies. In addition, PLAN submarine officers are selected from applicants with among the lowest college entrance examination scores of any PLA educational institution, raising questions about the competency of submarine officers. Finally, the PLA faces challenges with countermine warfare, including the use of undersea mines.

Figure 7.1

## Location of PLA Bases and Areas of Interest




SOURCE: OFFICE OF THE SECRETARY OF DEFENSE, *MILITARY AND SECURITY DEVELOPMENTS INVOLVING THE PEOPLE'S REPUBLIC OF CHINA 2025* (ARLINGTON, VA: U.S. DEPARTMENT OF DEFENSE, 2025), 56.

### JOINT WARFIGHTING

A war in the Pacific could require air, maritime, ground, and other units to operate jointly, a difficult task for even the best militaries. However, the PLA will likely face significant challenges conducting joint operations, including air-sea and air-land battles. The PLA has practiced joint operations in wargames, exercises, and simulations, but these events appear to be highly scripted, with stovepiping rampant among PLA services. The PLA has enacted structural reforms over the last decade, including the creation of standing joint commands. But the deep changes necessary for jointness will require continuous efforts to shift command paradigms, establish new institutional mechanisms, and change culture.

A related challenge is the PLA's lack of a rotational assignment system. The PLA does not sufficiently require officers to rotate through joint assignments, nor does it require commanders to attain joint education until reaching the corps commander level. The limited flow of officers between joint organizations at the national and theater levels likely reduces mutual understanding of roles and responsibilities. Consequently, future PLA operations could be hampered by officers with narrow perspectives. Senior PLA officers tend to stay within their own services and in their assigned functional areas. For example, operational commanders rarely have career-broadening experience in logistics—and vice versa. Relatively few officers in theater command positions have served in the CMC bureaucracy or in service headquarters. Rigidity in PLA assignments could reduce China's effectiveness in future conflicts—especially those requiring a high level of jointness and adaptability—if Chinese military leaders lack perspectives beyond their own service, specialty, and department.

### DYNAMIC TARGETING

The PLA—including the PLAN, PLAAF, and PLARF—could face serious challenges with dynamic targeting in wartime. The PLA has limited experience in quickly identifying, engaging, and assessing targets that are not preplanned. In addition, the PLAAF has not demonstrated a consistent ability to conduct airborne precision strike and could struggle to hit moving targets. The PLAAF might also struggle to quickly execute a kill web, conduct fifth-generation integration, and carry out long-range strikes. In addition, there are questions about the PLA's ability to conduct battle damage assessment and to quickly reattack. There are also questions about the PLA's fire control discipline, including the PLARF's ability to rapidly calculate firing solutions, assess the trade-offs of fires, and coordinate fires to maximize effect in real time outside of preplanned targeting.

### CORRUPTION

The PLA will likely face operational challenges because of endemic corruption in the military and defense industrial base that impacts combat effectiveness. Examples of how this may compromise the military's ability to fight include defective weapons and equipment due to corruption in the industrial base, falsified training certifications, fabricated logistics and maintenance books, falsified evaluation and proficiency reports, and poor quality control. Xi Jinping has dismissed numerous top PLA officers across the organization for alleged involvement in corruption. Chinese media has highlighted the proclivity to cut corners, cheat, or falsify records. At the same time, the media also suggests that units and leaders often "problem show" (问题秀), or engage in performative problem-finding with little intent to fix real issues.[4] Falsified training, which the PLA calls a "chronic illness" (沉疴顽疾), is sometimes termed "train for show" or "train for the test."[5] These problems could affect the PLA's logistics, equipment, reliability, and overall battlefield performance. After all, effective joint warfare typically requires candid reporting, decentralized execution, and adaptation under uncertainty.

## EXPLOITING PLA WEAKNESSES

This section examines several possible opportunities to exploit PLA vulnerabilities.

### LEVERAGING COMMAND CHALLENGES

In wartime, PLA networks should be aggressively targeted using space, cyber, electronic warfare, stand-off weapons, and other means to take advantage of PLA command challenges. The objective should be to sow discord and exacerbate tensions between echelons of the PLA, political commissars and military commanders, branches of the PLA, and other networks. Uncertainty and chaos are inherent in battle, and a commander's view of the battlefield is limited and filled with ambiguity.[6] The centralized organizational structure, dominant role of the party, dual command structure, and challenges with flexibility and initiative at lower levels of the PLA already cause confusion,

create tensions, slow decisionmaking, and limit initiative. Targeting command networks could exacerbate these weaknesses.

### ACCELERATING UNDERSEA ACQUISITION AND PROCUREMENT

The United States and its allies should increase efforts to develop and produce undersea capabilities, as the PLA remains relatively weak in the undersea domain. In multiple iterations of CSIS wargames, U.S. submarines wreak havoc against Chinese ships, including large amphibious vessels, escorts, and logistics vessels.[7] U.S. submarines can hunt PLA targets, transit back to ports, reload, and return to hunting targets. Submarines are also needed to screen against Chinese submarines exiting the first island chain. The implication is straightforward: Attack submarines remain essential for deterrence and warfighting against China.[8]

The U.S. Navy should increase production of Virginia-class attack submarines to two per year, up from the current rate of approximately 1.3 submarines per year.[9] Several developments, including capital investments in a 2 million-square-foot shipyard in Baltimore County, Maryland, may help speed up submarine production rates.[10] Yet, as this analysis suggests, there needs to be an acceleration in the development and production of relatively cheap UUVs with the ability to collect intelligence through advanced sensors, conduct electronic warfare, lay mines, wage antimine warfare, orchestrate logistics, and conduct kinetic strikes. Cheaper UUVs would be helpful to achieve "precise mass," in which large numbers of inexpensive, accurate, and technologically advanced systems can be deployed together, bolstered by more exquisite capabilities, to target an opponent.[11] In addition to UUVs, other capabilities such as naval mines would help defeat a Chinese quarantine or blockade.

These capabilities would be especially useful when tied to operational concepts that focus on rapidly striking at the center of gravity of a PLA invasion force or blockade. One example is an evolution in the Hellscape concept developed out of U.S. Pacific Command.[12] The broad goal of Hellscape is to slow down a Chinese invasion of Taiwan and to increase its cost.[13] Hellscape envisions using massive numbers of UUVs, UASs, and USVs to collect intelligence, conduct target acquisition, employ electronic countermeasures, lay mines, and strike Chinese forces—including PLA surface vessels, aircraft, subsea vessels, air defenses, missile silos, and other capabilities. The types of unmanned systems required for Hellscape include a high-low mix of cheap (or "attritable") and more expensive platforms, such as high-altitude long-endurance UASs and one-way attack and loitering drones that could be launched from surface ships, submarines, aircraft, and land. These capabilities would be helpful to deter—or respond to—Chinese conventional operations, a quarantine, or a blockade.

### MANIPULATING GEOGRAPHY AND HORIZONTAL ESCALATION

PLA warfighting challenges likely increase the farther that PLA forces move away from the Chinese mainland and the first island chain because of power projection and logistics problems. Consequently, the more that Chinese leaders believe a war could horizontally expand beyond a narrow and confined area, such as the Taiwan Strait, the more reluctant they may be to start a conflict in the first place.[14] In short, deterrence may be strengthened if the PLA believes a war could spread.

The United States should continue to work with allies to expand its formal and informal bases across the first and second island chains (and beyond), as well as counter Chinese efforts to expand basing options. Sustaining and expanding diplomatic ties to critical countries in the theater, such as the Philippines, Australia, and Japan, is important. For example, the U.S. Air Force concept of agile combat employment involves the use of small, dispersed air bases abroad. It is designed to increase U.S. and allied survivability, generate combat power in the face of an imminent threat or action, and complicate the adversary's targeting process. Aircraft are particularly vulnerable if they are postured on bases that are few in number, lack passive defenses (such as shelters and decoys), and lack sufficient active defenses (such as kinetic and non-kinetic interceptors, electronic warfare, and directed-energy weapons) that can help counter air and missile threats.

Based on PLA weaknesses, however, the concept of agile combat employment should be broadened to include informal locations that U.S. and allied aircraft, naval vessels, and ground units could use in a wartime scenario. In addition, the increasing deployment of UASs and vertical and short take-off and landing aircraft would enable the U.S. Air Force and other U.S. forces to move away from fixed runways that can be easily targeted. The same logic holds for ships stopping at ports and ground forces conducting training and exercises, where disper-

sal across a broader region could be problematic for the PLA. The United States should expedite the development and deployment of capabilities, such as the U.S. Navy's Transferable Reload At-Sea Method, to reload missiles at sea. The overall goal should be to force a PLA with little wartime experience in dynamic targeting and potentially poor fire control discipline to expand the list of possible targets and, importantly, to increase ambiguity. These steps should also include increasing U.S. and partner denial and deception , as well as bolstering defenses such as hardening aircraft shelters.

The PLA—including the PLARF—could face challenges with a growing list of U.S. and allied targets. As one Chinese military scholar concluded, the PLA's finite supply of munitions could be a challenge in a war, particularly because of the timelines for missile production: "In the Asia-Pacific region, the United States, relying on military bases in Japan, South Korea, Guam, and Australia, has constructed a forward encirclement network against China." The author continues that "the depletion of missile stocks could become a problem. For example, the Dongfeng-26 missile has a long production cycle . . . meaning it cannot be quickly replenished after the outbreak of war."[15] Of course, the United States and its allies face challenges with insufficient stockpiles of munitions and long production timelines.[16] The PLA also has potential stockpile and production timeline challenges with air defense munitions, such as the HQ-9 SAM system and the HQ-22 medium- to long-range air defense system.[17]

### WAGING OFFENSIVE INFORMATION WARFARE

PLA weaknesses also provide several opportunities to conduct information campaigns to sow discord within the PLA between higher and lower levels, as well as between political commissars and military commanders. Information operations might take advantage of the corruption of senior officials and discontent with the party or raise questions about the loyalty of specific military commanders—a sensitive topic with China's paranoid leadership.

Based on potential PLA weaknesses highlighted in this report, there are several aspects of an information campaign that could strengthen deterrence and weaken CCP and PLA resolve to conduct military operations. Examples include threatening to expand a war geographically outside a confined area such as the Taiwan Strait, increasing the PLA's list of U.S. and allied potential targets, raising CCP concerns about U.S. and allied undersea capabilities, forcing the PLA to fight with command networks at least temporarily down, and signaling the potential for a protracted war. It is also worth considering an offensive information campaign directed at the Chinese population that highlights PLA casualties, economic damage, and other major consequences of a war.

### ADAPTING INTELLIGENCE COLLECTION REQUIREMENTS

U.S. intelligence collection is likely inadequate to fully understand PLA weaknesses, including at the operational level of war. The United States should energize efforts to understand weaknesses within the PLA and China's political leadership. One example is better understanding the relationship between specific political commissars and military commanders, especially at the theater and operational level of war in critical PLAN, PLAA, PLAAF, and other units.

In addition, there should be continuing intelligence collection efforts directed at understanding whether—and, if so, how—PLA officers at all echelons are falsifying training certifications, fabricating logistics and maintenance books, failing to properly maintain platforms and systems, and engaging in other types of fraud and corruption. Along these lines, it would be helpful to better understand PLA logistical weaknesses in all domains, including maintenance and personnel problems. Are there significant maintenance challenges with fighter aircraft, bombers, surface vessels, submarines, and land systems? What is the quality of PLA mechanics? These and other questions are important to understanding and exploiting PLA weaknesses.

## CONCLUSION

Despite impressive military capabilities and improved tactical and operational proficiency in many areas, the PLA may face difficulties transitioning to high-end combat. There are several lingering questions about how the PLA would cope with these weaknesses.

First, how quickly would the PLA—and the CMC—adapt in war, and in what areas? On some issues, the PLA may be able to adapt and improve quickly, such as the use of electronic warfare, tactical air and maritime capabilities, and perhaps dynamic targeting. The PLAN could also make progress on submarine and anti-submarine warfare, including with help from Russia. AI also

may enable more rapid tactical adaptation. On other issues—such as the command structure, flexibility and initiative, power projection, and corruption—it is less clear how quickly the PLA would adapt because of the power of the CCP, an emphasis on party loyalty, and an innate fear of political instability. China today, of course, is different from the Soviet Union in the 1940s. Nevertheless, Joseph Stalin and the Soviet military adjusted their command structure in 1942 during World War II, eliminated the equal authority of political commissars and military commanders, restored full operational control to commanders, and went on to defeat the German military.[18] That change, however, occurred only after repeated Soviet defeats and the occupation of much of the Soviet Union. China has recently doubled down on the mechanisms of party control over the military, rather than loosening them.

A second question is how *geography* would impact PLA weaknesses. For example, are PLA weaknesses manageable if China can fight a war close to the mainland, such as around Taiwan, and be confident that the war will not expand outside the first island chain? The PLARF can saturate areas around the mainland with a massive volume of missiles and drones. In addition, the Taiwan Strait is a highly challenging environment for submarine operations because of its shallow depths and complex acoustic environment. Would that mitigate China's undersea vulnerabilities? These and related issues raise important questions about whether the PLA could offset some of these vulnerabilities and weaknesses by conducting and managing a conflict close to the mainland.

Third, will these weaknesses lead the PLA to *avoid conventional war* and focus on irregular or political warfare instead—or even deterrence through nuclear weapons? For example, is it possible that Chinese leaders might aim to fight Taiwan, the United States, or others in a different way, such as indirectly or through proxy war? In addition, what about nuclear weapons? Is it possible that a major reason for China to build up its nuclear force is to ensure its military never has to risk the humiliation of defeat in battle with the U.S. military? China does, however, have a history of going to war when its military is not fully prepared to fight.[19]

Despite these questions, the PLA does have vulnerabilities and weaknesses. The ultimate goal in identifying and leveraging PLA weaknesses is to deter and increase the probability that Xi Jinping and Chinese leaders wake up every day and decide, "This is not the day or month to fight." The Chinese military strategist Sun Tzu perhaps said it best: "To subdue the enemy without fighting is the acme of skill."[20]

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## 1. Introduction

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## 3. Conundrum of Party Control

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## 4. The Maritime Domain

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## 7. Exploiting PLA Weaknesses

1 "原创 假如和美军交手,我军三大缺陷尚未补齐,很可能会陷入不利局面" [If China were to engage in combat with the U.S. military, its three major weaknesses would remain unaddressed, potentially putting it at a disadvantage], 搜狐 [Sohu].

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