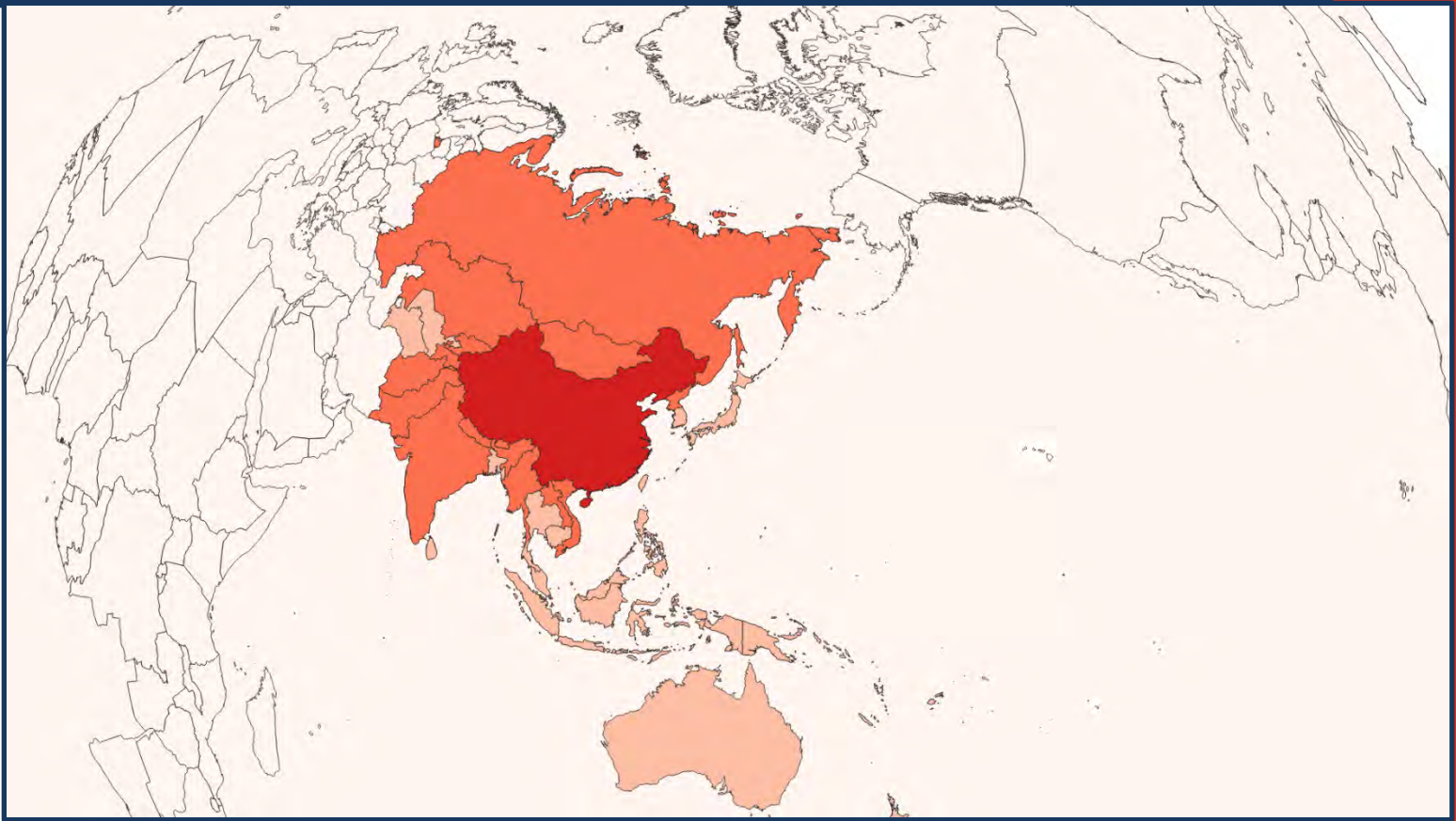


China & Russia

Adversaries Evolution Estimate 2035



Indovino Nefario

United States Army War College

April 29, 2021

About This Document

The United States Army War College student team “Indovino Nefario” prepared this document as a group Integrated Research Project as partial requirement to complete the Master of Strategic Studies degree from the United States Army War College (USAWC). The research, analysis, and production of this product occurred over 29 weeks from October 2020 through April 2021 as part of the in-residence Army War College Senior Service College program. The team consisted of two US Army Colonels (0-6), two US Army Lieutenant Colonels (0-5), and one US Air Force Lieutenant Colonel (0-5): James Mitchell, James Kievit, Kirk Junker, Patrick Malone, Leslie Semrau, respectively.



Requirement

This report answers questions posed by Mr. Thomas F. Greco, DCS G2 for United States Army Training and Doctrine Command and leader of the self-styled “Mad Scientists” (see [Annex A](#)). The USAWC student team “Indovino Nefario” analyzed and synthesized estimates from open-source information relevant to the questions:

What are future adversaries’¹ likely approaches to force design² within the spectrum of competition, crisis, conflict and change through 2035?

- If adversaries³ evolve force design approaches:
 - What are the likely driver(s) of evolution?
 - What are the likely direction(s) of evolution?
 - What new roles and capabilities will the evolution likely imply and to what extent?



Sasha Mordovets—Getty Images

¹ Adversaries – any of the 2+3 from the 2017 NSS with a primary focus on China.

² Force design will comprise of, but not be bound by, an analysis of DOTMLPF-P. Non-materiel aspects such as leadership, education, doctrine, organization, and training will be given priority.

³ Due to time constraints this report covers 2 Adversaries – China and Russia.

Analytic Confidence

This overall estimate is made with moderate analytic confidence. The questions asked were complex while the timeline was relatively short due to competing academic requirements of the USAWC core curriculum. Source reliability and corroboration were predominantly moderate to high. However, the analysts were not subject matter experts and worked both individually and collaboratively to research and answer the questions. They utilized a combination of structured analytic techniques including nominal group technique and network analysis among others. Indovino Nefario also evaluated analytic confidence utilizing Petersons Analytic Confidence Factors (see [Annex C](#)) coupled with the Friedman Corollaries (see [Annex D](#)).

Words of Estimative Probability

Analysts leveraged Intelligence Community Directive 203 (see [Annex B](#)) as their Words of Estimative Probability (WEP) for determining the likelihood of China and Russia



<https://im-media.voltron.voanews.com/>

achieving force design evolution(s) across the spectrum of doctrine, organization, training, materiel, leader development, personnel, facilities, policy, and funding (DOTMLPF-PF) factors by 2035.

Source Reliability

Source reliability is noted at the end of each citation as low (L), moderate (M), or high (H). The citation is hyperlinked to the source. Source reliability is determined using Standard Primary Credibility Scale (see [Annex E](#)) and the Trust Scale and Website Evaluation Worksheet (see [Annex F](#)). Sourced figures and photos embedded in the report are also hyperlinked to their source.

Adversaries Evolution Estimate 2035: China and Russia was produced in multiple mediums, including a digital, PDF version and soft-bound book. The electronic version should be considered the primary version for any future reference. In addition to the documentary version, there will also be a supportive presentation (see [Annex H](#)) for Mr. Thomas F. Greco on April 29, 2021.



For a copy of any of these products, please contact the authors or Professor Kristan Wheaton, kristan.wheaton@armywarcollege.edu



James M. Mitchell
James M. Mitchell
james.m.mitchell.mil@mail.mil

James A. Kievit
James A. Kievit
james.a.kievit.mil@mail.mil

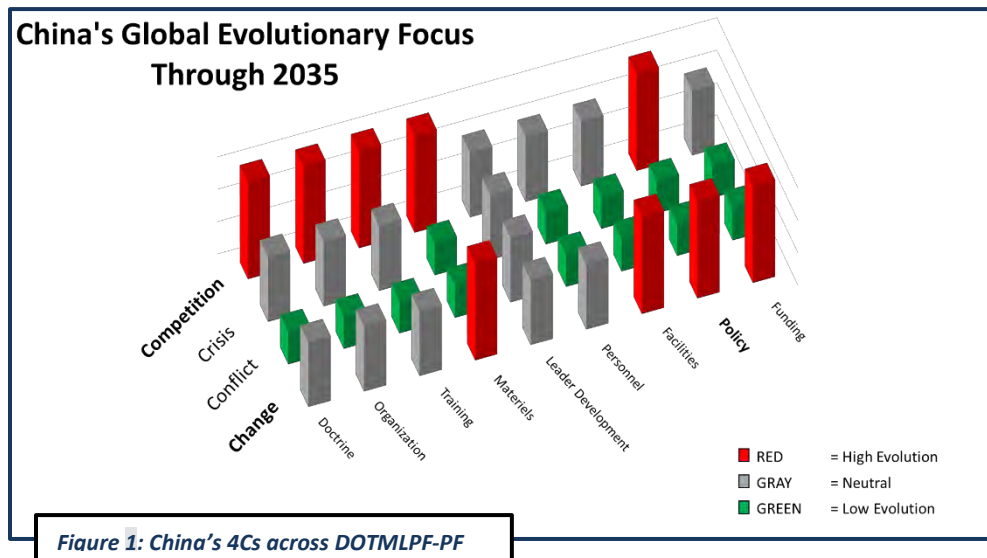
Kirk J. Junker
Kirk J. Junker
kirk.j.junker.mil@mail.mil

Patrick J. Malone
Patrick J. Malone
patrick.j.malone.mil@mail.mil

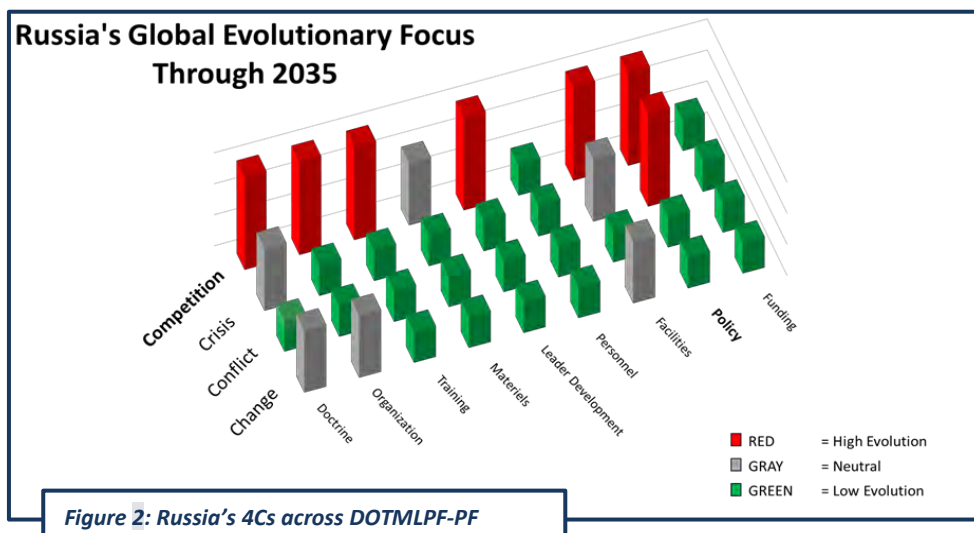
Leslie L. Semrau
Leslie L. Semrau
leslie.l.semrau.mil@mail.mil

Key Findings

Based on an analysis of nine elements of force design (*doctrine, organization, training, materiel, leader development, personnel, facilities, policy, and funding*) across all four “C’s” (*competition, crisis, conflict, and change*), both China and Russia’s likely approach to force design is neither *doctrinally* nor *organizationally* driven, but is, in fact, unilaterally *policy* driven and *competition* centric (See Figure 1 and 2), with China also placing emphasis on *change*.



In addition, through 2035, both adversaries will likely take a long-term strategic view, avoid competitor's strengths (conventional dominance), and seek to reduce the intrinsic risks of armed conflict (nuclear weapons).



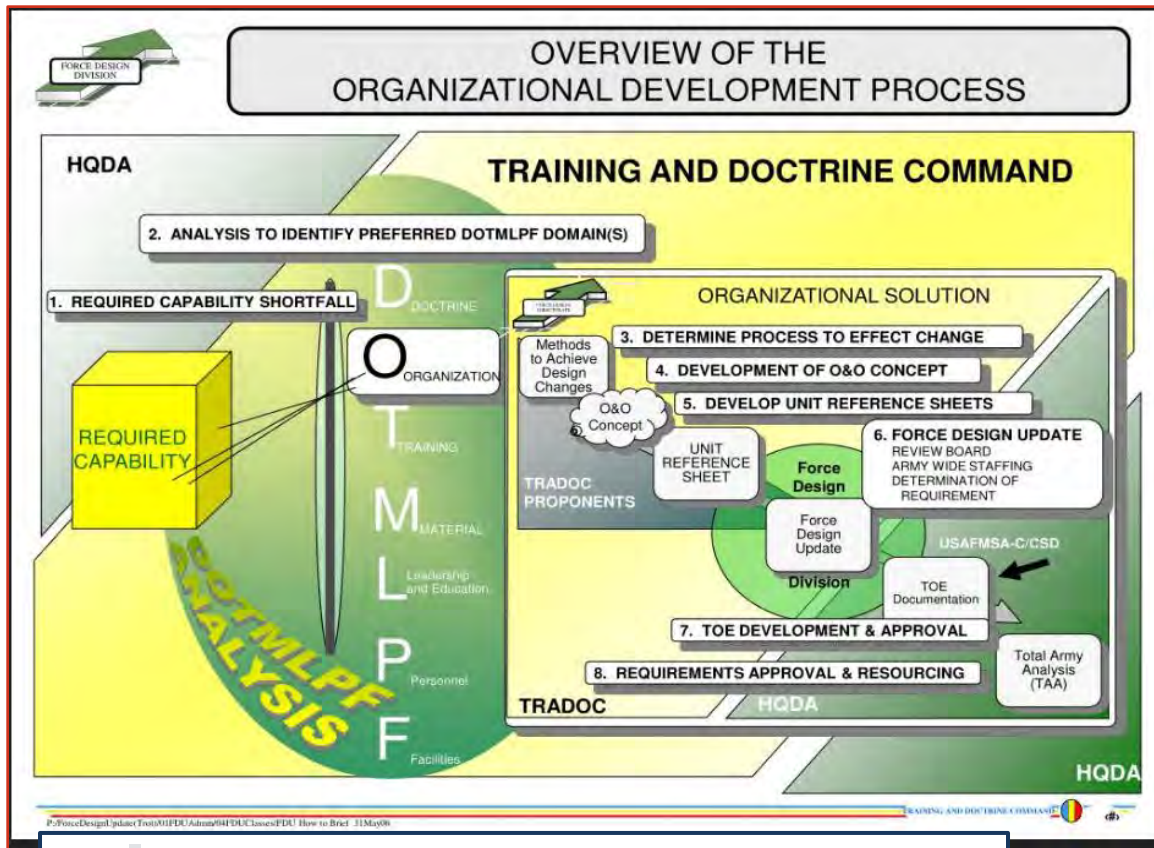
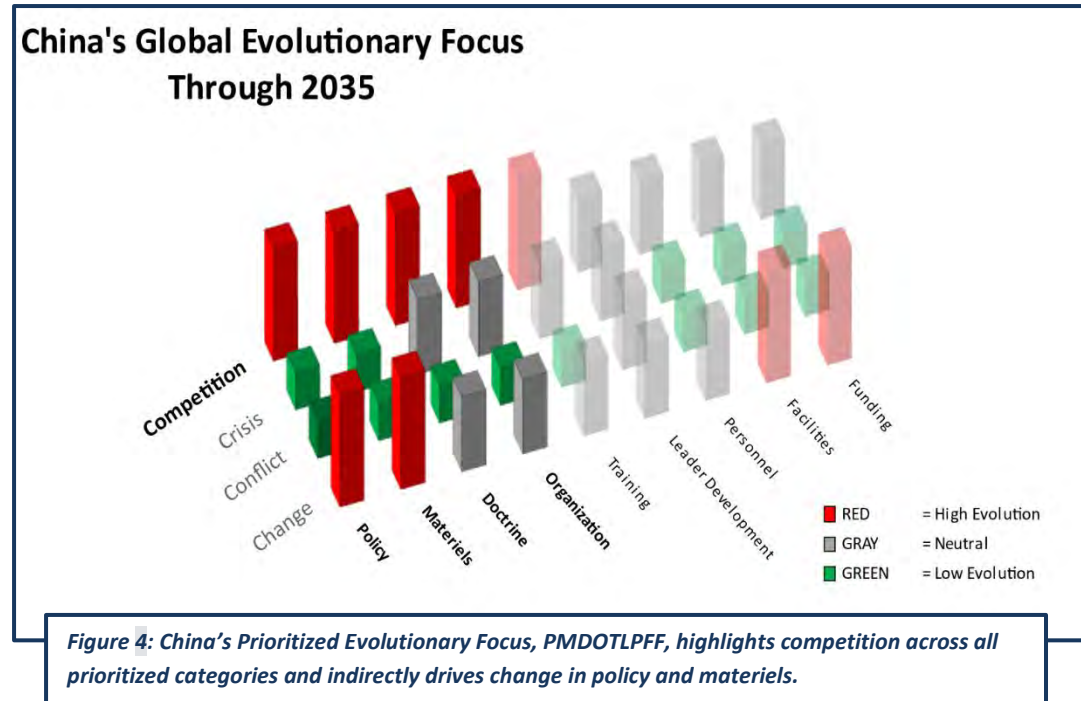


Figure 3: Training And Doctrine Command Force Design Graphic. Click on the picture or go to: <https://image3.slideserve.com/6773569/slide38-1.jpg>

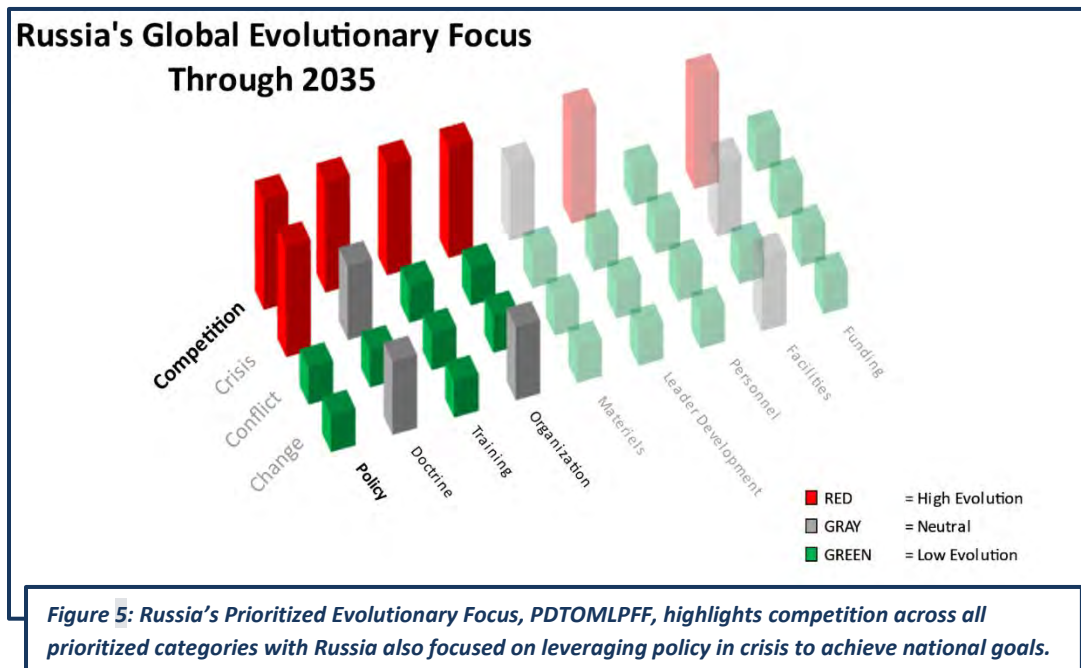
While neither country explicitly uses the DOTMLPF-PF (*Doctrine, Organization, Training, Materiel, Leader Development, Personnel, Facilities, Policy, and Funding*) structure used by the U.S. and NATO (see Figure 3), both countries consider similar elements of force design.

However, China and Russia prioritize them in a different way.

China likely sees force design as *policy* focused, aligned and subordinate to its national *economic* policy, with an emphasis on *materiel*, *doctrine* and *organization* (see Figure 4).



Russia is also likely *policy* focused regarding its force design, aligned and subordinate to its *informational* power (cyber and hybrid-warfare), with an emphasis on *doctrine*, *training*, and *organization* (see Figure 5).



Whereas China's and Russia's force design differ based on their respective goals and threats, it may be more accurate to say that the threats and opportunities define how these nations see the problem; as well as the potential solutions they develop in order to solve issues. Neither China nor Russia perceives their problems as other nations might, and thus they cannot be expected to solve it using U.S. frameworks such as DOTMLPF-PF.

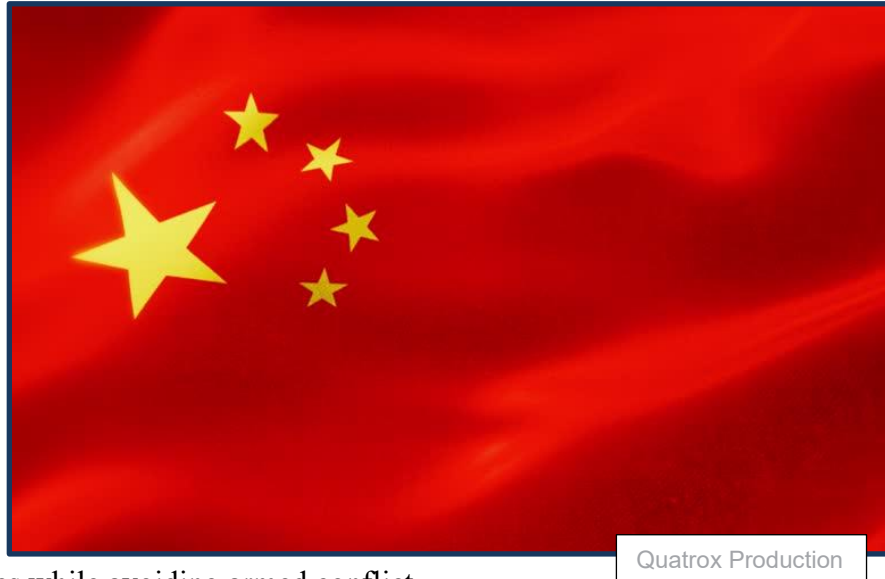
China is driven by its need to continue to rapidly expand its *economy* to meet the prosperity goals the PRC has promised its people. In an effort to secure *economic* growth and prosperity, President Xi Jinping's *Military Civil Fusion policy* drives advances toward "informatized" warfare by intertwining national *economic*, *social*, and *security* strategies. This leverages *materiel* efforts for artificial intelligence, *doctrine* to support overseas *economic* development, as well as improvements in space capability to position China as a world power and enhance its joint force capabilities.

Similarly, Russia is driven to regain a vision of its former self; it believes it is a Great Power and desires to influence the world accordingly. However, Russia lacks China's economic resources, and will likely seek to achieve its strategic ends through asymmetric methods while maintaining a modest conventional force to deter NATO and the U.S. to maintain influence in the near abroad.



China – Drivers

China's hyper-integrated approach to force design, *policy* driven by military-civil fusion, is likely to continue to drive *change* to design a *competition* centric force capable of asymmetric global action by 2035. China will likely seek to protect and empower its *diplomatic*, *information*, and *economic* advantages while avoiding armed conflict.



U.S. Department of Defense's Annual Report to Congress on Military and Security Developments Involving the People's Republic of China highlighted that,

“The PRC pursues its MCF Development Strategy to “fuse” its economic and social development strategies with its security strategies to build an integrated national strategic system and capabilities in support of China’s national rejuvenation goals.”

This focus to improve *military* capability to support the broader *economic* goals is however hindered by some significant challenges. None better articulated than by Dr. Bates Gill from the Department of Security Studies and Criminology at Macquarie University in Australia who asserts that,

“The PLA is working to transform from a bloated, corrupt and outdated force with a continental, defensive mindset to a world-class, 21st century expeditionary force able to project power up to and beyond the Second Island Chain into the Pacific and Indian Oceans... It is a very ambitious undertaking with many obstacles to overcome, but, if achieved, will pose a complex set of challenges to the United States and its allies, especially within the Asia-Pacific region.”

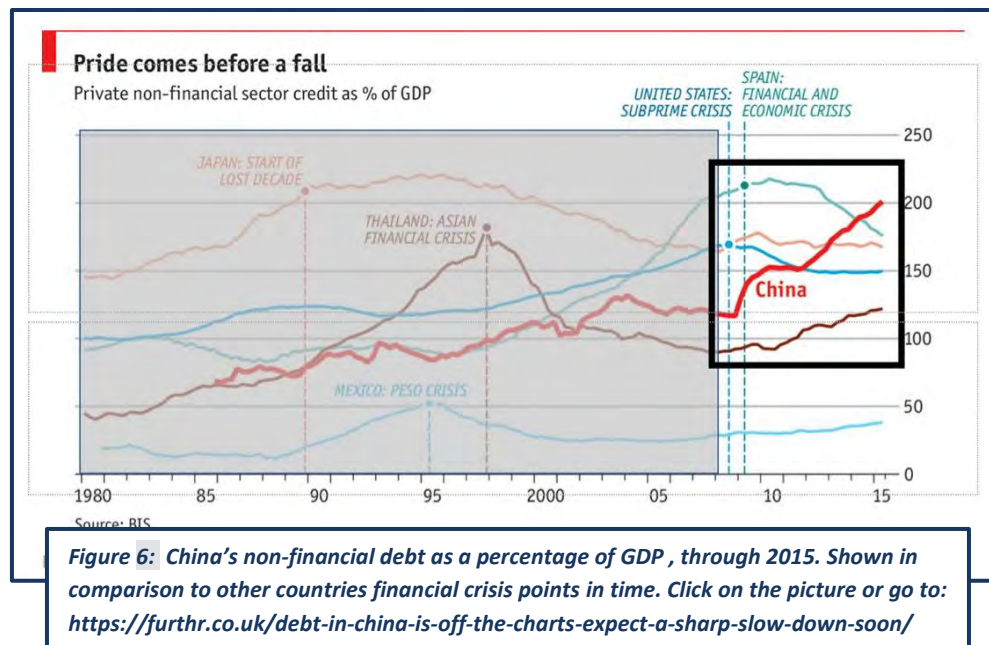
China – Direction

In addition, the Chinese Communist Party's realist world view, a lack of allies, and regional adversaries directs an evolution in force design towards asymmetric advantages, a focus on *competition* strategies, and a reliance on hyper-integrated elements of national power. Accordingly,

A 2020 RAND Corporation study highlights that President Xi Jinping's rejuvenation agenda directs the People's Liberation Army to master informatized war or "systems confrontation" by 2035 and master intelligentized war or "algorithm confrontation" by 2050.

The National Security Commission on Artificial Intelligence asserted in 2021 that, "If current trends do not change, China may surpass the United States in developing AI in the next decade." That is in addition to the cyber-attacks and dis-information campaigns on-going.

However, China has a growing debt crisis of private non-financial sector credit of 200% as of 2015, and as of 2020 more than 300% across all sectors (*more than 100% than that of other countries*). This rising debt is to some degree obfuscated by a lack of transparency internal to the Chinese banking system, which is likely to allow it to continue to rise beyond what other countries crisis could handle. However, this debt cannot continue indefinitely and is likely to further restrict its innovation and technology focus (see Figure 6).



China – Roles and Capabilities

Chinese force design includes a continued blurring of civilian and military roles, the addition of a 5th ring (space), and a regionally powerful conventional joint *military* capability to deter adversaries from *conflict*, while *competing* globally with a cyber, space, and information enabled hyper-integrated *competition* centric force.

China's aggressive *diplomatic* and *security* actions are likely to drive its adversaries into alliances. China's recent increase in influence and assertiveness, as seen through pressure brought to bear in the South China Sea, its recent actions against India in the Kashmir region, the pandemic response in Wuhan, as well as challenges against the current liberal world order are likely to be a major issue for the Quadrilateral Partners (U.S., Japan, Australia, and India) as well as other countries in the region.

Additionally, the Belt and Road Initiative increased the need for *security* of Chinese state-owned enterprises (SOE) building infrastructure overseas. In turn, China's overseas development and interests are likely to further drive expansion of global requirements and make joint operational goals a priority.

According to 2020 report by the Foundation on Political, Economic and Social Research (SETA), Chinese military *doctrine* evolved to add conducting operations other than war in the form of “emergency rescue and disaster relief, counterterrorism and stability maintenance, rights and interest's protection, guard duty, international peacekeeping, and international humanitarian and disaster relief” in addition to its “preparation for military struggle” endeavors. However, it does highlight that,

“China is a major power in North and Southeast Asia, the time is not yet ripe for it to be a global military power that can project its military capability beyond the nearby seas.” China's most recent military doctrines are designed to deal with local challenges.”

Russia – Drivers

Russia’s likely driver of evolution, under Vladimir Putin and future presidents, is regaining Great Power level influence and prestige around the world in order to maintain its national security underpinned by the deterrence effects of the Russian military.

According to Gerard Toal at Virginia Tech, “It was always Putin’s goal to restore Russia to the status of a great power in northern Eurasia. The end goal was not to re-create the Soviet Union but to make Russia great again.” Evidence of this desire is seen in the map of Ukraine and Russia’s occupation (see Figure 7).

According to a 2021 report by Alina Polyakova and Mathieu Boulègue from the Center for European Policy Analysis,



Figure 7: Russia Contested Territory Within Ukraine. Click on the picture or go to: https://www.washingtonpost.com/world/europe/ukraines-zelensky-wants-to-end-a-war-in-the-east-his-problem-no-one-agrees-how-to-do-it/2020/03/19/ae653cbc-6399-11ea-8a8e-5c5336b32760_story.html

“[f]rom the Kremlin’s perspective, hybrid warfare is a tactical application of the chaos strategy. It is full spectrum warfare that deploys a blend of conventional and nonconventional means aimed at affecting on the ground changes in target while seeking to avoid direct military confrontation with Western states.”

Despite Russia's intent, their economic situation makes many of their goals difficult to achieve. Due to an anticipated flattening of the demand for oil, Russia is expected to achieve GDP growth of less than 1% through 2035, according to the Office of Economic Cooperation and Development (OECD).

Norwegian defense researchers stated, however, that Russia wants to modernize their force but will not repeat the mistakes of the Soviet Union, destroying their economy.

The OECD estimates Russia will face declining energy revenues and an aging population with projected GDP growth less than 1% through 2035 (see Figure 8).

A 2020 report by Knoema also states the United States will outpace Russia in real GDP by a yearly average of 1% to 1¼%.

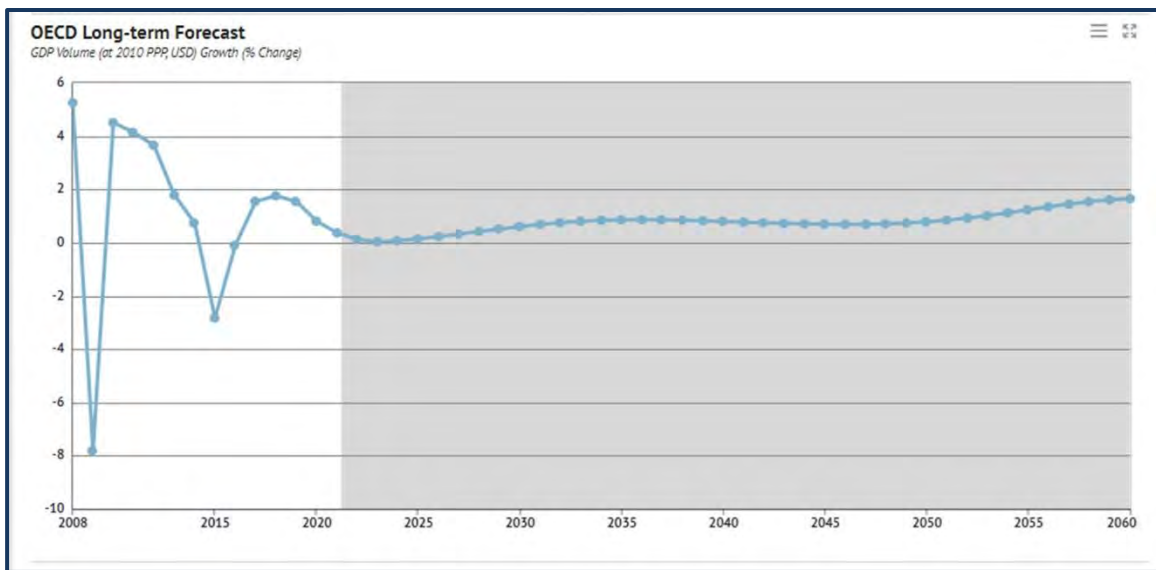


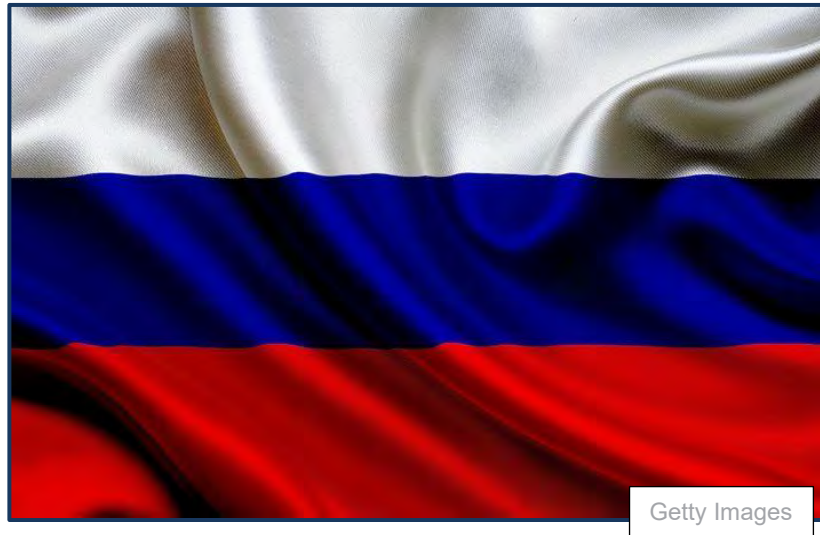
Figure 8: OECD Russia's Long-term Forecast. Click on the picture or go to:

<https://knoema.com/mgarnze/russia-gdp-growth-forecast-2019-2024-and-up-to-2060-data-and-charts>

Russia – Direction

Russia’s likely direction of *military* evolution is utilizing asymmetric approaches to *compete* with Western Powers, while modernizing nuclear capabilities and attempting to modernize conventional capabilities to deter NATO.

Russian has found success using asymmetric approaches since the fall of the Soviet Union at the *competition* level through information



operations (cyber), developing highly effective anti-access/area denial capabilities (A2AD), and private military companies (PMCs).

Building on the information warfare aspect that cyber is a tool, Lilly and Cheravitch of the RAND Corporation stated that for Russia,

“information warfare consists of cyber and information operations and is an integral element of modern conflict. . . .The writings of Russian military scientists, however, illustrate an evolving interest in developing cyber weapons due to their effectiveness, appropriateness within the framework on contemporary conflict, and affordability.”

In addition, the Russian military is likely to be used as an enabler during competition in support of national interests. Eugene Rumer at the Carnegie Endowment for International Peace wrote in 2019,

“[t]he record of the past two decades points to a tight linkage between Russia’s military capabilities and its practice of gray zone operations. Russian military and hybrid activities and tools are inextricably linked.”

According to the Brookings Institute and RAND Corporation, Russia will continue using PMCs for the next decade to support semi-independent operations to further Moscow's national security goals (see Figure 9).



Russia also continues to attempt modernization of a modest conventional force to deter NATO and China. However, as indicated by Norwegian defense researchers, will not likely make the same fiscal mistakes of the former Soviet Union and destroy their economy.

As part of the modest modernization efforts, based on recent lessons learned from Nagorno-Karabakh published in the Russian professional journal “*Army Standard*”, there is support for increased training and procurement of newer weapon systems centered around Network-Centric Warfare. Although there is a desire for entirely new weapons systems, the economic constraints indicate modernization is very likely to focus on upgrading current equipment within the inventory.

Russia is likely to focus on improvement of A2AD systems over the next 10 – 15 years. This is highlighted by two recent reports. A 2017 study by Grau and Bartles at the U.S. Foreign Military Studies Office finds that,

“[m]anuever by fire is a Russian concept whereby fire is shifted from one target, line or sector without moving the firing positions of the artillery pieces. It is used in battle to cause mass destruction of important targets in a short period of time.”



Figure 10: The RAND Blog: Russian S-400 Surface-to-Air Missile System: Is It Worth the Sticker Price? Click on the picture or go to: <https://www.rand.org/blog/2020/05/russian-s-400-surface-to-air-missile-system-is-it-worth.html>

And according to a 2019 RAND Corporation report,

“[i]n time[s] of war Russia’s bomber force is intended to attack the adversary by firing long-range cruise missiles from standoff range. Their [Russian long range aircraft] reliance on relatively expensive long-range munitions helps ensure their continued relevance but limits their utility to the availability of these munitions. . . . Russia has also developed strong capabilities in the surface-to-air missile systems. . . . Russia appears to have protected funding for its air defense programs, which is consistent with Russian doctrine and Russia’s concerns about the threat of air attack.”

Russia – Roles and Capabilities

Russia will seek to mitigate economic shortcomings to maintain a deterrence force by prioritizing its limited resources on asymmetric capabilities as well as modernizing their nuclear systems, and remaining efforts on modernizing their conventional force. Despite Russia's intent their economic situation makes many of their goals difficult to achieve.



Russia maximizes its asymmetric capabilities by prioritizing resources towards A2/AD and cyber (information) forces. The A2/AD forces create effective deterrence options for Russia.

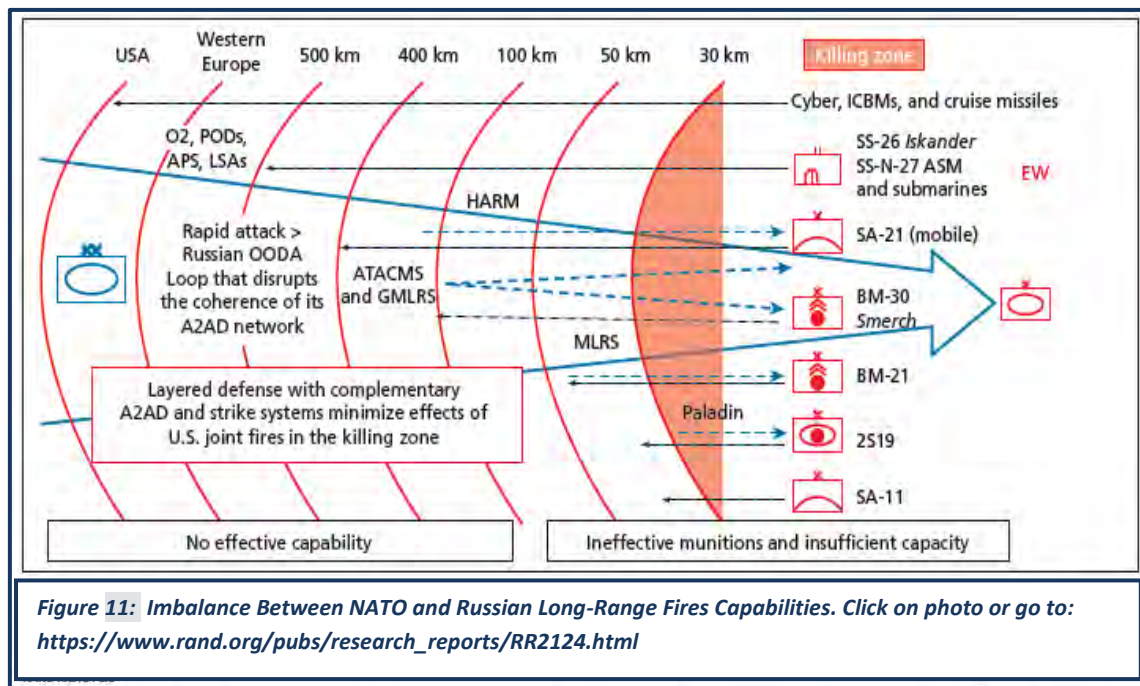


Figure 11 indicates the relative advantage Russia has in field artillery systems over the United States. Military cyber forces that operate within the information domain allows Russia to achieve desired effects at the competition and armed conflict levels of warfare.

Building on the information warfare aspect that cyber is a tool, Lilly and Cheravitch of the RAND Corporation state that Russian,

“information warfare consists of cyber and information operations and is an integral element of modern conflict. . . .The writings of Russian military scientists, however, illustrate an evolving interest in developing cyber weapons due to their effectiveness, appropriateness within the framework on contemporary conflict, and affordability.”

In a 2021 Congressional Research Service Report, Andrew Bowen states,

“[t]he GRU also reportedly controls several research institutes that help develop hacking tools and malware. Observers have noted an apparent willingness by GRU cyber units to conduct brazen and aggressive, sometimes with questionable levels of operational security and secrecy.”

Defense Intelligence Agency reporting from 2017 states,

“Russia’s 21st century integrated air defense system will be designed to integrate future and existing systems around a central command structure that is designed to promote the interaction of all air defense forces and weapons. Capabilities optimized against cruise missiles are key to this defense component, not just those optimized to target aircraft.”

Roger McDermott, in a report for the International Centre for Defence and Security, wrote in 2017

“that since 2009 Moscow has consistently invested in modernizing its electronic warfare capabilities, with the overall aim of asymmetrically challenging NATO on Russia’s periphery ‘and maximiz[ing] its chances of success in any operation against NATO’s eastern members.’”

Nuclear modernization efforts continue to be a priority for Russia to maintain great power status among the nations of the world. Based on Stockholm International Peace Research Institute analysis,

“[t]he nuclear forces have been a particular focus since the early 2000s, and their delivery systems have been extensively modernized.”

Tor Bukkvoll

Senior Research Fellow (B.A., M.A., PhD)

Tor Bukkvoll has studied political developments in Russia and Ukraine since the mid-1990s, especially in the areas of defence and security. He speaks Russian and Ukrainian, and obtained his PhD from the Norwegian University of Science and Technology. Bukkvoll has spent much time in Russia and Ukraine.

Bukkvoll was a visiting research fellow at the Changing Character of War program at the University of Oxford in 2008, worked as an associate professor of international relations at the Norwegian Military Academy 1996-1999, and has previously also worked at Fafo Institute for Applied International Studies and the Peace Research Institute of Oslo (PRIO).

ABOUT THE SCIENTIST



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POSITION
Senior Research Fellow

EDUCATION
PhD

CONTACT INFORMATION
tor.bukkvoll@ffi.no
+47 63 80 77 33

However, Russia failed to meet its goals for its 2020 modernization program.

Russia's State Armament Program's (SAP) modernization goals are again unlikely to be met for SAP 2027.

According to a 2021 interview with Norwegian Defense experts **Tor Bukkvoll** and **Kristian Åtland**,

Russia has slowed procurement for key systems and is likely to continue the trend.

Russian ground forces are unlikely to have fielded network centric systems by 2035.

Kristian Åtland

Senior Research Fellow (B.A., M.A., PhD)

Kristian Åtland holds an MA degree in Russian cultural studies from the University of Oslo and a PhD in political science from the University of Tromsø.

In the period from 1994 to 2002, he was employed in the Norwegian Foreign Service and served as desk officer in the Foreign Ministry's Russia and CIS division, as Second Secretary at the Norwegian Embassy in Kiev, and as Consul at the Norwegian Consulate General in San Francisco.

Since 2002, he has worked as a research fellow at the Norwegian Defence Research Establishment (FFI). He has published a number of articles, research reports, and book chapters on various Russia-related topics. Many of his recent publications focus on security issues in the High North/Arctic.

In the academic year 2019-2020, he was a Visiting Scholar at the Institute of Slavic, East European, and Eurasian Studies (ISEEES), University of California, Berkeley, where he worked on a project related to the Donbas conflict in the Eastern Ukraine.

ABOUT THE SCIENTIST



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POSITION
Senior Research Fellow

EDUCATION
PhD

CONTACT INFORMATION
kristian.atland@ffi.no
+47 997 34 288

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- What are the likely direction(s) of evolution?
- What new roles and capabilities will the evolution likely imply and to what extent?

Atlantic Council



China - Evolution Estimates



Foreign Policy Research Institute


 “The great rejuvenation of the Chinese nation is no walk in the park or mere drum-beating and gong-clanging.”
Xi Jinping
TheFamousPeople.com


 “Why did the Soviet Union disintegrate? Why did the Soviet Communist Party collapse? An important reason was that their ideals and beliefs had been shaken.”
Xi Jinping
TheFamousPeople.com

 “We will never allow anyone, any organization, or any political party, at any time or in any form, to separate any part of Chinese territory from China.”
Xi Jinping
TheFamousPeople.com

China's Ambitious Military Civil Fusion Likely To Create Change To International Norms Within Next 9-14 Years But Likely Result In Limited Modernization Between 2030-2035

Executive Summary

China's ambitious Military Civil Fusion (MCF) efforts are likely to create change in international norms, defining the line between military and civilian activity, within the next 9 to 14 years but likely result in limited PLA modernization between 2030 - 2035. Despite the United States countermeasures and protests that MCF endangers the trust, transparency, reciprocity, and shared values which underpin scientific collaboration and fair global business practices. China's MCF strategy is designed to synthesize economic, social development, and security efforts likely leading to the advancement to specific but not all PLA modernization goals. With MCF the People's Liberation Army's (PLA) technological advances, talent development, and facilities modernizations are likely to meet the Central Military Commission (CMC) goals for modernization between 2030-2035.

Discussion

MCF first appeared in 2007 and evolved from China's previous Civil Military Integration (CMI) policy.^M MCF distinguishes itself from CMI through increased coordination, balance, and comprehensive civilian and military integration focused towards political goals.^M The Chinese Communist Party (CCP) employs MCF to empower the PLA and as an instrument of statecraft to further

foreign policy with a focus towards increasingly global interests and intentions to revise international norms (see figure 1).^H MCF drives an ever-growing integration of civilian agencies with the PLA to evolve options to strike at vital nodes of an opponent.^M



Figure 1 US Department of State: China's Military Civil Fusion Strategy
Source: [US Department of State – You Tube](#)

MCF development objectives include but are not limited to science and technological dominance, civil-military talent cultivation, and domain resource sharing.^H MCF represents policy directly linked to ambitious advancement in PLA force design modernization but likely to impact a limited subset – material, leader education, and facilities advancements.^H

Despite endangering the trust, transparency, reciprocity, and shared values which underpin scientific collaboration and fair global business practices.^H China's MCF strategy is designed to synthesize economic, social development, and security efforts likely leading to the advancement to specific but not all PLA modernization goals. MCF exploits the open and transparent nature of the global research enterprise, “dual use” technologies^H and even international law^M. To counteract MCF, the United States has spoken out against Chinese actions^M, revoked student visas, invoked export controls, and restricted Chinese investment in US companies.^M The FBI continues to target Chinese military and industrial espionage efforts, but the blurring of military and civilian lines complicates prosecution.^M China's Military Civil Fusion (MCF) efforts and responding counter actions are likely to create changes to international norms defining the lines between military and civilian activities within the next 9 to 14 years.

MCF in pursuit of technological advancement erases barriers between military and economic development as a whole of system strategy compelling every Chinese citizen to share information with the government.^H China further blurs already hard to establish lines between commercial and military technology theft during a time when commercial technology (e.g. cyber) possesses transformative military potential.^H Western companies and institutions inadvertently subsidize PLA technological advancement, due to Chinese employment of contractors, subcontractors, academic institutions, and semiprivate investment vehicles through MCF.^M Case in point, February 19, 2021, the FBI arrested Chen Song, a medical researcher at Stanford, for concealing membership in the PLA Air Force.^M Under China's MCF construct, her military affiliation becomes irrelevant and challenges international norms.^H International capability to distinguish between military and industrial espionage diminishes.^H Therefore, China's application of MCF likely changes international norms related to imposing resource and monitoring costs on its adversaries in addition to driving PLA material modernization goals.^M

The talent cultivation MCF seeks to blend and develop military and civilian expertise through education programs, personnel exchanges, and knowledge sharing.^H MCF drives reforms throughout China's military academies, national universities, and research institutes.^H All university students in China are required to participate in military education blended into the normal academic program – designed to instill patriotic fervor

and instill responsibility for national defense.^M Chinese professional military education is undergoing MCF driven change; details are sparse, but the proposal entails a holistic approach, combining academic studies, military, and vocational training, to prepare future members of the PLA.^M In sum, MCF entails a clear effort through leader education to improve the quality of China's human capital.^H

MCF includes building military capacity into civilian infrastructure through leveraging China's civilian construction and logistics systems.^H Transforming reefs to islands in the South China Sea to facilitate submarine bases, naval refueling, and military airports leverages MCF.^M Huawei constructing 5G network infrastructure in over thirty countries, prompting analysts to question network security and other potential military benefits likely derives from MCF.^H With MCF, the People's Liberation Army's (PLA) technological advances, talent development, and facilities modernization likely meet the Central Military Commission (CMC) goals for modernization between 2030-2035.^M

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were peer reviewed, reliable, and predominantly of high confidence. There was adequate time, but the analyst is not an expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: James A. Kievit

China's Approach To Competition Very Likely To Center Around The Strategic Support Force For Next 3-10 Years; Dual – Use Information Activities Likely Provide Asymmetric Advantage

Executive Summary

The People's Liberation Army (PLA) role in Great Power Competition for the next 3-10 years is very likely to center around the Information/Cognitive Warfare activities of the Strategic Support Force (SSF). The United States maintains a consistent, active defense against Chinese Information activities; however, achieved, and potential Chinese successes in the arena encourages increasingly persistent and diverse use of these capabilities to compete with the United States. Cyber, space, and psychological operations, core capabilities of the SSF, are of “dual use” utility and valued throughout the conflict continuum. PLA military support to Chinese diplomatic, information, and economic strategies reside in the information/cognitive warfare capabilities of the Strategic Support Force and are suited to extensive use in the competition environment.

Discussion

The People's Republic of China (PRC) foreign policy seeks to revise aspects of the international order to align with CCP ideas and principles to forge an environment conducive to national rejuvenation by 2049.^H In 2019, the PRC recognized the PLA should take a more active role in advancing its foreign policy globally.^H PLA success is increasingly tied to competition – the ability to exercise all means short of war to achieve CCP objectives.^M The PLA SSF, established



Figure 1 Takshashila Institution (Indian Strategic Think Tank) discusses China's Strategic Support Force as an essential PLA military capability
Source: [Takshashila Institution – You Tube](#)

on December 31, 2015, integrates Chinese capabilities for space, cyberspace, and information/cognitive warfare (see figure 1).^M The SSF is responsible for the Three Warfares^M (psychological, public opinion, & legal)^H China's war by other means – the equivalent of the competition spectrum of the US conflict continuum.^H The PLA SSF is a theater command – level organization built to centralize the execution of key functions aligned with international strategic competition (see figure 2)^H and overseas China's weapon of choice information warfare.^M

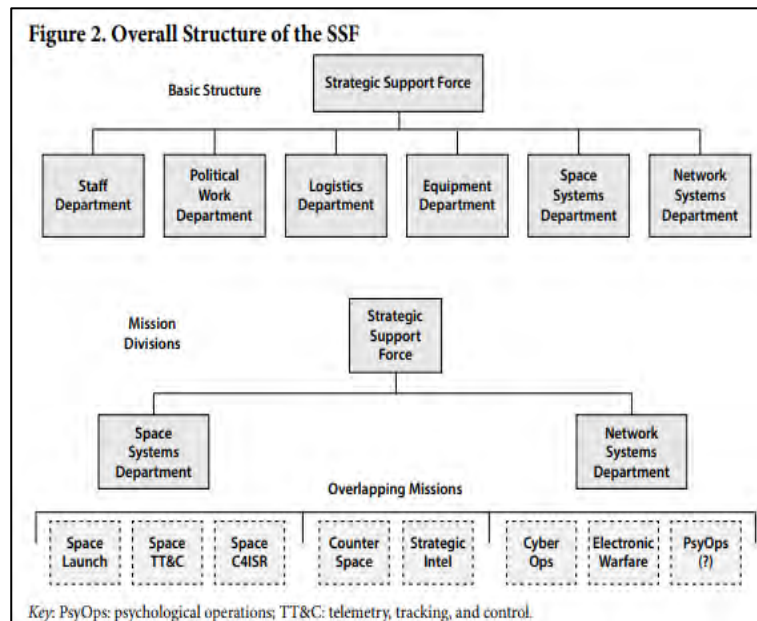


Figure 2 China's Strategic Support Force Organizational Structure
Source: [China's Strategic Support Force: A Force for a New Era](#)

The SSF's two missions, of information support and information operations, are key for anticipating adversary action, setting the terms of conflict in peacetime, and achieving battlefield dominance in wartime.^H The CMC directly wielding the SSF, is competing with the United States and its Allies to set the tempo, to set the rules, set the narrative on the world stage, all to make the world safe for the CCP.^M

The CCP is investing heavily in a broad range of programs to expand space capabilities and advance its political, economic, scientific, technological, and military objectives.^H SSF Space Systems Department(SSD) is responsible for military space operations.^H The SSD subsumed nearly every aspect of previously dispersed space operations including space launch and support; space telemetry, tracking, and control; space information support; space attack; and space defense.^M SSD plays an important role in by enabling long-range precision strikes and denying other militaries the use of overhead command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems.^H China considers space a critical domain in international competition.^H

SSF Network Systems Department(NSD) is responsible for information warfare to include cyberwarfare, technical reconnaissance, electronic warfare, and psychological warfare.^H The integration, in peace time, under SSF removes organizational impediments to coordination across information operations capabilities and maximizes their impact on adversaries.^M China utilizes its sophisticated capabilities to illegitimately obtain U.S. intellectual property (IP), suppress social and political perspectives deemed dangerous to China, and harm regional and international opponents.^H India is currently investigating a series of suspected Chinese cyber intrusions which resulted in a Mumbai power outage, crippled bank systems, and National Stock Exchange glitches.^M Taiwan believes China is trying to influence residents with “cognitive warfare,” hoping to reverse indigenous opposition and accomplish the CCP’s desired absorption of Taiwan without conflict.^M China, through SSF, seeks to avoid a potential military response from the United States and instead manage a protracted, debilitating influence campaign to achieve its strategic objectives during competition.^M

Despite United States’ consistent, negative narrative against Chinese information activities in direct competition with US information campaigns in Africa and elsewhere – information warfare remains China’s competition weapon of choice.^M US policymakers aggressively pursue and confront Chinese extralegal activity targeting U.S. interests.^M The United States endeavors to impose a rules based solution to China’s aggressive actions, intensifying the competition but not changing China’s behavior.^M In the face of US countermeasures, cyber and information operations are two areas that are seeing increased investment and emphasis from the Chinese military.^M China’s achieved and potential SSF successes encourage increasingly persistent and diverse use of these capabilities to achieve strategic objectives.^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were peer reviewed, corroborative, and of relatively high credibility. There was adequate time, but the analyst is not an expert, worked alone, and used the Analysis of Competing Hypotheses method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: James A. Kievit

China's Internal Problems Will Likely Make Domestic Threats The Priority Over The Next 7-10 Years

Executive Summary

The vast resources committed to control of the Chinese state politically, economically, and domestically exacerbate the internal flaws within the system and likely make domestic threats the priority over the next 7 to 10 years. China's internal organization is focused on maintaining control of the state on behalf of the Communist Party, recently China has increased its control, making the government more authoritarian. This increase of control both at the national political and economic level has been to some extent at the expense of its economy. Tied to both political control as well as media control, the Chinese government remains committed to repressing minorities within its borders to further its control of the people and reduce the threat divergent opinions represent. In addition, maintaining censorship against critics both internal and external, is a large resource cost. Underlying all aspects of the system corruption is a systemic problem that is also increasing tension within China.

Discussion

China's current political system is becoming more authoritarian not less.^{[M](#)} Recent changes to China's constitutional term limits for the presidency will allow President Xi Jinping to remain in power indefinitely.^{[H](#)} Additionally, China has recently begun a focus to increase political oversight of all State-Owned Enterprises (SOE) as well as other strategic companies.^{[M](#)} China argues that political control of the economy counters some of the corruption that more materialistic organizations failed to curtail.^{[M](#)} However, China's productivity is 1/3 that of the US, Japan, or Germany.^{[H](#)} Added to that, some estimates of China's debt to GDP ratio are over 300%.^{[H](#)} These factors further exacerbate internal economic problems, as China will be likely to further slow its economic growth as well as reduce the social improvements it has promised to its people.

Simultaneously within the political sphere, China has an on-going censorship campaign against both internal and external criticism of its political system and policies.^H China's

strict control of the media indicates that the government sees transparency to its people as a potential threat.^M Aggressive internal censorship is on-going at all government levels within China. Censorship is conducted by multiple systems within the government, some of which are automatic such as the "Great Firewall", and some are done by



[Figure 1: China Tech Censoring Outside of China](#)

physical people employed by the state.^H There is no current reliable information on how many people are employed to maintain censorship, however some estimate place it as high as two million people.^M Chinese censorship is focused on both large political issues, such as the Hong Kong democratic movement that has garnered worldwide attention, as well as systemic censorship of more local issues such as land seizure or ethnic groups.^H

Tied to economic problems China also has internal problems with Hong Kong.^H The initial plan to have one country with two governmental systems is struggling under some of the more stringent Chinese laws, that Hong Kong people are balking against.^M This has led to recent protests and Chinese crackdowns.^M Similarly, to Hong Kong, based on China's own declarations, Taiwan can be considered an internal problem.^M There is certainly debate that Taiwan is or is not a part of China, even the US does not officially recognize Taiwan and hopes for a peaceful resolution to the Taiwan China problem.^H



However, based on the Chinese diplomatic efforts many countries that once supported Taiwan have withdrawn their support, as of 2021 now only 14 of 193 countries support Taiwan as an independent country.^H China has declared that Taiwan would be treated similarly to Hong Kong.^H However, Taiwan remains adamant despite on-going Chinese diplomatic efforts and military posturing they are a separate country and want to remain so.^M

Loosely tied to the political authoritarianism and the information censorship in China, corruption adds to the internal pressure toward the Chinese government. Low public accountability and desire to maintain power results in corruption in many autocratic regimes.^M In China however, the President has officially committed to reducing corruption, and started a wide campaign against it.^M However, the policies that attempt to reduce official corruption, also impede small private business from breaking through the bureaucracy of the Chinese state system.^M This is slowing down the Chinese economy, as the driver of growth has been the smaller privately owned businesses.^M An additional problem with the current system in china, the Chinese government decides the results of corruption cases in secrecy.^H This reduction in transparency is reducing the trust in the government and adding to uncertainty and unpredictability for companies that work in the country.^H Corruption at all levels in China is likely to increase in the next ten years.

China's treatment of ethnic minorities highlights another underlying threat to its domestic system. China has rounded up more than a million Turkic Muslim minorities such as Uyghurs, Kazakhs and others for forcible indoctrination.^H In addition to the Muslim minorities, China works diligently to reduce potential uprisings in the Tibet region as well.^M In order to provide this internal security China has the Peoples Armed Police Force (PAPF). There are at a minimum 260,000 personnel assigned to the according to China's Ministry of National Defense,^M others estimate it as larger.^M This force has been re-tasked from border patrol, internal guard missions, national emergencies, and counter terrorism to specifically internal security, maritime security (they are now responsible for the coast guard) and supporting the PLA in times of war.^M This force does not include local police. The PAPF is a significant expenditure of resources to maintain internal order for the state.

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate each other. There was adequate time, but the analyst is not an expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: Patrick Malone

Aggressive China Likely To Create Taiwan Centric Crisis In Next 7-14 Years To Force United States, Regional Allies To Consider Use Of Military Force

Executive Summary

Pairing global concerns with Chinese regional aggression designed to reintegrate Taiwan makes it likely China will create a crisis in the next 7 to 14 years to force the United States and regional allies to consider commitment of military force. Global attention on Chinese expansion in the South China Sea, illegal fishing, and requisition of territorial waters for man-made islands, highlight building tensions in the environment. Chinese conduct and rhetoric against Taiwan are increasingly aggressive to include a near 500% increase in airspace incursions, simulated military invasion exercises, directed information campaigns to subvert Taiwanese democracy, and open statements by leadership on the desire to reintegrate Taiwan prior to 2049. Despite increasingly provocative current rhetoric and actions Chinese are unlikely to instigate the crisis before the PLA anniversary in 2027 and likely to await the PLA reaching modernization goals in 2035.

Discussion

The United States has publicly declared China's actions in the South China Sea illegal^H, economically sanctioned a number of PLA connected Chinese businesses, and denied travel to the United States to PLA officers and Communist Party leadership in response to Chinese sovereignty claims over man made islands and international waters.^M Despite this public confrontation over Chinese actions globally

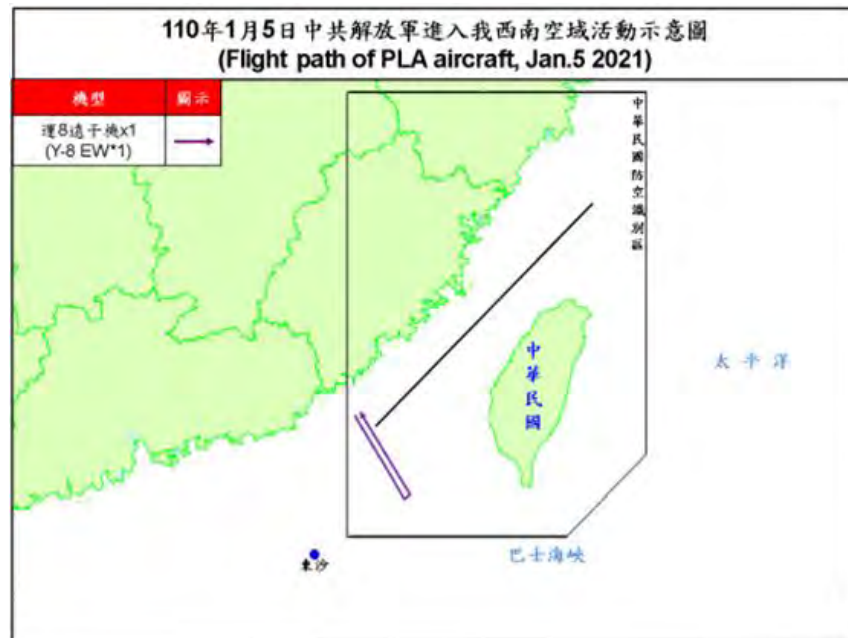


Figure 1 Chinese Electronic Warfare plane incursion into Taiwanese Air Defense Identification Zone (ADIZ) Source: [Ministry of National Defense R.O.C. website](#)

and in the South China Sea and most believe the Biden administration will negotiate a resolution with China in these areas.^M The likely crisis originates not in South China Sea but due to tension between US commitment to Taiwan^H and Xi Jing Ping's desire reintegrate Taiwan before the 100th anniversary of the Peoples Republic of China in 2049^M. Chinese Strategy revolves around the PLA becoming fully mechanized and information capable by its centenary in 2027^M and modernized by 2035.^H China is likely to avoid forcing a crisis before time.

Taiwan's President, Tsai Ing-Wen, entering her second term, indicates the risk of accidental conflict is rising due to increased Chinese military sorties violating her nation's Air Defense Identification Zone (ADIZ) (see figure 1).^M To date, Chinese warplanes have flown 138 missions into Taiwan's ADIZ since September of 2020.^M In contrast Taiwan experienced only 26 incursions, during the first year and a half of her first term, from 2016 thru 2017.^M The incursions primarily include reconnaissance and signal jamming planes,^M but have included nuclear capable bombers and fighters.^M The increased frequency expanded China's reach while the Peoples Liberation Army (PLA) operating in Taiwan's southwestern ADIZ is something of a given now.^M

The PLA is also developing capabilities to provide options to dissuade, deter, or defeat a third-party intervention during a large-scale, theater campaign such as a Taiwan contingency.^H In October 2020 with tensions rising in the Taiwan Strait, China

responded to Taiwanese offers for dialogue by releasing a video (see figure 2) showing a large scale exercise simulating an invasion.^M Chinese naval ships, special forces, attack helicopters and amphibious troops participated in two exercises north and south of Taiwan simulating island seizures immediately following the United

States' visit in January 2021.^M Through the joint exercises China demonstrates clear consideration that Taiwan is part of its territory, and the island continues as a source of tension deteriorating relations between Washington and Beijing.^M

The PLA Strategic Support Force is responsible for information warfare to include cyberwarfare, technical reconnaissance, electronic warfare, and psychological warfare missions.^H China is using "Cognitive Warfare" in an attempt to take over Taiwan without



Figure 2 PLA Southeast Sea, Island Exercise video sent to Taiwanese Leadership Source: [CCTV Military](#)

having to go to war.^M China's tactics include military intimidation, propaganda, and misinformation spread by the PLA's Strategic Support Force. To manipulate Taiwanese sentiment^M the PLA used these tactics to attempt to undermine Taiwan's democratic process, fuel a political divide, and create a favorable impression of the Chinese Communist Party.^M Concurrently, China's Central Military Commission recently removed the word "peaceful" from its annual report with long standing references to reunification with Taiwan.^M

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate each other. There was adequate time, but the analyst is not an expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: James A. Kievit

China Likely Reaches “Informatized” Modernization Warfare Objectives By 2035; Artificial Intelligence-Aided “Intelligentized” Warfare Goals Likely Achieved By 2050

Executive Summary

The People’s Republic of China’s “fully modernized” force by 2035 focuses on organizational alignment to effect joint and all-domain operations at all levels of tactics, campaigns, and strategy. The transformation efforts reinforced by organizational re-alignment and resourcing make it likely China achieves its 2035 modernization goals. However, realizing artificial intelligence-aided “intelligentized” warfare will likely take until 2050. Heavy reliance on a still emerging force structure, nascent warfighting domains, and advanced operational concepts that surpass its military commanders’ current cognitive skills present significant challenges.

Discussion

Starting in 2015 the People’s Liberation Army (PLA) implemented organizational reforms.^H While the joint theater commands gained authority to conduct operations, the military services retained focus on organizing, manning, training, and equipping forces,^H (See Figure 1)^M but gained progressive areas of concentration.^H The Army now seeks to “reorient from theater defense to trans-theater mobility.”^H The Navy pursues combining “offshore water defense with open sea protection.”^H The Air Force shifts from its territorial air defense mission to providing offensive and defensive capabilities concurrent with building an adequate air-space defensive force.^H



Figure 2 Basic Structure of the Chinese People’s Liberation Army. Click on picture or go to: https://www.youtube.com/watch?v=SUSFrK_yZQo to view video. Source: CCTV Video News Agency

Parallel with evolving its military services, China also seeks to enhance its cyber force to stem major crisis, guarantee national network and information security, and ensure national security and social stability.^H In turn the PLA gained its Strategic Support Force which combines the integration of cyber data and capabilities with electromagnetic and space warfare information and operations into one joint command.^H Parallel with these ongoing modernization reforms, China’s military budget as a percentage of total government spending decreased, but in “a clear signal that President Xi Jinping remains

committed to completing the modernization of the PLA by 2035,” China increased its overt defense spending despite the recent economic downturn.^H

While continuing to fund and reform its military, China also asserts its belief that new forms of warfare require bold innovations.^H China anticipates the new battlefield will evolve to include “space, the Internet, all fields of human activities and ideologies, quick response satellites, autonomous network security, brain control weapons, gene weapons, and other emerging combat power” integrated into warfighting domains.^H As such, China’s overmatch strategy, intelligentized warfare, hinges on employing artificial intelligence (AI),^M and AI features prominently in the PLA’s design of future war.^H

China currently focuses military AI development to create smart drone swarm operations, trojan operations, self-determined operations, and incapacitation operations.^H However, China employs more robust AI development through social implementation using AI



Figure 2 China's Future Megaprojects, Artificial Intelligence and the Space Industry. Click on picture or go to: <https://www.youtube.com/watch?v=ojsDUuhaU4> to view video. Source: Discover Zen

clusters in municipalities, cities, and provinces.^M Cities, such as Shanghai, have launched multi-billion-dollar AI ventures with districts and islands built for new AI companies.^M (See Figure 2)^M Similar Chinese “smart cities” initiatives are underway in international location such as Guyana and Suriname.^H As a result, China now publishes the most research papers on AI, enjoys data regulation, and focuses training for its AI talent.^M In line with its 2025 major discovery goals and its

2030 vision to lead in creating AI theory, technology, and application and to become the major AI innovation center of the world,^M China remains determined, organized, and resourced.^H China clearly prioritizes the development of AI technologies and systems,^H and “possesses the might, talent, and ambition to surpass the United States as the world’s leader in AI in the next decade if current trends do not change.”^H

Evolving big data and AI technologies into military purposes and incorporating emerging capabilities into existing concepts of joint force operations in systems-of-systems warfare^H will likely determine China’s ability to realize military overmatch. Creating a “fully modernized” force by 2035 “envision[s] a PLA capable of conducting joint informatized operations in the context of systems destruction warfare, giving the Chinese Communist Party a tool to achieve political objectives while controlling the scope and

scale of conflict.”^H Systems destruction warfare seeks to advance the capability to annihilate the enemy’s vital strengths by employing the operational system’s command, firepower strike, information confrontation, reconnaissance-intelligence, and support functions.^H Today, China’s military commanders reportedly acknowledge the future use of AI systems as new algorithms are being tested and trained through military gaming.^H

However, to meet President Xi Jinping’s agenda, PLA commanders need to master informatized war or “systems confrontation” by 2035 and master intelligentized war or “algorithm confrontation” by 2050.^H Achieving advanced levels of warfare realize the increased tempo and complexity of operations, magnifies the intense challenges future commanders will encounter, and requires increased human cognitive performance.^H Despite China’s rising competitive advantage in advancing AI,^H the technologies behind the PLA’s strategic thinking to develop relating cognitive capabilities “remain quite nascent” while “the process of research, development, experimentation, and operationalization that is required to reach their full potential may be lengthy and complex, requiring adjustments that are challenging for any bureaucracy.”^H Concurrently, the Chinese Communist Party’s control mechanisms and ideological constraints serve to inhibit military creativity and innovation.^H In addition, while the PLA commanders and soldiers theoretically understand multi-domain warfighting, they still struggle with actual employment of the operational concepts.^H

In sum, China now possesses a stronger technological foundation for developing future military power,^H but the PLA is “still struggling to come to grips with the massive organizational changes, the integration of new technologies, and leadership and other human resource challenges.”^H The China Standards 2035 report reiterates that the PLA is not “optimized for direct competition with its adversaries” and “Western analysts might point to poor soldier training in China’s infantry as a sign of irresolvable weakness.”^H However, “China is a competitor possessing the might, talent, and ambition to challenge America’s technological leadership, military superiority, and its broader position in the world.”^H Therefore, “it would be prudent to expect the military reforms can succeed with time, transforming the PLA into a far more capable force between 2035 and 2050.”^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources are reliable and tended to corroborate one another but the references to the original sources used to compile the accessed reports were not always available. There was adequate time, but the analyst worked alone and used information from reliable but limited sources. Furthermore, given the lengthy time frame of the estimate and its reliance on emergent operational concepts, this report is sensitive to change due to new information.

Author: Leslie L. Semrau

Joint Capable Senior Chinese Military Commanders Unlikely By 2035, Political Structures Likely Extend Timelines to 2050

Executive Summary

The People's Republic of China's "fully modernized" force by 2035 demands senior military commanders lead joint, information-centric operations as a tool to achieve political objectives. Despite the joint-focused, large-scale force reorganizations implemented to reach the 2035 milestone, the People's Liberation Army's ability to employ joint capable senior military commanders likely extends to 2050. Widespread leadership limitations, existing political structures, and other recognized deficiencies will likely stymie change.

Discussion

Reforms from 2015 to the present implemented pivotal organizational shifts within the PLA.^H The recently formed joint theater commands gained the authority to conduct operations.^H The newly implemented Joint Logistics Support Force now facilitates joint logistics to enable large-scale military operations.^H The new Strategic Support Force integrates cyber and electronic warfare elements and supplies information support derived from space-based and cyber-based means to the PLA services and the five joint theater commands.^H These organizational advancements create opportunities for the PLA to conduct yearlong planning, preparations, and mobilizations to support regional military objectives.^H

However, the inherited leadership deficiencies and limited experience with emergent joint integration concepts paired with an unproven and complex organizational structure compound leadership challenges currently recognized by the PLA.^M

President Xi's 2018 inspection visit to the Southern Theater Command highlighted the imperative to strengthen command skills (See Figure 1).^M Subsequently, the People's Liberation Army published strong guidance in 2019 to "Focus on cracking the commander's "five no" questions."^M This focus likely reveals a revisit to the "Five Incapables" released in 2015, which "emphasizes that "some" officers cannot judge situations, understand higher authorities' intentions, nor deal with unexpected situations."^M Internal directives also reveal the PLA's military



Figure 3 Xi inspects PLA Southern Theater Command, stresses advancing commanding ability. Click on picture or go to: <https://youtube.com/watch?v=1Ng5tVW1RXs> to view video. Source: CGTN

commanders likely lack strategic vision, do not understand how to command forces through uncertainty, and require a deeper level of connection with politics.^M The PLA pairing nascent joint constructs with recognized shortcomings in warfighting and command capabilities^M gains more complexity due to political dual command structures.

The current Chinese leadership model encompasses the Party committees, dual command, and political commissars, guarantees strong state control of the armed forces, but remains nebulous for advancing joint operations.^H While commanding officers can make military-related decisions, the dual commander construct employs military commanders and political commissars as co-equals where maintaining control remains paramount, disagreement is resolved through committee voting mechanisms, and delayed action results.^H The military commander's actual power in decision making vacillates depending on the situation and remains subject to direct political injects.^H Concurrent with co-equal decision authority, the political commissars also exercise influence on the military commander's promotion consideration by providing input to the Party committee regarding the commander's ability to perform.^H As the PLA only recently began experimenting with evolving leadership to include joint Party committees,^H its military commanders, cited as lacking deep knowledge of joint combat operations, likely experience greater developmental and advancement challenges.^M

Despite the Chinese military's political commissar system's claim to a seven-decade existence, evolving the system and the military commanders' capability to lead joint, information-centric operations remains nascent.^H The PLA's view of a "good leader" as an expert strategic war fighter who always listens to orders squared against reorganized, complex, and political systems nets it likely that a new generation of senior military commanders must be deliberately developed within the new system.^H The rapid promotion of young officers to afford President Xi Jinping greater control of the military in 2019^M generates additional levels of complexity competing against the intent to promote officers possessing a wider worldview and range of career experiences.^H In sum, realizing the true intent likely infers entrants starting in 2017.^H In return, the "new-generation" officers likely "reach their first major commands around 2035 and their first senior commands around 2050."^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources are reliable and tended to corroborate one another but provided caveats to include information limitations. There was adequate time, but the analyst worked alone and used limited sources. Furthermore, given the lengthy time frame of the estimate, this report is sensitive to change due to new information.

Author: Leslie L. Semrau

China Unlikely To Have “Fully Modernized” Military Before 2035, Personnel Deficiencies and Party Loyalty Likely To Frustrate The Modernization 8-10 Years Beyond The 2027 Centennial Milestone

Executive Summary

The People’s Republic of China’s “fully modernized” force by 2035 strategy transitioned to building a “fully modern military” by 2027 to mark the centennial founding of the People’s Liberation Army. Based on the current trajectory of initial modernization efforts aimed at reshaping the military’s command-and-control structure and ensuring the military remains loyal and responsive to President Xi Jinping, China remains unlikely to have a “fully modernized” military before 2035. Despite evolving its military doctrine to support the initial modernization and fielding the largest active component force in the world, personnel deficiencies and questions of political loyalty to the Chinese Communist Party frustrate the military’s evolution.

Discussion

The People’s Liberation Army (PLA), unlike modern militaries, affiliates directly with the Communist Party of China and not the Chinese Ministry of Defense.^H Although the PLA employs the world’s largest active force (see Figure 1),^H and China boasts up to 500,000 reserves, 40,000 contracted civilians, and approximately 500,000 security personnel within the People’s Armed Police (including the China Coast Guard),^M the PLA when compared to peer militaries lacks some major capabilities.^H President Xi Jinping, in launching the reform of the

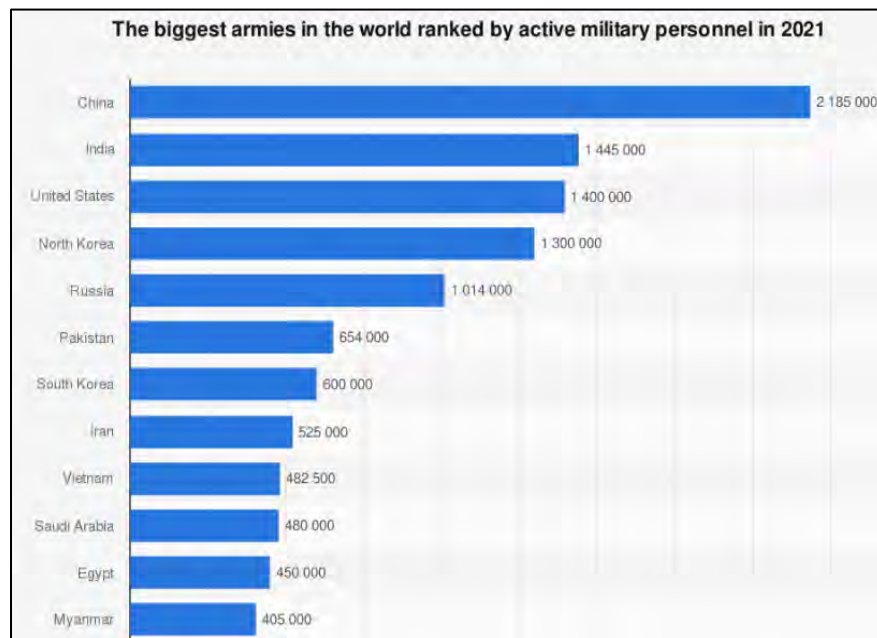


Figure 4 The biggest armies in the world ranked by active military personnel in 2021. Click on picture or go to: <https://www.statista.com/statistics/264443/the-worlds-largest-armies-based-on-active-force-level> to view article. Source: Global Firepower © Statista 2021

PLA in 2015, recognized the deficiencies and aimed to achieve two primary near term objectives: “reshaping and improving the PLA’s command and control structure to enable joint operations among the services and ensuring the PLA is loyal and responsive to the Party and Xi.”^H This initial military reform, originally projected to culminate by 2020, encompasses the greatest reorganization of the PLA since the 1950s and may now extend through 2022.^H

Concurrent with these ongoing reforms, China’s 2019 defense white paper acknowledges that the PLA “still lags far behind the world’s leading militaries.”^H However, as recent as October 2020, China continues to message its intent to build a “fully modern military” by 2027, which marks the centennial founding of the PLA.^H Although the Chinese government seeks new technology and improved logistics to increase its military capabilities, “many analysts say the military’s main challenge is personnel, in that it has struggled to recruit, train, and retain a professional fighting force.”^H In addition, the challenges to evolve a military force to adapt and learn new skills “are the most difficult things to teach and teach quickly and with the Chinese military, the scale is enormous.”^H

With the PLA’s last major conflict dating back forty years ago to the invasion of Vietnam, lack of combat experience also compounds the personnel challenges.^H To build capability based on experience, Chinese military doctrine adds conducting operations other than war in the form of “emergency rescue and disaster relief, counterterrorism and stability maintenance, rights and interests protection, guard duty, international peacekeeping, and international humanitarian and disaster relief” in addition to its “preparation for military struggle” endeavors.^H Taken altogether, “some experts have found that recent reforms have increased pressure and stress on service members” and the stress may be intensified by actions relating to “what Chinese leaders perceive as weakening loyalty to the Chinese Communist Party.”^H

According to the US Department of Defense, during President Xi Jinping’s “first six years in office, as part of a wider anticorruption campaign, he oversaw the punishment of more than thirteen thousand PLA officers, including one hundred generals, for giving and accepting bribes.”^H Now in 2021, according to Reuters, “China’s military will begin a massive loyalty campaign to the Communist Party and its leader President Xi Jinping for the party’s 100 birthday this year.”^H The birthday celebration, which began in March, included a press conference further emphasizing that the loyalty campaign will include education designed for increasing soldiers’ appreciation of “the glorious truth about Xi Jinping’s Thought on Socialism with Chinese characteristics” and to “firmly establish Xi Jinping’s Thought on Strengthening the Military as the guiding force.”^H Preceding the celebration, China also enacted a new criminal law on March 1, 2021, permitting greater detentions and

enforcing stricter controls over online speech aimed at deterring all public dissent in the country to include any cyberspace communications questioning military casualties.^M Overall, President Xi Jinping’s views on the PLA’s fealty to the party rest on his belief that the PLA possesses the ability to obscure and hide corruption.^M According to ANI, a South Asia News Agency, “Chinese military leaders themselves admit to difficulties in areas such as combat leadership, warfighting capability, and party loyalty.”^M

In correlation, according to Dr. Bates Gill, a professor at the Department of Security Studies and Criminology at Macquarie University in Australia,

“The PLA is working to transform from a bloated, corrupt and outdated force with a continental, defensive mindset to a world-class, 21st-century expeditionary force able to project power up to and beyond the Second Island Chain into the Pacific and Indian Oceans ... It is a very ambitious undertaking with many obstacles to overcome, but, if achieved, will pose a complex set of challenges to the United States and its allies, especially within the Asia-Pacific region.”^M

However, according to the Congressional Research Service, based on the current trajectory of initial modernization efforts aimed at reshaping the military’s command-and-control structure and ensuring the military remains loyal and responsive to President Xi Jinping, the People’s Liberation Army “institutionalizing the reforms’ sweeping changes will likely take even longer than the projected completion date,”^H likely extending modernization beyond 2027 and achieving results closer to 2035.

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources are reliable and tended to corroborate one another but provided caveats to include information limitations. There was adequate time, but the analyst worked alone and used limited sources. Furthermore, given the lengthy time frame of the estimate, this report is sensitive to change due to new information.

Author: Leslie L. Semrau

China's Own Actions Likely To Drive Its Adversaries Closer Together In The Next 5-10 Years

Executive Summary

With an uncertain security situation as well as worsening diplomatic relations with China for all Quadrilateral partners, what was previously a tenuous partnership may likely become a security alliance within the next 5 to 10 years. Quadrilateral meetings are occurring again between US, Japan, Australia, and India (Quad) in response to what is seen as Chinese aggression. China has pressured for control in the South China Sea, fought with India in the Kashmir region, as well as challenged liberal worldwide norms. In addition, the Belt and Road Initiative is increasing China's military and Private security footprint worldwide. This has driven Quad members to see the security situation as more critical. Despite the growing security concern for the Quad, it is possible but improbable that China's economic might again derail the Quad partnership.

Discussion

In 2007 then United States, Australia, Japan, and India met, informally according to Australia, to build cooperation in the Asia-Pacific region.^M This meeting was subsequently followed by a military exercise between the four countries and Singapore. China officially protested the meeting, and several of the participants backed down.^M Recently due to rising concerns with China the Secretaries of State for the US, Japan,

Australia, and India met to discuss a common platform of protecting freedom of navigation and promoting democracy in the region.^H There is concern by members within the Quad about provoking China as it is a major trade partner with each of the countries involved in the quadrilateral talks.^M However, with increasing military to military cooperation, between all members of the Quad, in the last



<https://www.youtube.com/watch?v=D4Zkbb9KhPs>

10 years and a growing strategic uncertainty in the Asia region.^M Quad talks are expected to continue and likely to result in further security cooperation between the nations.

China's recent increase in influence and assertiveness is given as one reason for the new Quad meetings.^H One major example of this has been the pressure China is bringing

to bear in the South China Sea against the other regional countries.^M China has unlawfully built artificial islands, in violation of international maritime laws, as airbases and naval ports.^H In addition China has brought economic pressure against Brunei, Indonesia, Malaysia, and the Philippines.^M There is an argument that China's diplomacy has not substantially changed over the last decade, but the perspective of other nations against china has changed.^M However, the change to China's diplomatic efforts is perceived globally, China's pressure brought to bear in the South China Sea, its recent actions against India in the Kashmir region, the pandemic response in Wuhan, and challenges against the current liberal world order are expected to be a major issue for the Quad partners.

In addition to the military expansion in the South China Sea. China as part of its efforts to expand as a global power, has begun to station PLA military forces outside of China.^M China had previously declared in its national security strategy in 2000 that it had no intention of stationing troops or building military bases outside of China.^H However, without changing its stated strategy, as of 2016 it has opened a military base in Djibouti.^H Simultaneously, the Belt and Road Initiative has increased the need for security of Chinese state-owned enterprises (SOE) building infrastructure overseas.^M These Chinese SOEs use Chinese private security companies (PSC) that are only nominally private, often staffed by former PLA officers with close ties to Chinese Authorities.^M While official Chinese military forces may not be postured for expeditionary conflict, it has

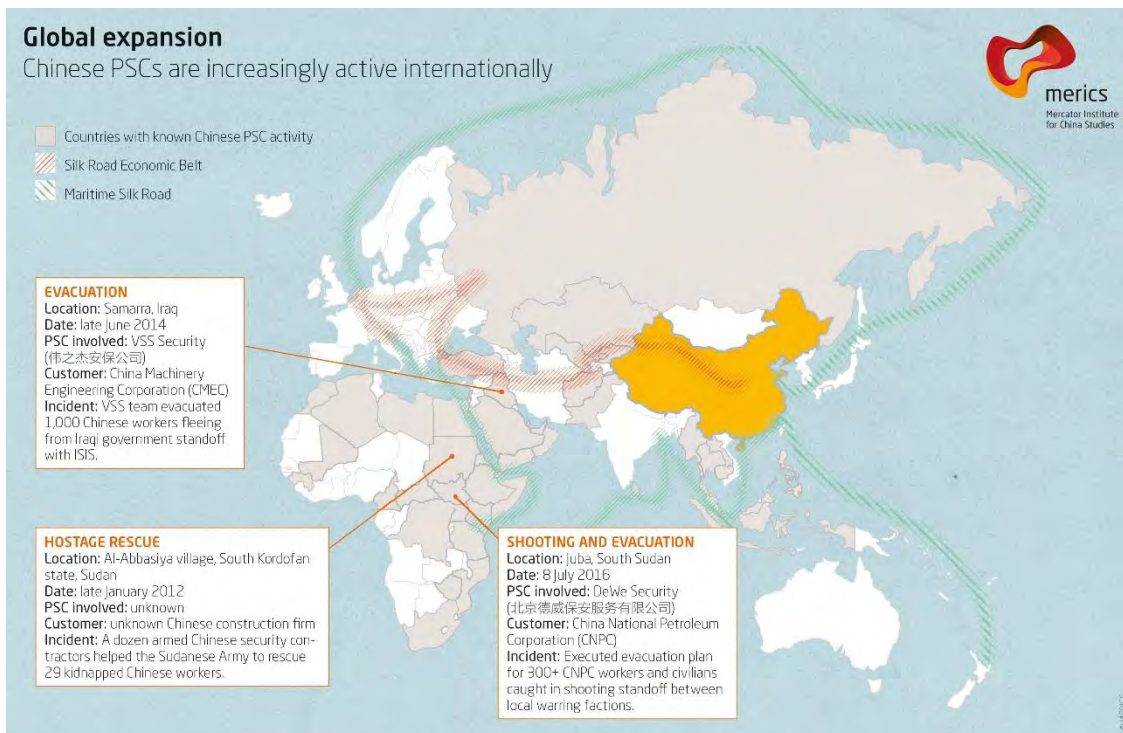


Figure 5: Chinese Private Security Companies Worldwide Presence (PSC Locations = Grey Color)

been argued that China has already postured military force worldwide already using PSCs.^M

The United States, Japan, Australia, and India previously stopped quadrilateral discussions regarding maritime security based on China's outrage.^M However, a decade later the Quad is seen as a necessary counterweight to China's "aggression."^M According to reports it is not a formal security alliance, such as NATO.^M However, indications it could become more than talks, were seen as Australia was invited to the MALABAR 2020 joint US, India and Japan naval exercise.^M With the changing security situation as well as worsening diplomatic relations with China for all the partners, what was previously a tenuous partnership may likely become a security alliance within the next 5 to 10 years.

It is possible that China may use economic cooperation to mitigate some of the tensions in the region. Certainly the new Asia Infrastructure Investment Bank (AIIB), which is a Chinese alternate to the World Bank and IMF,^H looks to provide assistance to countries in the region that may allow China to offer both a carrot and a stick in competition with the US.^M There is also a chance that the current crisis may not be enough for India to break with its tradition of non-alignment.^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate each other. There was adequate time, but the analyst is not an expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: Patrick Malone

China Likely Expands Military Competition Activities to 4th Ring as Peoples Liberation Army Modernization Likely Emboldens Chinese Communist Party Leadership in Next 10–15 Years

Executive Summary

China is likely to expand military competition activities, such as Military Civil Fusion and Strategic Support Force operations, globally, into the so-called 4th ring, in the next 10 – 15 years. Achievement of Peoples Liberation Army (PLA) modernization goals, including Power Projection and Joint Operational prowess, will likely embolden the Chinese Communist Party (CCP) leadership. The CCP's strategic world view and credible threats in the near abroad restricts current military competition activity to territorial China (1st ring) and its neighbors (2nd & 3rd rings) in the near term, but major PLA force redesign and modernization efforts will likely embolden CCP leadership. Despite the United States focus on China's military might, current global competition (4th ring) efforts, like the Belt and Road Initiative, rely on strengths currently in the information, economic, and diplomatic spheres but with expected PLA capability growth the CCP is likely to expand global military competition activities.

Discussion

President Xi Jinping and CCP leaders see the world in terms of four concentric rings of insecurity.^H The 1st, inner most ring is the homeland – all land claimed by the Peoples Republic of China (PRC).^H This is the most important ring as Chinese leaders worry first and foremost about domestic security: party security is synonymous with national security.^H The 2nd ring includes China's immediate neighbors – 14 countries and the near seas, with disparate core national interests to Beijing and varying levels of stability.^H As a belt of terrain it is a sensitive area for the Chinese Leadership, having fought recently with five of the countries.^H The 3rd ring encompasses the Asian Pacific: six multistate regional systems–Northeast Asia, Oceania, continental Southeast Asia, maritime Southeast Asia, South Asia, and Central Asia.^H China envisions itself a regional hegemon and reserves the right to deny external powers access to this ring.^H Finally, there is the 4th ring the rest of the globe, beyond Asia, the least important with the exception of the presence in it, of the one potential threat, to Chinese actions in all four rings, the United States.^H The CCP faced with success domestically (1st ring) and in the neighborhood (2nd & 3rd rings), is likely to expand efforts throughout the rings and across strategic domains; but quickly reverse course if threatened to protect vital national interests especially, party survival.^H As an integrated review of China's Hierarchy of

National Security Priorities (see Figure 4.1) and the rings quickly establish, security and confidence are key to CCP willingness to act abroad.^H

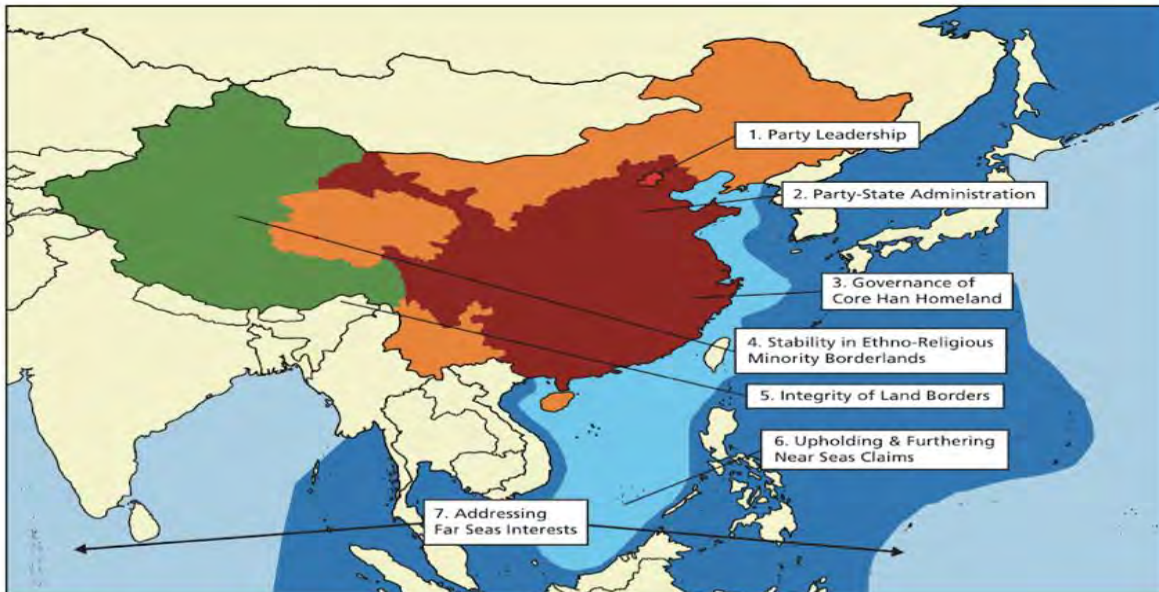


Figure 4.1. China's Hierarchy of National Security Priorities

Source: [Comparative Grand Strategy: A Framework and Cases](#)

Already in limited conflict with China, India must work to safeguard its interests and security; building naval capacity and partnerships with other countries.^M Japan, India, Australia and the United States (The Quad) consolidated potential military responses through naval exercises and building complimentary strategic partnerships: linking their bilateral relationships with the India-Japan-U.S., India-Australia-Japan, and U.S.-Japan-Australia trilaterals.^M China faces Indian, South Korean, and Japanese modern air forces, and growing A2/AD threats from adjoining nations.^M Taiwan recently increased the readiness posture of personnel and weaponry in the South China Sea to counter Chinese exercises and incursions.^M Vietnam subtly fortified several islands in the contested South China Sea with mobile rocket launchers capable of ranging China's runways and military bases throughout this important economic zone.^M The CCP is cognizant of a number of middle power nations within the first three rings who are individually vulnerable, to economic or diplomatic pressure, but if allowed to unite are capable of collective military security against Chinese aggression.^M

The PLA's developing capabilities and joint concepts strengthen the PRC's ability to counter an intervention by an adversary in rings one through three and build towards projecting power to the 4th ring.^H The PLA in China's immediate periphery (1st & 2nd rings) are engaged in bolstering China's territorial claims, chiefly in the maritime realm, and particularly in the South China Sea.^H The PLA is growing force projection

capabilities.^M With China's expanding interests abroad (4th ring), the PLA Navy (PLAN) has emerging capabilities to operate in the far seas: opening its first overseas military base in Djibouti in 2017.^M China's five Theater Commanders remain focused on the homeland and near abroad (1st, 2nd, 3rd rings) currently limiting effective global military operations (4th ring).^H PLA timelines for comprehensive military modernization target military modernization by 2035 and transformation into a "world class" military by the end of 2049.^H

Despite US focus on China's military development, current 4th ring competition activities are strictly commercial and diplomatic, primarily for energy resources, commodities, markets, investment opportunities, or political support in regards to 1st or 2nd ring territorial claims.^M Outside the security domain of competition, China's activities in the last decade demonstrate increased comfort with economic coercion and the ability to translate economic power into global diplomatic influence through the Belt and Road Initiative.^H Many of China's infrastructure investments, linked to BRI, are driven by strategic concerns, to expand the reach of China's military abroad in the future.^M Evolving PLA capabilities are likely to encourage China's leadership to assume risk when considering military options for competition activities in the 4th ring.^M

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were primarily peer reviewed, corroborative, and predominantly of high credibility. There was adequate time, but the analyst is not an expert, worked alone, and used an unstructured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: James A. Kievit

In Direct Competition with the United States, China's Defense Budget is Very Likely to be the Highest in the World within the Next 7-10 Years

Executive Summary

With a defense budget ranked second in the world, behind only the United States, and a consistent trend equaling around two percent of Gross Domestic Product (GDP) for the past 30 years, China's defense budget is very likely to grow to three to four percent of GDP and become the highest in the world in the next 7 to 10 years. The growth is driven by global competition with the United States and a concerted effort by China to modernize the People's Liberation Army (PLA) but remains obscured by deceptive accounting practices.

Discussion

China is the second highest military spender in the world (see figure 1).^H Defense spending in China has increased every year since 1995 but remained at around two percent of the country's GDP.^H The military spending growth reflects intense anxiety about mounting tensions with China's top competitor, the United States.^M This year's increase in the defense budget, the lowest in a decade at 6.6%,^H is deceptive. Military budget increased despite cuts across foreign affairs (11.8%), education (7.5%), public services (13.3%) and science and technology (9.1%).^M These cuts are indicative of the decreased GDP growth from the previous pace of growth which enabled China to maintain military budgets 2% of GDP.^H



Source: [CSIS ChinaPower](#). "What Does China Really Spend on Its Military?" updated September 15, 2020. Note: Spending measured in constant 2018 U.S. dollars.

China's desire to compete with the United States for global influence is represented in programs like the quasi military Belt and Road Initiative (BRI)^M and includes definitive defense investments in the South China Sea^H and global naval bases^M. BRI is not counted in the defense budget but spent ~1 trillion dollars in the last few years in dozens

of countries globally and has been criticized as being solely an extension of China's national security strategy.^M

The greyzone activities in the South China Sea are another example of recent programmatic expenditures incurred to compete with the United States for regional influence. The creation of islands in the Paracel Islands and Spratly Islands followed by the construction and expansion of military bases represents China's willingness to invest significant resources for the sake of competition.^H The global aspect of the outlay indicates China seeks to expand its naval reach, a prerequisite to global power. The BRI and South China Sea expansion projects bring economic and military benefits but the initiatives are behind and facing ever escalating costs.^M

In another direct contribution to increasing defense outlays, the People's Liberation Army is undergoing an extensive modernization program as directed by the Central Military Commission (CMC) to modernize by 2035 and transform into a "world class" force by 2049.^H Concurrently, China revised its National Defense Law to allow the CMC to mobilize civilian and military resources in defense of national interest at home and abroad while promising a forty percent pay rise to the PLA to attract and retain high quality officers to drive the modernization process.^M Building on this immense investiture in the 2 million man PLA,^H its armed forces also increased the number of exercises, upgraded equipment and arms, expanded capabilities, and invested in machine learning and artificial intelligence technologies^M in the effort to meet modernization goals. Current estimates show China is about two years behind on its modernization timeline^H and demonstrates a willingness to fund getting back on track.^M

The unique characteristics of China's party-run military, such as military-civil fusion, usage of state-owned enterprise, theft of intellectual property, and the embedding of party organizations in private companies frustrate efforts to accurately pin down defense budget realities.^M The recent defense law mentioned above obfuscates what resources are being tallied against defense spending.^M Thus the official Chinese military budget tells only a partial story as some foreign estimates increase Chinese figures by up to ~90 billion dollars.^H These estimates do not include the BRI outlays^M or the land creation expenditures^H under the defense expenditures which support allegations of purposely deceptive budgetary practices^M which obscure the actual percentage of China's GDP spent on defense. Overall budget data from Beijing suffers from three problems: a lack of transparency, known omissions, and unreliability.^M

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate each other. There was adequate time, but the analyst is not an

expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: James A. Kievit

China's Debt Crisis Likely To Force China To Reallocate Resources To Economy At Expense Of Other Aspects Of DIME Through Next 10 Years

Executive Summary

China's debt crisis is likely to force China to reallocate resources to the economy at the expense of other aspects of its diplomatic, information, military and economic initiatives through the next 10 years. China's economic growth since 1979 has been described as the fastest in history, however recently growth has slowed. China is attempting to shift its economy from exporting goods to a high-end production and services economy to raise its standard of living. However, debt incurred as a cost of governmental manipulation is a significant risk to China's economic aspirations. Corruption also is a significant cost to the economy and China's solution may be just as disruptive to China's economic growth. This is despite President Xi Jinping's on-going anti-corruption campaign. Added to these problems is a failure to match market forces in the economy reducing its productivity and further adding a drag on the Chinese economy.

Discussion

China's economic growth since 1979 has been described as the fastest in history.^{[H](#)} Recently growth has slowed, with the Chinese government embracing a slower pace of growth to allow for more internal development such as private services, and consumption to drive gross domestic product (GDP) growth.^{[M](#)} This shift in priority is to prevent the middle income trap, where a country's economy quickly rises but then stalls while shifting the economy from exports to other goods and services^{[M](#)}, and allow China's economic growth to continue bringing their standard of living to a high income level.^{[H](#)}

One potential problem that may endanger economic prosperity and internal stability within China is a potential growing debt crisis.^{[M](#)} In the first quarter of 2020 China's debt for all sectors rose to 318% of GDP.^{[H](#)} To some economic experts it is not just the amount of debt, but how quickly it has risen.^{[M](#)} China had outstanding loans for \$1.6 trillion dollars as of 2006, as of 2020 it had \$5.6 trillion dollars in loans, much of which was to low-income countries.^{[M](#)} In comparison the US has



[Figure 6: China's Debt Mountain](#)

about 200% debt total, as of 2017.^M In addition to national debt, Chinese internal corporate debt has risen.^M This has allowed corporations in China to leverage credit to take on more risk.^M US households and corporations have only about 150% vs China in 2017 rising to over 200%.^M China started an economic strategy in 2015 focused on deleveraging the large amount of debt China currently holds.^M In 2019 the Chinese government declared the problem effectively curbed.^M To some the campaign was shelved due to the trade war with the US, and further reduced to deal with the pandemic.^M Additionally, from January through December of 2020 State-Owned Companies (SOEs) began defaulting on their debts in record numbers.^M There are even some reports that China has had runs on small and medium banks inside China in 2020.^M Despite China's growing debt a lack of transparency within Chinese banking system is likely to allow China to postpone financial crisis, but infinite growth is not possible.^M It is likely that a debt crisis will force China to reallocate resources to the economy at the expense of other aspects of DIME such as military.

In China corruption adds to the internal pressure toward the Chinese government incurring a high economic cost. In 1990 it was estimated that corruption cost between 13% and 16% of China's GDP.^M President Xi Jinping has officially committed to reducing corruption and started a wide campaign against it.^M However, the policies that attempt to reduce official corruption, also impede small private business from breaking through the bureaucracy of the Chinese state system.^M This is slowing down the Chinese economy, as the driver of growth has been the smaller privately owned businesses.^M Some economists see the risk of continued investment focused on SOEs as a significant mid-term problem to the economy that will inhibit growth.^M China has recently begun a focus to increase political oversight of all State-Owned Enterprises (SOE) as

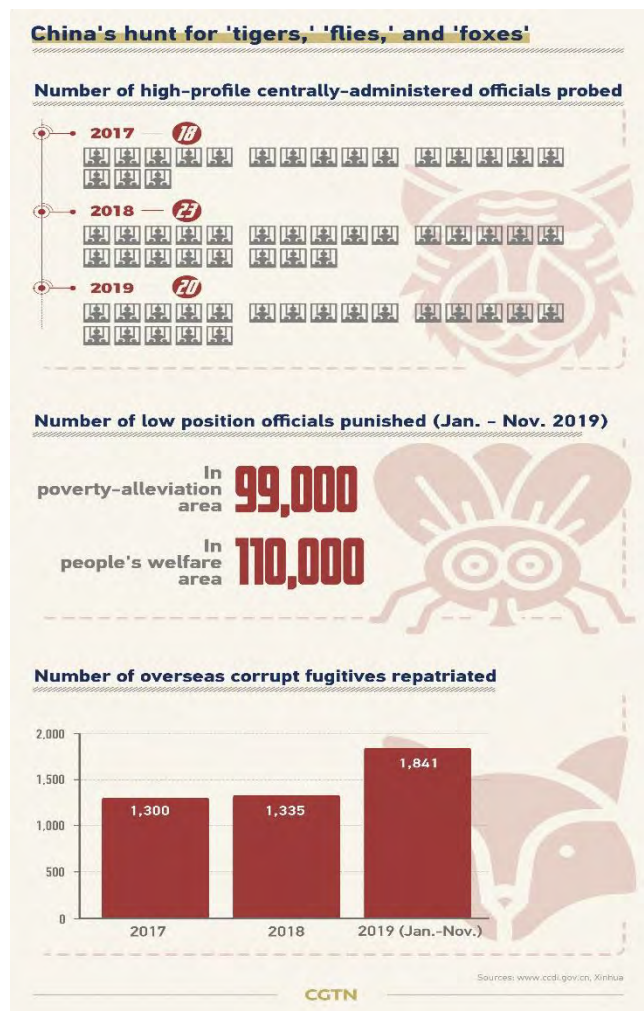


Figure 7: Anti-Corruption Stats through 2019

well as other strategic companies.^M China argues that political control of the economy counters some of the corruption that more materialistic organizations failed to curtail.^M It is likely that the increased control exercised through the SOE will further reduce the actual economic growth of China over the next 10 to 15 years.

The final threat to China's economic prosperity is a productivity problem. China's productivity is estimated as 1/3 that of the US, Japan, or Germany.^H Tied to the large credit corporations were allowed to have, businesses over produced with few market forces to curtail them.^M Estimates in China show that 1/3 of companies in China suffer from overcapacity and more than 10% of companies produce more than 20% more goods than the market demands.^M Chinese government in its most recent 19th Congress of the CPC acknowledged overproduction is a problem, and they will work to reduce this issue as provide social protections for those who are affected by restructuring.^M However, a lack of productivity with businesses that do not match market forces are likely to further exacerbate internal economic problems.

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate each other. There was adequate time, but the analyst is not an expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: Patrick Malone

India And China Likely To Engage In Direct Conventional Conflict In Next 5-10 Years

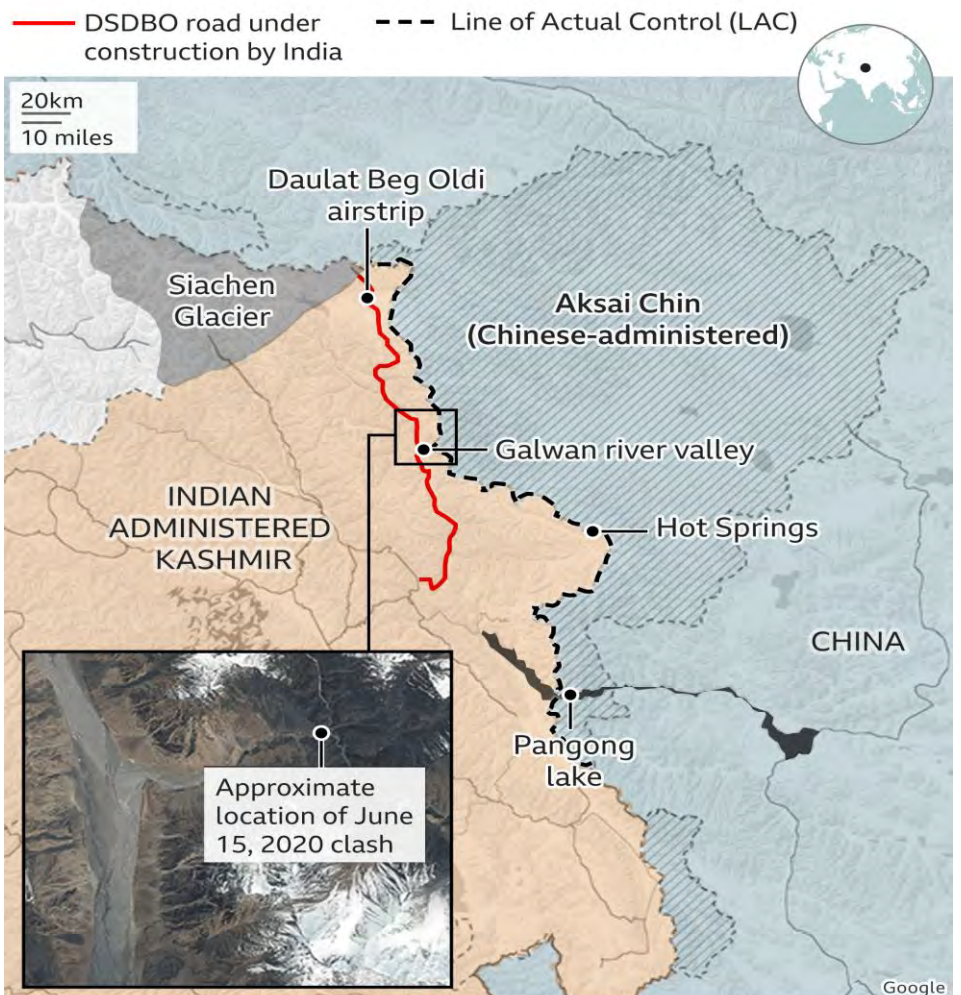
Executive Summary

China is likely to have more conventional conflict with India in the next 5 - 10 years. China's support to Pakistan, both economically and militarily brings it into conflict with India. As the United States ends the Afghanistan conflict, it will indirectly reduce support to Pakistan. This reduction in support is likely to improve relations between India and the US, which China will see as a threat. Despite China's growing power, their perceived diplomatic aggressiveness may further exacerbate the problem with India in the region. Combine an aggressive posture with an ill-defined and disputed border between India and China, will likely incite more conflict between China and India for the foreseeable future. Despite the ongoing efforts by the US and the UN to reduce the tensions between nuclear armed countries.

Discussion

China and India share an ill-defined 2100-mile-long border called the line of control or LAC,^M see Figure 1. They have gone to war at least once in 1962 over this area in the Himalayas.^M In January of 2020 China and Indian troops clashed while conducting patrols in the region, none of the troops were armed with anything other than rocks and sticks to prevent escalation, the brawl left at least 16 Chinese and 20 Indian troops dead.^H In addition to the historic conflicts between China and India over the region. China has been working with Pakistan, both

Disputed China-India border area



Source: Satellite image 2020 Maxar Technologies Figure 8: India - China Disputed Area

militarily as well as economically.^M China's support to Pakistan further drives conflict between the two powers as India and Pakistan regularly clash.^H The disputed border region shared by India, Pakistan, and China can be expected to raise further conflict as China and India compete in the area.

China's support to Pakistan as well as the economic corridor it is building to the Indian Ocean through Pakistan with the Belt and Road Initiative (BRI) will drive China and Pakistan closer diplomatically.^M A reinforced Pakistan with Chinese support will threaten India and its balance of power with Pakistan.^H There is some more recent analysis that money and corruption are delaying BRI projects in the region, that may reduce Pakistani and Chinese coordination.^M

Many recent articles and discussions have coined China's recent aggressive diplomatic as "Wolf Warrior", after a blockbuster Chinese movie series.^M This aggressive style is not



Figure 9: Chinese Block Buster Wolf Warrior

however as recent as the movies.^M China's change in diplomacy started as its economy surpassed Japan in 2010.^M Recently the aggressive diplomatic engagement can be seen more on social media as Chinese diplomats have struck back at discussions that ran counter to their narrative.^M However, this more aggressive posture in diplomacy also engenders a more strident tone in its relations with other countries.^M China's current diplomatic aggressiveness will likely drive further wedges between the two states, as China asserts its economic and military power.

United States and Indian diplomatic relations have had numerous issues. Starting with India's neutrality during the Cold War through the United States

supporting Pakistan in the 1971 war with India.^M However, in many respects the world view of India and the US are more compatible than that of the US and China.^M As the United States looks to leave Afghanistan, it is likely its support to Pakistan will be reduced.^M This reduction in support to Pakistan is likely to provide opportunity for better relations between the United States and India. And improving diplomatic relations

between India and the United States will be a threat to China's desire for more power in the region.

Diplomatic pressures from within as well as external sources are unlikely to temper the potential conflict. Both sides are nuclear powers and incur significant risk by escalation of rhetoric and/or direct engagement. At a minimum the US and the UN work continually to reduce tensions between nuclear powers, leveraging the nuclear non-proliferation treaty (NPT) as well as the comprehensive test ban treaty (CTBT).^M Currently both China and India have a no first use nuclear weapon policy,^M this may reduce the potential for conflict as the risk is so high. According to some sources it is unlikely that the world will allow these powers to come into such conflict that nuclear war is risked.^M

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate each other. There was adequate time, but the analyst is not an expert, worked alone, and did not use a structured method. Finally, given the extended time frame of the estimate, this report is sensitive to change due to new information.

Author: Patrick Malone

Belt And Road Initiative Probably A Priority Focus For China's Efforts And Resources Through 2035

Executive Summary

With recent changes to both the constitution and presidential term limits the Belt and Road Initiative is likely to remain a Chinese priority through President Xi Jinping's tenure. This is despite concerns that several western countries have raised about financial viability. BRI formally known as One Belt One Road, is a Chinese infrastructure development project on a global scale. More than 150 countries have signed agreements with China about BRI and massive infrastructure projects are on-going or in development. China's military has begun and will continue to need to develop the forces, training, and expeditionary methods to provide security for this global effort.

Discussion

The Belt and Road Initiative (BRI) formally known as One Belt One Road, is a Chinese infrastructure development project on a global scale focused on trade.^H The plan as stated in 2013 by President Xi Jinping was to have an overland-economic belt, reminiscent of the historical silk road from China. As well as a maritime silk road to Africa.^M It envisions a vast collection of development, infrastructure, and investment initiatives that expand China's trade and reach into the future.^H



Figure 10: CTGN Belt and Road Advertisement

It is mostly bi-lateral agreements for supposedly “win-win” development of trade between China and others.^M

More recently, changes to China's constitution in 2017 locked in President Xi Jinping's Belt and Road Initiative.^M Additionally revisions of constitutional term limits to China's presidency will allow President Xi Jinping to remain in power indefinitely.^H This would put his tenure at more than 22 years, only Mao served longer. Most General Secretaries serve a decade or less.^M These two factors make it probable that BRI will stay a priority through 2035. This priority will require China to allocate significant money, estimated on the order of \$100 billion dollars a year,^M and resources to further the projects.^H

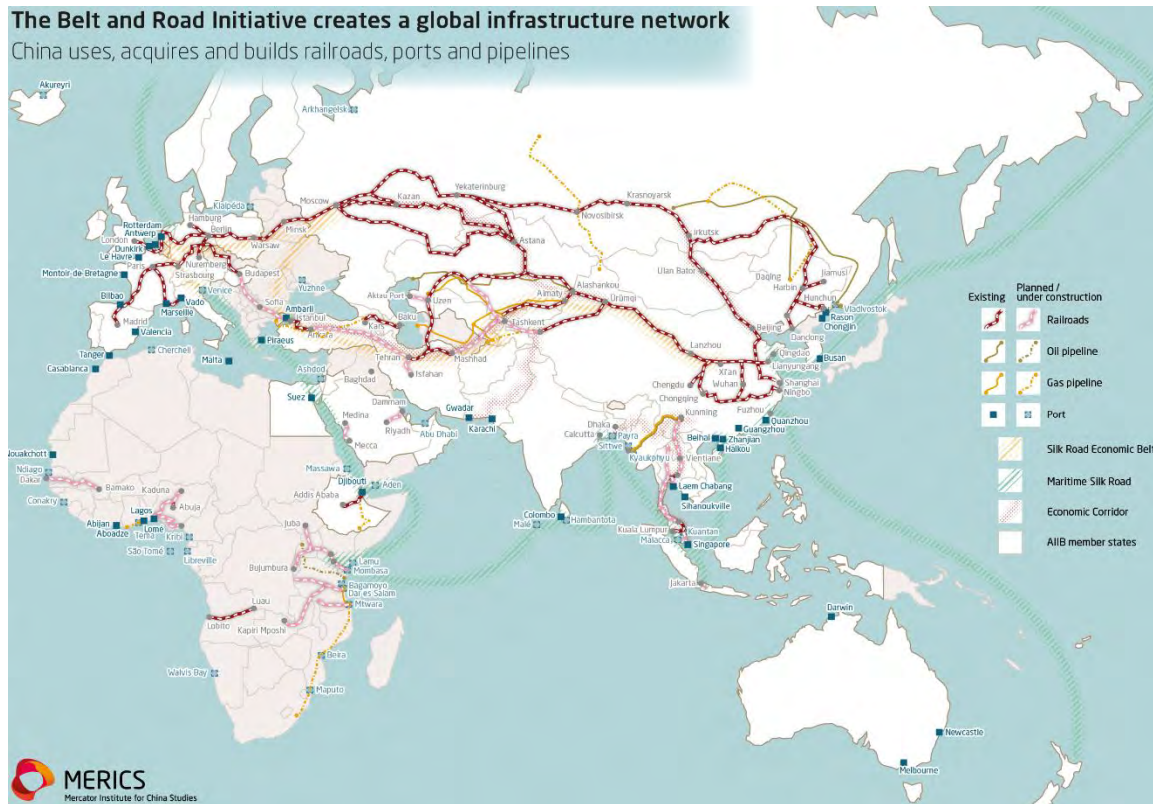


Figure 2: Mapping the Belt and Road initiative

Per Figure 2, there are 19 deep water ports in development tied to BRI throughout Africa and into the Indian Ocean. Additionally, there are major railroad projects in Africa as well as one being developed from China down to Singapore.^H BRI projects are majority funded through two Chinese state-owned banks, Export-Import Bank of China and the China Development Bank.^H While there are other western banks involved with BRI projects, western banks have tended to take a more risk adverse perspective providing other services rather than direct lending.^H There have been concerns that many of these development projects are in poor regions and are financially shaky.^M China's BRI is to some extent deliberately vague about which projects are or are not part of the project. This may be due to China wanting to avoid bad press if a project fails to deliver.^M From a western perspective BRI's other major issue is that the financial viability of these projects remains opaque with China's state-owned internal banking systems not visible to outside scrutiny.^H Some projects most notably in Sri Lanka have not been successful, and there have been delays in many BRI infrastructure projects, not the least due to the pandemic, that will require additional money and resources from China.^M

BRI, as a signature Chinese effort, additionally requires global security. At this time, some 150 countries have signed agreements with China on BRI, to include some in

Oceania and Latin America.^M To help secure China's interest, security for BRI projects worldwide is very likely a priority for PLA. Previously China has stated that they would not station Chinese military outside of their borders.^H In a significant change to Chinese policy China has installed a naval base in Djibouti. The first of what can be expected to be more outposts and bases.^H As BRI continues it is likely that China will face a growing requirement to further develop the forces, training, and expeditionary methods to protect this global effort.^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the lengthy time frame of this estimate, this report is sensitive to new information.

Author: Patrick Malone

The People's Liberation Army Likely Achieves Joint Military Interoperability by 2035 Due To Reform, Reorganization, and Expeditionary Training

Executive Summary

The People's Republic of China's "fully modernized" force envisions a military capable of conducting joint, information centric operations as a tool to achieve political objectives. Despite the limited combat experience paired with limited expeditionary capabilities and a largely untested organizational structure, the People's Liberation Army's reform, reorganization, and subsequent increase in expeditionary training make it likely China achieves its military modernization by 2035.

Discussion

Reforms from 2015 to present implemented pivotal organizational shifts within the People's Liberation Army (PLA).^H The service specific military organizations retained a focus on organizing, manning, training, and equipping forces.^H The recently formed joint theater commands (see Figure 1)^H gained the authority to conduct operations.^H The newly implemented Joint Logistics Support Force facilitates joint logistics to enable large-scale military operations.^H The newly implemented Strategic Support Force integrates cyber and electronic warfare elements and supplies information support derived from space-based and cyber-based means to the PLA services and the five joint theater commands.^H

Figure 5.3
China's Five New Theater Commands



Figure 1 China's Grand Strategy. Click on picture or go to: https://www.rand.org/pubs/research_reports/RR2798.html to view report. Source: RAND 2020

The significant shift in organizational structure likely induced a temporary decrease in military readiness and proficiency.^H However, the establishment of military theaters creates conditions for the PLA to conduct yearlong planning and preparation for joint military operations.^H In correlation, the theater commands serve to provide joint focus with the Central Theater Command “charged with protection of the regime leadership in Beijing, while the four other new territorial commands have focused geographic mission sets and responsibilities.”^H In addition, “the Northern Theater Command is being postured to better deal with contingencies on the Korean Peninsula; the Eastern Theater Command is being postured to be better prepared to address the question of Taiwan; the Southern Theater Command is being postured to manage the challenges of Southeast Asia, especially strengthening China’s hold on the South China Sea; and the Western Theater Command is being postured so that military forces are more capable of confronting threats emanating from Central and South Asia.”^H Concurrently, the execution of joint military exercises spanning all five theater commands including all four services, the logistics support force, and the strategic support force, such as the one conducted in 2019, serve to improve warfighting and increase joint military interoperability capabilities.^H



Figure 2 Russia kicks off Kavkaz 2020 military exercises with China, Iran, Belarus and others. Click on picture or go to: <https://www.youtube.com/watch?v=0yeqq6LTY4Q> to view video. Source: South China Morning Post

the other permanent members of the United Nation’s Security Council.^H These bilateral and multilateral exercises conducted with international partners across joint functions provide additional operational avenues to build joint and expeditionary capabilities.^H

In sum, one of the “primary impediments to progress for the PLA on its path toward jointness has been organizational.”^H Reforms from 2015 to present implemented pivotal

However, limited combat experience paired with limited expeditionary capabilities and a largely untested organizational structure create weaknesses and limitations for the PLA.^H In turn, concurrent with its active participation in joint military exercises with Russia (see Figure 2)^M and other international partners, the People’s Republic of China also contributes more forces to United Nation’s peacekeeping operations than

organizational shifts to overcome these barriers and position the PLA to achieve military modernization goals by 2035.^H In turn, the recent inclusion of the People's Liberation Army in the People's Republic of China's "Major Power Diplomacy with Chinese Characteristics" framework^H likely signals Beijing's increased public confidence in its military's ability to advance "integrated joint operations"^H and achieve its modernization goals in strategic support of China's foreign policy.

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources are reliable and tended to corroborate one another but provided caveats to include information limitations. There was adequate time, but the analyst worked alone and used limited sources. Furthermore, given the lengthy time frame of the estimate, this report is sensitive to change due to new information.

Author: Leslie L. Semrau

China's Development Of Overseas Interests And Leveraging International Military Exchanges Likely Expand Global Capabilities And Achieve Joint Operational Goals By 2040

Executive Summary

The People's Republic of China's "fully modernized" force by 2035 focuses on organizational alignment to effect joint and all-domain operations at all levels of tactics, campaigns, and strategy. Based on the current trajectory of modernization efforts aimed at protecting China and safeguarding its overseas interests, the People's Liberation Army will likely leverage international military exchanges and achieve joint integrated operations goals by 2040. Despite the significant downsizing of its force, anticorruption efforts, and largely untested organizational structure, China expanded the People's Liberation Army's role, global presence, and expeditionary capabilities in support of China's overseas interests.

Discussion

China's defense policy and modernization efforts seek to "comprehensively implement Xi Jinping's thinking on strengthening the military."^H China's "defense policy in the new era" (see Figure 1) specifically references safeguarding China's security interests in outer space, electromagnetic space, and cyberspace, as well as China's overseas interests.^H To

meet Xi Jinping's thinking in the near term, safeguarding domestic and overseas interests center on building joint operations with the missile, maritime, and strategic support forces receiving priority.^H

Concurrently, the joint focus for safeguarding overseas interests

specifically increases the People's Liberation Army's (PLA) global presence and expeditionary efforts.^H In turn, "China's expanding influence abroad, coupled with the relative optimization of its anti-access area denial envelope nearest its coast, suggests that

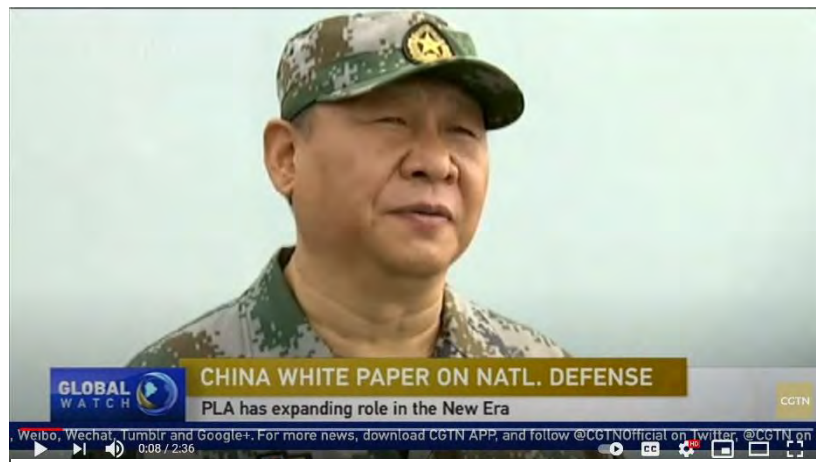


Figure 11 PLA plays expanding role in Xi Jinping's New Era. Click on picture or go to: <https://www.youtube.com/watch?v=da8vJ6-iOXE> to view video. Source: CGTN

the most consequential progress for the PLA will come from the development of joint force packages for overseas operations.”^H

However, as part of the ongoing military modernization efforts, China “voluntarily downsized the PLA by over 4 million troops”^M and tightened controls to prevent officer

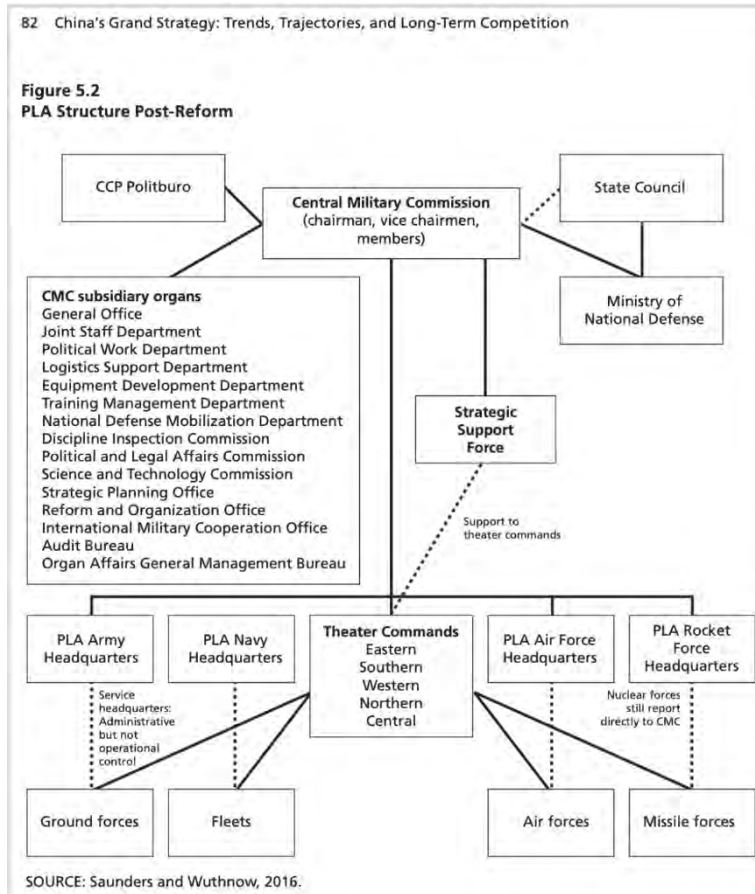


Figure 2 China's Grand Strategy: Trends, Trajectories, and Long-Term Competition Click on picture or go to: <https://www.andrewerickson.com/2020/09/chinas-grand-strategy-trends-trajectories-and-long-term-competition> Source: RAND 2020

promotions based on a corrupt “pay-to-play” system, which plagued the PLA as early as 2002 and possibly as recent as 2017.^M These actions concurrent with the robust modernization efforts likely decreased military readiness and proficiency.^H In addition, limited combat experience paired with limited expeditionary capabilities and a largely untested organizational structure (see Figure 2) create weaknesses and limitations for the PLA,^H which requires deliberate improvement efforts that may be found in part through examining China’s military presence and actions in Latin America and the Caribbean.

To build its joint capability for overseas operations, China increased its efforts to build a “level of military knowledge and relations within the Latin America and Caribbean region that will allow it to conduct a portion of a future war from the Western hemisphere.”^H Today, “in the realm of training and military education, Chinese institutions host Latin American military personnel from at least 18 states in Latin America—virtually every country in the region with which China has diplomatic relations.”^H In addition, the PLA has trained at the special operations training course in Colombia, participated in jungle warfare training in Brazil, conducted exercises with the Peruvian and Chilean armies, augmented the United Nations peacekeeping force in Haiti, and conducted port calls in the region to include multi-year repeated employment of

China's hospital ship, the "Peace Arc."^H Overall, "China's deployments to the region and interactions with its defense institutions and personnel similarly help the PLA improve its working knowledge of its Latin America counterparts, defense institutions and countries, facilitating its ability to operate in the region, and potentially use its ports, airfields, and other facilities without necessarily establishing formal alliances or base access agreements."^H

Regarding additional future global capabilities to protect its overseas interests, "there is also already an ongoing debate within China regarding the best way to protect Chinese commercial operations, including discussions by retiring PLA military officers to form private security companies (PSC) to support commercial ventures abroad."^H In truth, "the Chinese PSC industry remains nascent."^M However, government pressure over overseas enterprises and enthusiasm by Chinese PSCs to establish operations overseas is increasing.^M Although China does not currently provide an operational framework for employing PSCs, a desire for a more subdued or low intensity footprint or the increasing demand on the PLA to safeguard overseas interests may increase PSCs' relationships with the Chinese state.^M

In sum, China's joint and expeditionary military efforts are increasing^H and focused efforts include safeguarding China's security interests in outer space, electromagnetic space, and cyberspace, as well as China's overseas interests.^H According to a recent RAND report, "Because China probably will be able to contest all domains of conflict across the broad swath of the (Indo-Pacific) region by the mid-2030s, the U.S. Army, as part of the joint force, will need to be able to respond immediately to crises or contingencies at various points of contention."^H Combining Xi Jinping's near term priority to safeguard domestic and overseas interests^H with the recent inclusion of the PLA in the People's Republic of China's "Major Power Diplomacy with Chinese Characteristics" framework^H "suggests that the most consequential progress for the PLA will come from the development of its joint force packages for overseas operations."^H "Based on the trajectory of PLA reform and reorganization efforts, China will likely achieve a peak level of proficiency commensurate with integrated joint operations goals by 2035 or 2040."^H

Analytic Confidence

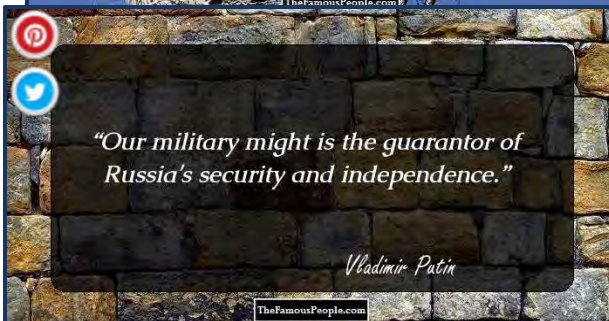
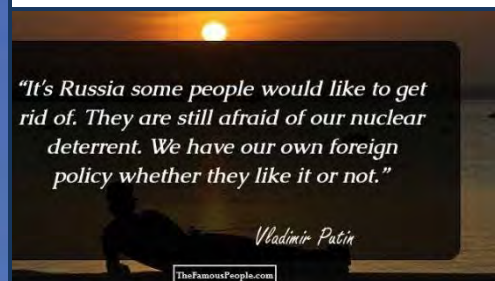
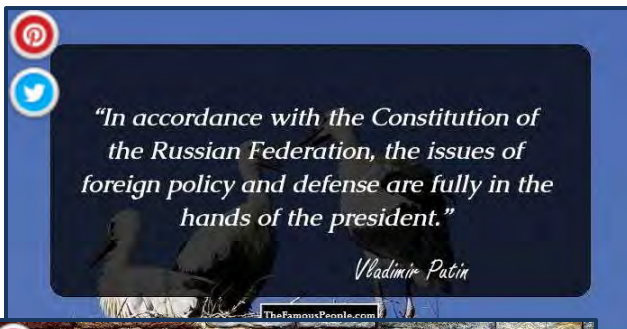
The analytic confidence for this estimate is *moderate*. Sources are reliable and tended to validate one another. There was adequate time, but the analyst worked alone and used information from reliable but limited sources. Furthermore, given the lengthy time frame of the estimate and its reliance on multiple global entities and evolving international relationships, this report is sensitive to change due to new information.

Author: Leslie L. Semrau

Russia - Evolution Estimates



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Russia Will Likely Use Asymmetric Approaches To Retain Great Power Status Due To Its Declining Power Resources

Executive Summary

Russia, under Vladimir Putin, seeks to retain Great Power level influence around the world in direct competition with Western Powers. However, Russia is unlikely to compete symmetrically due to its declining resources. Russia faces declining energy revenues and an aging population with projected GDP growth is less than 1% through 2035. Past economic issues caused the Russian Ministry of Defense (MoD) to miss the 2008 State Armament Program's (SAP 2020) modernization goals. There is no indication that SAP 2027 will be any better. However, Russia has found success using asymmetric approaches to competition through cyber, information ops, and PMCs. At the same time, Russia continues to modernize a modest conventional force to deter NATO and China. Therefore, Russia will likely use asymmetric approaches to compete with Western Powers while maintaining a modern deterrent conventional and nuclear capabilities.



Figure 12 AP Images: Vladimir Putin

Discussion

Our new state will have a long and glorious history in the new century. It won't break. Will act in his own way, receive and retain prizes in the top league of geopolitical struggle. Sooner or later, all those who demand that Russia "change behavior" will have to accept this. ^H

[Vladislav Surkov: Putin's Long State, 2019](#)

Since he came to power, Vladimir Putin has worked to regain Russia's status as a Great Power.^{HH} Regaining this Great Power status, to many in Russia, means projecting influence worldwide and stability in the near-abroad.^H

Initially, the petroleum boom from the early 2000s bolstered Putin's efforts to regain Russia's great power status. However, following their foray into Ukraine, the West's economic sanctions, and a drop in petroleum revenues, Russia's economy has stagnated. Looking to the future, the OCED projects Russian GDP growth to stay under 1% through 2035 based on decreasing demand for oil.^{HM} Stagnant oil prices and the economic effects of the COVID pandemic continue to place downward pressure on Russia's economy.

The weak economy has commensurately affected Russian defense spending and modernization. In 2008, following the less than stellar, albeit successful performance in the Russia-Georgia War, Russia embarked on a deliberate effort to modernize the military. Referred to as State Armament Program (SAP)2020, this modernization focused on implementing Network Centric Warfare by reorganizing parts of their ground forces, introducing new vehicles such as the T-14 main battle tank, procurement of the TU 160 bomber, and some naval systems.^H However, the network-enabled systems are expensive. Due to an economic downturn in 2015, Russia slowed procurement of crucial systems, decreasing from a high of procuring approximately 100 fighter planes a year in 2014 to 25 per year since.^{HH} More recently, a continuing weak economy coupled with COVID expenditures has affected Russia's new main battle tank, the T-14 Armata.^H T-14 procurement, beset by cost overruns, is delayed a full three years, with the first delivery not scheduled until 2022.^{HM}

Despite the economic pressure, Russia has continued to pursue reorganization and training on Network-Centric Warfare. The best example of Russian Network-Centric



Figure 13 Getty Images: Vladimir Putin

Warfare is the conflict in the Donbas region of Ukraine. Here, Russian conventional forces used cyber reconnaissance, coupled with unmanned aerial vehicles, to locate

Ukrainian forces and decimate them with indirect fire.^H Russian network-enabled Battalion Tactical Groups (BTGs) were able to halt Ukrainian advances in Ilovaisk, the Battle of the Donetsk Airport, Zelenopilya. In the Zelenopilya action, a Russian BTG killed 500 Ukrainians using their network-enabled capabilities to target and overwhelm the Ukrainian forces.^H More recently, Russia embarked on reorganizing and expanding its forces in Kaliningrad. Russia has also established a new regional command centered around their Arctic Fleet.^{MM}

Despite their modernization effort, the military is a limited instrument of power available to Moscow due to policy limitations on using their conscripts and scar tissue from their Afghanistan experience.^H Military service is respected in Russia, but the annual draft's popularity where Russia draws in approximately 130,000 new conscripts is far less popular.^H The Russian Ministry of Defense (MoD) continues to hold the draft because an all-volunteer army is too expensive to build and maintain.^H Due to the annual draft's politically sensitive nature, Russia has prohibited conscripts from serving outside Russia.^H Russia has professional contracted soldiers (kontraktniki) necessary for an increasingly technically oriented military. However, the kontraktniki are more expensive to recruit and valuable for their knowledge and experience.^H The kontraktniki can and have served in Syria and Ukraine; they have mostly filled less dangerous roles.^H Taken together, the limits on conscripts coupled with the value placed on the kontraktniki leave the military a limited option for advancing Russian national security objectives abroad.^H

It is highly likely to overcome limitations on competing to regain its Great Power status, Russia has turned to asymmetric means, Hybrid Warfare supported by the idea of Reflexive control, to influence developing nations and achieve political ends in the near-abroad. Hybrid Warfare is, as Chief of the General Staff, General Valeriy Gerasimov said, "using non-military means of achieving political and strategic goals."^H The prime example of Hybrid Warfare was 2014 in Crimea. Following considerable political and informational efforts to destabilize the region, Russia employed Spetsnaz forces,^H with sterile uniforms and somewhat unconvincingly disguised as local volunteer forces,^H to seize critical political infrastructure and enable Moscow to simply Annex Crimea through a questionable election.^{HH}

The development of a hybrid approach to Warfare has roots in the Russian Reflexive Control Theory.^H Reflexive Control Theory has been around since the 1960s and is the basis for how the Russians see misinformation. Reflexive Control "conveys to an opponent specifically prepared information to incline him/her to voluntarily make the predetermined decision desired by the initiator of the action."^H An example of what the Russian's believe as an example of US use of Reflexive Control is Ronald Regan's Strategic Defense Initiative. The Russian's believe the US only mentioned that because it

would cause Moscow to overspend on defense and collapse their economy.^H Russia continues to use Hybrid Warfare and Reflexive Control to compete in grey spaces, such as asserting influence over politically unstable portions of Africa^M, supporting the Assad regime in Syria^H, and even influencing the US elections through misinformation^H. This approach very likely provides Russia with a way to compete with Western powers without costly military campaigns through 2035.

Analytic Confidence

The analytic confidence for this estimate is moderate. Sources were generally reliable and tended to corroborate one another. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the estimate's lengthy time frame, this report is sensitive to change due to new information.

Author: Kirk J. Junker

Russia Very Likely To Continue Focus On Hybrid Warfare And Enabling Efforts Over The Next 10-14 Years

Executive Summary

The competition space is where the Russian government prefers to conduct operations aimed at achieving strategic objectives. It is very likely the military continues developing operational plans and techniques to support “whole of government” efforts within the competition space. Russia has multiple avenues for setting conditions to achieve success in the competition space, also known as hybrid or grey-zone warfare. Information (cyber) and anti-access/area denial (A2/AD) are the two primary avenues of grey-zone warfare. This is due to the relatively inexpensive cost of these avenues to achieving strategic success, despite a likely relative diminishing funding level within the Russian military.

Discussion

According to Rear Admiral Jeffrey Czerewko “Russia is adopting coercive strategies that involve the orchestrated employment of military and non-military means to deter and compel the US, its allies and partners prior to and after the outbreak of hostilities.”^M These coercive strategies provide Russia the means to achieve their deterrence and compellence goals against the United States below the level of armed conflict. Eugene Rumer informs us that Russian military doctrine related to competition is based in foreign policy goals. He states “[t]he Primakov doctrine . . . posits that a unipolar world organized by a single global center of power (the United States) is unacceptable to Russia. According to this vision, Russia should not try to compete with the United States single-handedly; rather, Moscow should seek to constrain the United States with the help of other major powers and to position itself as an indispensable actor with a vote and a veto, whose consent is necessary to settle any key issue facing the international community.”^H According to Alina Polyakova and Mathieu Boulègue “[f]rom the Kremlin’s perspective, hybrid warfare is a tactical application of the chaos strategy. It is full spectrum warfare that deploys a blend of conventional and nonconventional means aimed at affecting on the ground changes in target while seeking to avoid direct military confrontation with



Russia's President Vladimir Putin, Defence Minister Sergei Shoigu and Chief of the General Staff of Russian Armed Forces Valery Gerasimov visit the firing range Donguz to oversee the military exercises known as Centre-2019 in Orenburg Region, Russia September 20, 2019. Sputnik/Alexei Nikolsky/Kremlin via REUTERS.

Western states.”^M It is my assessment this is an ongoing and continuous effort by the Russian military and government. It is highly likely Russia continues hybrid warfare/grey zone tactics to achieve its policy goals over the next ten years.

The Russian military believes cyber is a tool operating within the information domain, which is different from United States and NATO militaries. Being effective in the information domain allows Russia to achieve desired effects within the grey zone and armed conflict levels of warfare. Building on the information warfare aspect that cyber is a tool, we are informed by Lilly and Cheravitch that Russian “information warfare consists of cyber and information operations and is an integral element of modern conflict. . . . The writings of Russian military scientists, however, illustrate an evolving interest in developing cyber weapons due to their effectiveness, appropriateness within the framework on contemporary conflict, and affordability.”^H Operationalizing the employment of cyber capabilities for the Russian military is their intelligence agency, the GRU. According to a 2020 study published by Booz Allen Hamilton, “[t]he GRU is not the only Russian government agency that conducts cyber operations, but it is Russia’s most thoroughly documented and consistently publicly implicated cyber operations organization.”^M The Russian military has invested heavily in producing effective cyber units and it is likely these efforts will continue over the next five to ten years despite any perceived changes to the Russian political leadership or reduction in overall Russian military spending. It is also highly likely over the next five to ten years the GRU continues to be the primary actor in conducting cyber-attacks for the Russian military during grey-zone operations and armed conflict.

The Russian military has made significant investments in efforts in Anti-Access and there is a high probability this trend will continue over the next 5-10 years. Two primary areas of Anti-Access for the Russian military is their integrated air defense system and electronic warfare systems. Organizationally the Russian air defense artillery (ADA) is a component of their Air and Aerospace Defense Forces (VKS), with ADA concentrated around “key internal regions.”^H According to Bukvoll and Åtland of the Norwegian Defense Research Institute, two key reasons for positioning ADA forces in these locations are “for stability on Russia’s borders and defending against NATO.”^{ANNEX C} Based on analysis by the Defense Intelligence Agency, “Russia’s 21st century integrated air defense system will be designed to integrate future and existing systems around a central command structure that is designed to promote the interaction of all air defense forces and weapons. Capabilities optimized against cruise missiles are key to this defense component, not just those optimized to target aircraft.”^H

Electronic Warfare is another pillar of Russia’s anti-access effort. According to Sergei Sukhankin of the Jamestown Foundation, “it would not be superfluous to mention a

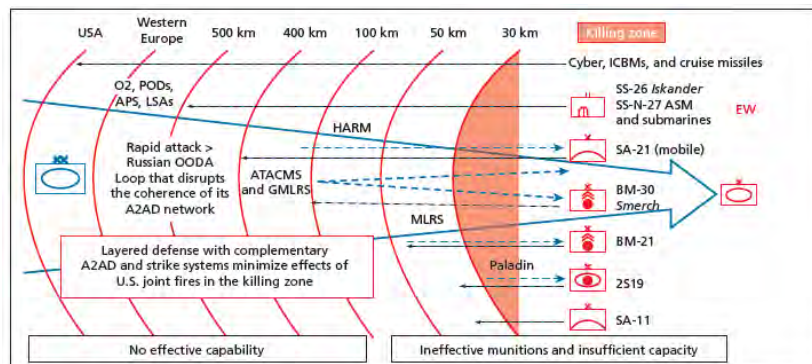
remark by the chief of the EW forces, Major General Yuri Lastochkin, who drew an implicit parallel between Russia's EW capabilities and the strengthening of its A2/AD potential."^H We are informed by Roger McDermott "that since 2009 Moscow has consistently invested in modernizing its electronic warfare capabilities, with the overall aim of asymmetrically challenging NATO on Russia's periphery 'and maxim[izing] its chances of success in any operation against NATO's eastern members.'"^H

Complimenting the anti-access organizations within the Russian military are their area denial units. My assessment of the Russian military is that area denial forces fall into two broad categories at the operational level – field artillery and long-range aircraft.

According to the Rand Corporation "The Russian Army has deployed large numbers of cannons and rocket launchers at the brigade and battalion tactical group levels. When combined with a growing, multifaceted targeting and reconnaissance capability, Russian artillery is a formidable potential opponent."^H According to Grau and Bartles, "[m]anuever by fire is a Russian concept whereby fire is shifted from one target, line or sector without moving the firing positions of the artillery pieces. It is used in battle to cause mass destruction of important targets in a short period of time."^H Figure 1 indicates the artillery range capabilities the Russian Army has over its NATO counterparts. It is almost certain Russia will continue to invest highly in their field artillery systems.

The Russian military also utilizes long range aircraft to contribute to area denial. To do this, according to Rand, "[i]n time[s] of war Russia's bomber force is intended to attack the adversary by firing long-range cruise missiles from standoff range. The Syrian campaign has shown that Russia's long-range, conventionally armed cruise missiles are highly effective."^H While this is not the exclusive role of long range aircraft in the Russian Air Force, it is likely to continue as part of their area denial efforts.

Because of Russia's relative financial weakness compared to the United States and NATO^H, developing "[t]he use of non-military means or what the West identifies as para-



SOURCE: Shlapak and Johnson, 2016b.
NOTES: ICBM = Intercontinental ballistic missile; HARM = High-Speed Anti-Radar Missile; OODA = observe, orient, decide, and act; MLRS = Multiple Launch Rocket System; TACMS = Army Tactical Missile System.
RAND RR1244.2

Figure 1. Imbalance Between NATO and Russian Long-Range Fires Capabilities^H

military forces is preferable largely because it is more efficient than employing classic military forces and because Russia could be called the West's equal or even superior in these capabilities"^H according to Dr. Daniel Goure. The cost effectiveness of the paramilitary forces contributes to Russian grey-zone warfare goals when armed conflict occurs. As stated by Dr. Joseph Siegle "such groups provide Russia a measure of plausible deniability."^H It is likely Russia's relative financial weakness with the United States and NATO continues over the next ten years.

Analytic Confidence

The analytic confidence for this estimate is *high*. Sources were generally reliable and tended to corroborate one another regarding Russia's doctrine and activities within grey-zone efforts and anti-access/area denial capabilities. There was disagreement between sources on whether or not Russia's military has a specific cyber doctrine. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the lengthy time frame of the estimate, this report is sensitive to change due to new information.

Author: James M. Mitchell

Russian Military Very Likely Utilized As Enabler Within Competition Continuum Over Next 5-10 Years

Executive Summary

The Russian government will very likely utilize the Russian military primarily as an enabler within the competition continuum over the next 5-10 years. The competition space, as defined in United States military terms, is where the Russian government prefers to conduct operations aimed at achieving strategic objectives. It is very likely the military will continue to develop operational plans and techniques to support “whole of government” efforts within the competition space. This is due to the relative financial short-fall the Russian government has compared to the United States, and is despite the Russian desire to be a peer competitor in the military realm. Russia balances this shortfall by shrewdly applying risk mitigation to its implementation of activities in the competition space.

Discussion

According to Rear Admiral Jeffrey Czerewko “Russia is adopting coercive strategies that involve the orchestrated employment of military and nonmilitary means to deter and compel the US, its allies and partners prior to and after the outbreak of hostilities.”^M These coercive strategies provide Russia the means to achieve their deterrence and compellance goals against the United States below the level of armed conflict. There is a logical flow in Russia’s strategic vision to achieve these means.



Figure 1 “Russian President Vladimir Putin (L) talking with Yevgeny Primakov, the chairman of the Russian Chamber of Commerce, in 2003. (Alexander Natruskin/AFP/Getty Images)” Click on picture or go to: [Yevgeny Primakov, Former Russian Premier and Spymaster, Dies at 85 - The New York Times \(nytimes.com\)](#) for an article on Primakov’s death in 2015.

Eugene Rumer, from the Carnegie Endowment for International Peace, states that Russian military doctrine related to competition is based in foreign policy goals. Specifically,

“[t]he Primakov doctrine . . . posits that a unipolar world organized by a single global center of power (the United States) is unacceptable to Russia. According to this vision, Russia should not try to compete with the United

States single-handedly; rather, Moscow should seek to constrain the United States with the help of other major powers and to position itself as an indispensable actor with a vote and a veto, whose consent is necessary to settle any key issue facing the international community.”^H

Dr. Jeremy Lamoreaux, of Brigham Young University, states that Russia will achieve these goals by “putting even more effort into sowing discord across the West. It is an extremely cost-effective way of weakening the West and undermining liberal internationalism (countries may well hesitate to cooperate with the West if their societies have turned against itself).”^H

Since the fall of the Soviet Union, Russia has operated primarily within the competition space, below the level of armed conflict. The threat of Russian military power (and at times usage) enables success within the grey zone. According to Eugene Rumer “[t]he record of the past two decades points to a tight linkage between Russia’s military capabilities and its practice of gray zone operations. Russian military and hybrid activities and tools are inextricably linked.”^H

According to Alina Polyakova and Mathieu Boulègue from the Center for European Policy Analysis, “[f]rom the Kremlin’s perspective, hybrid warfare is a tactical application of the chaos strategy. It is full spectrum warfare that deploys a blend of conventional and nonconventional means aimed at affecting on the ground changes in target while seeking to avoid direct military confrontation with Western states.”^M It is my assessment this is an ongoing and continuous effort by the Russian military and government. It is highly likely Russia continues hybrid warfare/grey zone tactics to achieve its policy goals over the next ten years.

Because of Russia’s relative financial weakness compared to the United States and NATO^H, developing “[t]he use of non-military means or what the West identifies as para-military forces is preferable largely because it is more efficient than employing classic military forces and because Russia could be called the West’s equal or even superior in these capabilities”^H according to Dr. Daniel Goure. It is likely Russia’s relative financial weakness with the United States and NATO continues over until at least 2035. The United States^H will out pace Russia^H in real GDP by a yearly average of 1% to 1¼%.

The Russian military and government, based on separate assessments from Eugene Rumer and Dr. Goure, utilize multiple tools to manage and avoid undue risks in the gray zone is a function of its successful integration of all the instruments of state power^H to “avoid undue risks, let alone the risk of escalation and military confrontation with

NATO.”^H It is likely Russia is able to continue this risk-reward balance over the next five years.

Analytic Confidence

The analytic confidence for this estimate is *high*. Sources were generally reliable and tended to corroborate one another regarding the purposes and methods of Russia’s whole of government approach to hybrid warfare. There was slight disagreement between sources on the how long Russia would remain uncontested by the United States and NATO in the grey-zone, but there was strong agreement that Russia believes operating below the level of armed conflict is the best way to achieve its policy goals. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the lengthy time frame of the estimate, this report is sensitive to change due to new information.

Author: James M. Mitchell

Russia Likely To Continue Using Hybrid Warfare To Compete At Levels Below Armed Conflict Through 2035

Executive Summary

Russia will continue to use Hybrid Warfare concepts to compete in politically unstable regions due to Hybrid Warfare roots in Reflexive Control Theory and to offset the high costs of Network Centric conventional forces. Despite the failure to achieve political ends in the Donbas Region, Russia has successfully used hybrid Warfare in Crimea and has adopted it for competition with Western powers in the Middle East and Africa.

Background



Figure 14 Photo credit: Ilya Varlamov (2014) "We leave in the morning from Simferopol. 'Little green men' are in the streets."

In 2013, Chief of General Staff of the Armed Forces, Army General Valeriy Gerasimov, commented on the 'Arab Spring' and noted that "non-military means of achieving political and strategic goals has grown, and, in many cases, they exceeded the power of weapons in their effectiveness."^H Interestingly, Gerasimov's commentary on the Arab Spring seems to have led to developing a strategic approach called Hybrid Warfare. The hybrid approach capitalizes on the non-military means to achieve political ends by overwhelming the adversary with a combination of synchronized capabilities.^H

While General Gerasimov's comments were referring to the Arab Spring, the development of a hybrid approach to Warfare can also find its roots in the Russian Reflexive Control Theory. Reflexive Control Theory has been around since the 1960s and is the basis for how the Russians see misinformation.^H Reflexive Control "conveys to an opponent specifically prepared information to incline him/her to voluntarily make the predetermined decision desired by the initiator of the action."^H An example of what the Russian's believe is the US use of Reflexive Control is Ronald Regan's Strategic Defense Initiative (SDI). The Russian's believe the US only mentioned SDI as a mechanism to force Moscow to overspend on defense and collapse their economy.^H

The best example of Russia's hybrid approach is their initial foray into Ukraine. The Russian annexation of Crimea followed considerable political and informational efforts to destabilize Ukrainian control in the region.^H They supported these efforts with mercenaries from Private Military Companies (PMCs) to further destabilize the government.^H The destabilizing efforts created the conditions where the Russians could employ *Spetsnaz* forces,^H with sterile uniforms and somewhat unconvincingly disguised as local volunteer forces,^H to seize critical political infrastructure and enable Moscow to simply Annex Crimea through a questionable election.^H

Perhaps a little over-confident, Russia tried to repeat their Crimea operation in the Donbas Region of Ukraine.^H In the Donbas, their hybrid approach failed to achieve their political ends immediately.^H At times, the conflict escalated into a more conventional fight that highlighted a Russian conventional force's capabilities organized around a Network Centric Battalion Tactical Groups.^H The Russian BTGs enjoyed considerable success but helped doom the conflict into a political failure after inadvertently shooting down Malaysian Airways MH 17.^{H H} This act helped solidify Western opposition to the Russian efforts in the Donbas region by highlighting for the world the Russian Military's involvement in the conflict. In this case, the Russian hybrid approach failed due to the adversary political resolve.^H

Reflexive Control shaped the Russian approach to both the Donbas Region and Crimea. In Crimea, Moscow calculated that an outright invasion of Crimea would likely trigger a Ukrainian and potentially NATO response.^H Russia calculated that they could keep the operation from triggering Ukrainian and NATO's response by causing unrest and sending in Russian forces disguised as local volunteers. The subterfuge created enough doubt that by the time anyone could react, the operation was fait accompli.^H The Russians used the same approach in the Donbas but miscalculated Ukrainian resolve and suffered the fate of Clausewitzian friction by downing a civilian airliner.^H

Despite some belief that western military theorists are pre-occupied with hybrid warfare^H, there is a case for focusing on it. While hybrid Warfare and Reflexive control failed to achieve political ends in the Donbas region, Russian has continued to use both to this day. There is no indication it is going away. Russia continues to use hybrid Warfare to compete in grey spaces, such as asserting influence over politically unstable portions of Africa^M, supporting the Assad regime in Syria^H, and even trying to influence the US elections through misinformation^H. Also, Hybrid Warfare provides Russia with a way to compete with Western powers without costly military campaigns. Russia sees its conventional, Network Centric forces as useful for a direct conflict with NATO or China. Using these forces in bleeding wars like Afghanistan is very unpalatable to Russian military leaders and politicians.^H Therefore, Russia will likely continue using hybrid Warfare through 2035.

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the estimate's lengthy time frame, this report is sensitive to change due to new information.

Author: Kirk J. Junker

Russian Military Probable Use And Investment Of Cyber “Informatsionnaya Voyna” As A Weapon System – Present To 2032

Executive Summary

There is a general understanding among military and policy analysts regarding how the Russian military “views” cyberwarfare, but one of the shortcomings in Western analysis is the tendency to mirror image Russia and cyber. The Russian military believes cyber is a tool operating within the information domain, which is different from United States and NATO militaries. Being effective in the information domain allows Russia to achieve desired effects at the competition and armed conflict levels of warfare. The Russian military has invested heavily in producing effective cyber units and it is probable these efforts will continue over the next five to ten years despite any perceived changes to the Russian political leadership or reduction in overall Russian military spending.

Discussion

The method of how Russia utilizes cyber to achieve national objectives is not a late twentieth century concept within their military. According to Lilly and Cheravitch of the Rand Corporation, “[d]espite the difference in means, as exemplified by the use of digital technologies today, the strategy undergirding modern Russian military cyberattacks and information operations was laid over a century earlier.”^H This statement is corroborated by Sukhankin of the Scandinavian Journal of Military Studies when he states “current Russian information operations share certain traits with the Soviet ones.”^H

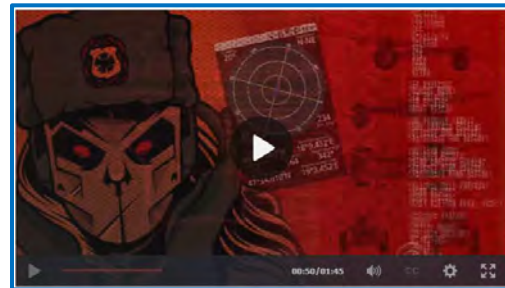


Figure 15 “Russian hacking proves lethal after Ukrainian military app hijacked” Click on picture or go to: <https://www.cbsnews.com/news/russian-hacking-proves-lethal-after-ukrainian-military-app-compromised/> to view video.
Source: CBS News

Unlike the United States military identifying cyber as a warfighting domain, the Russian military identifies an information domain. Connell and Volger from the Center for Naval Analysis inform us “like the Chinese, they [Russia] tend to use the word informatization, thereby conceptualizing cyber operations within the broader rubric of information warfare (informatsionnaya voyna). . . . In other words, cyber is regarded as a mechanism for enabling the state to dominate the information landscape, which is regarded as a warfare domain in its own right. . . . Perhaps not surprisingly, given the broad conception of IW in Russian theory, the focus of Russia’s cyber operations also tends to be strategic

and long term in nature, rather than operational or tactical.”^M Figure 2 below identifies some of Russia’s military characteristics and the related cyber operation.

Building on the information warfare aspect that cyber is a tool, we are further informed by Lilly and Cheravitch that Russian “information warfare consists of cyber and information operations and is an integral element of modern conflict. . . . The writings of Russian military scientists, however, illustrate an evolving interest in developing cyber weapons due to their effectiveness, appropriateness within the framework on contemporary conflict, and affordability.”^H

Operationalizing the employment of cyber capabilities for the Russian military is their intelligence agency, the GRU. According to a 2020 study published by Booz Allen Hamilton, “[t]he GRU is not the only Russian government agency that conducts cyber operations, but it is Russia’s most thoroughly documented and consistently publicly implicated cyber operations organization.”^M Information in the Booz Allen Hamilton study is corroborated in a Congressional Research Service report authored by Bowen. He states “[t]he GRU has been implicated in some of Russia’s most notorious and damaging cyber operations. The GRU also reportedly controls several research institutes that help develop hacking tools and malware. Observers have noted an apparent willingness by GRU cyber units to conduct brazen and aggressive operations, sometimes with questionable levels of operational security and secrecy.”^M It is probable for the next five to ten years the GRU continues to be the primary actor in conducting cyber attacks for the Russian military during hybrid warfare and armed conflict.

The Russian government, specifically the military, have demonstrated a willingness to employ cyber over the past 15 years. Sukhankin identifies successful cyber operations in

CHARACTERISTICS OF MILITARY ENGAGEMENT	CONCEPT	CYBER OPERATION SIGNIFICANCE
WIDESPREAD USE OF ADVANCED WEAPONS AND TECHNOLOGIES	The use of a broad range of weapons that employ advanced technologies such as computerization, directed energy, robotics, and unmanned flight.	Cyber operations’ tools may be advanced military technologies that provide an advantage over other states that lack the technical or financial capacity to develop, acquire, or defend against them.
WARFARE IMPACTING THE ENTIRE DEPTH OF AN ENEMY’S TERRITORY SIMULTANEOUSLY	The ability to cause widespread harm to an adversary across its physical or digital battlefield.	Cyber operations should be able to cause widespread harm to a targeted country’s computerized devices.
PRECISE DESTRUCTIVE ATTACKS	The ability to selectively destroy targets rather than cause indiscriminate damage.	Cyber operations should be able to cause highly targeted destruction with precise outcomes.
REDUCED TIME TO LAUNCH MILITARY OPERATIONS WITH PREEMPTIVE ACTIVITIES	The time between the appearance of a cause for action and acting must be minimized.	Precise destructive cyber attacks normally have protracted timelines. Preemptive establishment of persistent access to high-value digital and computerized targets (“prepping the battlefield”) is thus necessary.
GLOBAL COMPUTERIZED COMMAND AND CONTROL	The use of computer systems to provide unified situational awareness, enabling unified decision among dispersed military forces. Subordinate forces can take initiative with surprise, decisiveness, and aggressiveness.	Cyber operators are empowered to take rapid, decisive action.
CREATION OF PERMANENT WAR ZONES	Modern warfare creates a state of constant conflict, denying the adversary an opportunity to regroup and reassess, increasing the adversary’s stress and confusion.	Cyber operations can maintain a state of constant conflict with limited risk of escalation.
IRREGULAR AND PRIVATIZED WARFARE	The involvement of irregular or nonstate combatants in warfare, encompassing militias, terrorists, and private military companies.	Cyber operations can use hired contractors, mercenaries, or other nonstate actors to achieve military outcomes. This characteristic also includes regular military operators’ use of fake nonstate personas to accomplish military objectives.
INDIRECT AND ASYMMETRIC WARFARE	The ability to neutralize threats without deploying a parity of forces.	Cyber operations typically need fewer forces and less material than kinetic warfare.
MANIPULATION OF SOCIAL OR POLITICAL ENVIRONMENT	The attempt to influence, control, or instigate political and social movements, with the objective of either weakening the opponent socially or installing friendlier politicians.	Cyber operations can bolster political and social manipulation efforts, such as harming the reputation of political and social targets with provocative data leaks and disinformation.

Figure 2: Russian concepts of war and how cyber supports objectives^M

Crimeas and Donbass.^H Connell and Volger provide examples of the Russian military utilizing cyber means also in Estonia, Georgia and Ukraine.^M “In some instances, the attacks were also aligned geographically with Russian kinetic operations. For instance, Russian hackers attacked government websites in the city of Gori in eastern Georgia, along with news websites, just before Russian air attacks on the city.”^M Given the relative success in utilizing the Russian concepts of cyber to achieve military objectives, it is highly probable cyber will continue to be employed as a weapon system during any conflict Russia finds herself engaged in.

A concern for the United States and allied nations, as noted by Connell and Volger, is “the Kremlin has a relatively low bar for employing cyber in ways that U.S. decisionmakers are likely to view as offensive and escalatory in nature.”^M However Russia’s political future over the next ten years is probably going to continue on its current course and be at odds with the United States. According to Reid Standish at Foreign Policy, Vladimir Putin has put into place changes that allow him to maintain a large degree of influence even after the leaving the presidency in 2024.^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another regarding the purposes and methods of Russia’s military use of cyber. There was disagreement between sources on whether or not Russia’s military has a specific cyber doctrine. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the lengthy time frame of the estimate, this report is sensitive to change due to new information.

Author: James M. Mitchell

Private Military Companies Very Likely An Integral Part Of Russia's Approach To Competition Through 2035

Executive Summary

Due to shrinking economic power and the military's limitations, Russia will very likely continue to use private military companies (PMC) to compete in the developing world through 2035 despite growing political pressure to the contrary. When it comes to the Russian military, it is essential to understand the three categories of soldiers: conscripted soldiers who served 1 to 2 years, professional contract soldiers or *kontraktniki*, and mercenaries in PMCs. Altogether, conscript soldiers make up about a quarter of the Russian military, including the special forces or *Spetsnaz*.^H The professional contracted soldier or *kontraktniki* is recruited, trained, and serves on a contract similar to a Soldier in the United States Army. Lastly, mercenaries staff the private military companies who serve worldwide, performing limited Russian national security interests.

Discussion

Two of Russia's national security goals are to sustain its status as a world power and maintaining stability in the near-abroad.^{HH} However, a limited economic outlook, and limits on Russian military power offer few options to achieve its goals. Economically, Russia cannot compete with the United States and China due to their stagnant economy.^M The military is a limited instrument of power available to Moscow due to policy limitations on using their conscripts and scar tissue from their Afghanistan experience.^H Military service is respected in Russia, but the annual draft where Russia draws in approximately 130,000 new conscripts is far less popular.^H The draft is so unpopular that Vladimir Putin announced that he would end the draft in 2019.^H Despite his proclamation, the Russian military still holds their draft, albeit at a reduced rate, annually.^H The Russian Ministry of Defense (MoD) continues to hold the draft because an all-volunteer army is too expensive to build and maintain.^H Due to the annual draft's politically sensitive nature, Russia prohibited conscripts from serving outside Russia.^H

While the *kontraktniki* can and have served in Syria and Ukraine, they are costly to recruit and retain.^H According to Tor Bukkvøl of the Norwegian Defense Research Establishment, Russia's experience in Afghanistan left an indelible sense of casualty aversion on Russian politicians. Taken together, the limits on conscripts coupled with the value placed on the *kontraktniki* leave the military a limited option for advancing Russian national security objectives abroad.^H

"Ever since the Soviet occupation of Afghanistan (1979–1989), there has been considerable scepticism in the Russian population against risking Russian lives in operations not directly connected to the defence of Russia."^H

[-Norwegian Defense Research Establishment](#)

Due to limited economic power and the limitations on the military's use as an instrument of national power, Russia has expanded PMCs' use. Initially, PMCs flourished in the 1990s and early 2000s due to legal limitations and the flood of western security companies following the terrorist attacks of 9/11 and the US invasion of Afghanistan.^H However, in 2014 the modern incarnation of Russian PMCs, namely the Wagner Group, cut their teeth in Ukraine, supporting the efforts to destabilize Crimea and the Donbas region.^M Today, PMCs are a significant portion of the Russian presence in Africa^H, Syria^H, Crimea^H, and Venezuela^H.



Figure 16 Wagner Group Mercenaries in Syria, Photo Courtesy of LobeLog.com

Russia employs its PMCs by working with the host nation or a private company to request the PMC for local security assistance following a Russian diplomatic visit.^H Following that request, a PMC like the Wagner Group will perform various host nations' activities. Primarily, they provide security or training for local security forces. However, in some cases, like Libya, Russian PMCs entered the country to provide mine-clearing services and security for resource extraction. However, not long after their arrival, the PMCs became key players in a proxy war in Libya, though still there officially to perform "mine-clearing activities."^M

Mercenaries are illegal in Russia; therefore, Moscow does not acknowledge they exist, offering them a degree of plausible deniability.^H Ironically, the PMCs' questionable legal status makes them a low-risk option for Moscow to spread their influence worldwide.

When a member of a PMC dies, the family is paid off and told not to speak to the media.^M Similarly, when these PMCs do not perform well or embarrass Moscow, the FSB arrests them when they return.^M As noted by *Foreign Policy*, a PMC managed by a reserve FSB lieutenant colonel hired a group of mercenaries for a four-month contract to perform security operations in Syria. Initially, the pro-Asad forces greeted these mercenaries as heroes, but they were poorly trained and only lasted a month, all while posting their misdeeds on the internet. Their performance was so poor; the FSB arrested them upon landing in Moscow.^M As embarrassing as this group was, Moscow was able to maintain plausible deniability by arresting them for violating the law.

It is not likely that Moscow will seek to legalize PMCs either. Legalizing PMCs would require Moscow to acknowledge their existence and create a possible food fight between the FSB and the GRU over who should control them. Russian military observer, Vyacheslav Polivinko, believes some in the GRU and the General Staff oppose PMCs' legalization because PMCs would pull resources from the MOD.^H The MOD would also track their casualties, something not palatable to the Russian experience in Afghanistan.^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the estimate's lengthy time frame, this report is sensitive to change due to new information.

Author: Kirk J. Junker

Russian Anti-Access Future Organizational Efforts Highly Probable To Continue Over the Next 5-10 Years

Executive Summary

The Russian Army has increased anti-access capability since the year 2000. This is due to focused modernization efforts while attempting to maintain influence in the near-abroad and protect the homeland. Despite making significant strides to overcome the effects of the dissolution of the Soviet Union, it still has not achieved the overall capacity of the Soviet Army.

Discussion

The Russian military has made significant investments in efforts in Anti-Access and there is a high probability this trend will continue over the next 5-10 years. Anti-Access programs include air defense, field artillery fires of all types, and long-range aircraft. Russia will continue to structure and station these forces across all their military districts, probably continuing to place a higher quantity of these type units in the Western, Southern, and Eastern military districts. Despite Russia's organizational modernization efforts of the ground (Army) forces of battalion tactical groups (BTGs) combined arms formations modernization of those forces with T-90 and T-14 tanks as well as the BMP-3 and this attracting much of the NATO allies military focus, Russia values protecting its territorial integrity over the ability to conduct large scale offensive operations beyond her borders.



Figure 1: S-400 Triumph - Russian Long Range Air Defence Missile System. Click on picture or go to: <https://www.youtube.com/watch?v=YV0De5OShPA>

Organizationally the Russian air defense artillery (ADA) is a component of their Air and Aerospace Defense Forces (VKS), with ADA concentrated around “key internal regions.”^H According to Bukvoll and Åtland of the Norwegian Defense Research Institute, two key reasons for positioning ADA forces in these locations are “for stability on Russia’s borders and defending against NATO.”^{ANNEX C} Andrew Bowen of the Congressional Research Service informs the “[s]trategic air defenses are controlled by the Aerospace Forces. VKS systems are responsible for defending critical infrastructure and strategic targets.”^H Based on analysis by the Defense Intelligence Agency, “Russia’s 21st

century integrated air defense system will be designed to integrate future and existing systems around a central command structure that is designed to promote the interaction of all air defense forces and weapons. Capabilities optimized against cruise missiles are key to this defense component, not just those optimized to target aircraft.”^H It is highly probable the Russian military establishment continues developing their integrated air defense system over the next 10-15 years and places the most modernized units in the Western and Southern military districts over the next 5-10 years.

Electronic Warfare is another pillar of Russia’s anti-access effort. According to Sukhankin of the Jamestown Foundation, “it would not be superfluous to mention a remark by the chief of the EW forces, Major General Yuri Lastochkin, who drew an implicit parallel between Russia’s EW capabilities and the strengthening of its A2/AD potential.”^H We are informed by Roger McDermott in “that since 2009 Moscow has consistently invested in modernizing its electronic warfare capabilities, with the overall aim of asymmetrically challenging NATO on Russia’s periphery ‘and maximi[z]ing its chances of success in any operation against NATO’s eastern members.”^H

As part of its deterrence program, Russia has prioritized modernizing its nuclear forces and air defense networks. According to the Stockholm International Peace Research Institute “[t]he nuclear forces have been a particular focus since the early 2000s, and their delivery systems have been extensively modernized.”^M Concurring with the SIPRI assessment is Crane, Olikier, and Nichiporuk when they state “Russia has also developed strong capabilities in the surface-to-air missile systems. . . . Russia appears to have protected funding for its air defense programs, which is consistent with Russian doctrine and Russia’s concerns about the threat of air attack.”^H

Analytic Confidence

The analytic confidence for this estimate is *high*. Sources were generally reliable and corroborated one another. Time available for the research was adequate, however the work was conducted independently and without following a structured method. There was adequate time, but the analyst worked alone and did not use a structured method. Given the length of time of this report and potential changes within the Russian political and economic environments, the probability of outcomes is subject to change.

Author: James M. Mitchell

Russian Area Denial Likely Focused On Artillery, Traditional Air To Surface Munitions Over The Next 5-10 Years

Executive Summary

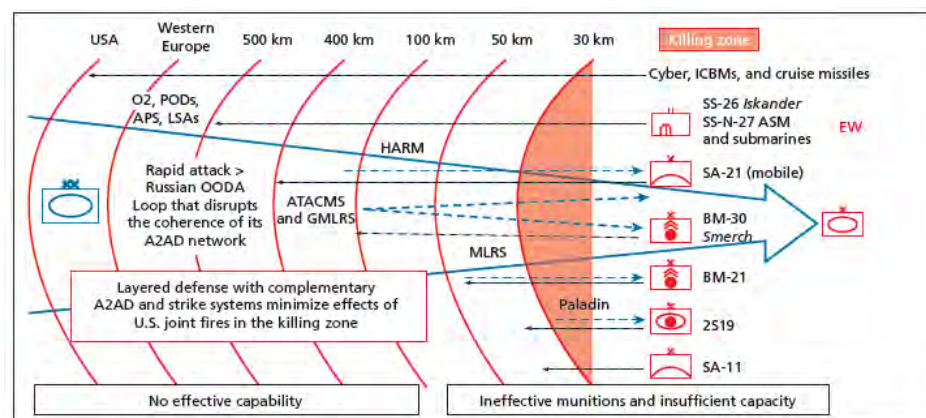
Russian Area Denial (AD) efforts will likely continue to focus on capabilities in their field artillery systems, both cannon and rocket/missile and long-range aircraft air-to-surface delivered munitions over the next 5-10 years. This is due to the proven effectiveness of air-to-surface delivered munitions and Russia's centuries long reliance on field artillery to set conditions for maneuver forces, despite the relative lack of survivability of long-range aircraft in high threat environments and the inability of field artillery systems to hold terrain.

Discussion

Russia's military is well known for the anti-access/area denial (A2AD) efforts made to disrupt and potentially defeat adversary forces. As stated by

Timothy Thomas, "[w]estern planners have mainly focused, for good reason, on what they see as Russian attempts to attain A2AD superiority with various types of weaponry."^H While most attention is given to the anti-access weapon systems and organizational structure, equally important in achieving Russian national objectives and preservations of sovereignty are their area denial forces. My assessment of the Russian military is that area denial forces fall into two broad categories at the operational level – field artillery and long-range aircraft.

According to Crane, Olikier, and Nichiporuk, "[i]mprovements in electronics, including communications systems and fire control systems for Russian artillery have also made Western militaries pay increasing attention to the threat that the Russian military would pose in any future conflict in Eastern Europe."^H According to Rand "The Russian Army



SOURCE: Shlapak and Johnson, 2016b.
NOTES: ICBM = intercontinental ballistic missile; HARM = High-Speed Anti-Radar Missile; OODA = observe, orient, decide, and act; MLRS = Multiple Launch Rocket System; TACMS = Army Tactical Missile System.

RAND RR2124-2.5

Figure 1. Imbalance Between NATO and Russian Long-Range Fires Capabilities^H

has deployed large numbers of cannons and rocket launchers at the brigade and battalion tactical group levels. When combined with a growing, multifaceted targeting and reconnaissance capability, Russian artillery is a formidable potential opponent.”^H As can be seen in Figure 1, a comparison of artillery delivery system ranges between Russian and United States systems, the United States is significantly outranged.^H This disparity in artillery weapon system ranges contributes to Russia’s ability to conduct area denial against US and NATO forces. It is likely Russia will continue to “outgun” US and NATO forces over the next five years due to the advanced ranges and weapon system quantities that Russia has invested in their field artillery. However this gap, based on an interview by Mitch Meador with Brigadier General John Rafferty, in range is unlikely to remain between 2023 and 2027 due to the US Army’s investments in long-range artillery and precision and hypersonic munitions.^M

Russia heavily invests in their artillery systems, locating them throughout the force from the strategic to tactical levels (see Figure 2). This is necessary because of how the Russian Army views the employment of field artillery. According to Grau and Barles, “[m]anuever by fire is a Russian concept whereby fire is shifted from one target, line or sector without moving the firing positions of the artillery pieces. It is used in battle to cause mass destruction of important targets in a short period of time.”^H It is almost certain Russia will continue to invest highly in their field artillery systems since, according to Grau and Bartles, “[a]rtillery has always held pride of place in the Russian and Soviet Armies.”^H

Western	Southern	Central	Eastern
<u>Independent</u> 1 Rocket Artillery Brigade 2 Spetsnaz Brigades <u>3 Armies, totaling:</u> 1 Tank Division 1 Motor Rifle Division ^a 1 Tank Brigade 4 Motor Rifle Brigades 2 Artillery Brigades 3 Tactical Missile Brigades <u>Airborne Forces</u> 3 Divisions 1 Spetsnaz Brigade <u>Baltic Fleet (Kaliningrad)</u> 1 Naval Infantry Brigade 2 Motor Rifle Brigades 1 Artillery Brigade 1 Tactical Missile Brigade <u>Northern Fleet (Murmansk)</u> 1 Naval Infantry Brigade 2 Motor Rifle Brigades	<u>Independent</u> 1 Rocket Artillery Brigade 1 Recon Brigade 3 Spetsnaz Brigades <u>3 Armies, totaling:</u> 2 Motor Rifle Divisions 4 Motor Rifle Brigades 4 Mountain Brigades 1 Artillery Brigade 1 Tactical Missile Brigade <u>Airborne Forces</u> 1 Division 1 Air Assault Brigade <u>Black Sea Fleet (Sevastopol)</u> 1 Naval Infantry Brigade <u>Military Bases^b</u> Armenia Abkhazia South Ossetia	<u>Independent</u> 1 Tank Brigade 1 Motor Rifle Brigade 1 Rocket Artillery Brigade 2 Spetsnaz Brigades <u>2 Armies, totaling:</u> 6 Motor Rifle Brigades 1 Mountain Brigade 2 Artillery Brigades 2 Tactical Missile Brigades <u>Airborne Forces</u> 1 Air Assault Brigade <u>Military Base</u> Tajikistan	<u>Independent</u> 1 Rocket Artillery Brigade 2 Spetsnaz Brigades <u>4 Armies, totaling:</u> 1 Tank Brigade 9 Motor Rifle Brigades 3 Artillery Brigades 2 Tactical Missile Brigades <u>1 Army Corps</u> 1 Motor Rifle Brigade 1 Division ^c <u>Pacific Fleet (Vladivostok)</u> 2 Naval Infantry Brigades

SOURCES: IISS, *Military Balance*, 2018b, and Catherine Harris and Frederick W. Kagan, *Russia’s Military Posture: Ground Forces Order of Battle*, Institute for the Study of War, Washington, D.C., March 2018, pp. 18–23.

Figure 2. Ground Combat Units by Military District^H

It is my assessment the Russian military utilizes long range aircraft to contribute to area denial. To do this, according to Rand, “[i]n time[s] of war Russia’s bomber force is intended to attack the adversary by firing long-range cruise missiles from standoff range. Their [Russian long range aircraft] reliance on relatively expensive long-range munitions helps ensure their continued relevance but limits their utility to the availability of these munitions. The Syrian campaign has shown that Russia’s long-range, conventionally armed cruise missiles are highly effective.”^H While this is not the exclusive role of long range aircraft in the Russian Air Force, it is likely to continue as part of their area denial efforts. This is due to the effectiveness of the air delivered munitions which enables aircraft survivability by allowing Russian aircraft to remain out of enemy air defense asset range.

Analytic Confidence

The analytic confidence for this estimate is *high*. Sources were generally reliable and corroborated one another. The sources were also from well-developed and funded organizations. Time available for the research was adequate, however the work was conducted independently and without following a structured method. Time was adequate, but the analyst worked alone and did not use a structured method. Given the length of time of this report and potential changes within the Russian political and economic environments, the probability of outcomes is subject to change.

Author: James M. Mitchell

Russia Likely To Exploit Lessons Learned From Recent Conflicts And Expand Upon Network Centric Warfare Concepts Despite The Cost Of Procurement

Executive Summary

Russia will likely build upon its Network Centric Warfare capabilities focused on dominating periods of crisis and conflict due to their Ukraine and Syria's experience. The Armenian experience in the Nagorno-Karabakh reinforces these lessons but demonstrates a need to continue a modernization effort that strains Russia's military spending.



Figure 17 Ukrainian Equipment destroyed by Russian Artillery Strike in Zelenopilya

Discussion

The Russian *settsentrisheskaia voina* (network-centric Warfare)^H defined by N. Tyutyunnikov, in *Voyennaya mysl' v terminakh i opredeleniyakh: v trekh* (military thought in terms and definitions, Volume 3) in 2018:

Network-centric war—A concept of military operations oriented toward the achievement of information superiority that provides for an increase in combat power through the creation of an information and communication network linking sensors (data sources), decision-makers, and assets, which ensures that the participants of operations have situational awareness, accelerating command and control as well as increasing the pace of

operations, effectiveness of defeating enemy forces, survivability of troops, and level of synchronization.^H

The Chief of the General Staff, in the 1980s, Marshal Nikolai Ogarkov, planted the seeds for Russian Network Centric Warfare based on the idea that the world was on the verge of a revolution in military affairs associated with information dominance with short, sharp interstate conflicts.^H This new form of Warfare was not dependent on long mobilizations but leaner formations enabled by superior command and control systems to overwhelm the adversary.^H By 1991, when the Soviet Union dissolved, the military made little progress in developing and adopting this new concept. In 2008, following the less than stellar, albeit successful performance in the Russia-Georgia War, Russia embarked on a deliberate effort to modernize the military. Referred to as State Armament Program (SAP)2020, this modernization focused on implementing Network Centric Warfare by reorganizing parts of their ground forces, introducing new vehicles such as the T-14 main battle tank, procurement of the TU 160 bomber, and some naval systems.^H Their modernization strategy focused on increasing lethality by leveraging information systems to synchronize operations across all domains.^H

The best example of Russian Network Centric Warfare is the conflict in the Donbas region of Ukraine. Here, Russian conventional forces used cyber reconnaissance, coupled with unmanned aerial vehicles, to locate Ukrainian forces and decimate them with indirect fire.^H Russian network-enabled Battalion Tactical Groups (BTGs) were able to halt Ukrainian advances in Ilovaisk, the Battle of the Donetsk Airport, Zelenopilya. In the Zelenopilya action, a Russian BTG killed 500 Ukrainians using their network-enabled capabilities to target and overwhelm the Ukrainian forces.^H



Figure 18 Source BBC: Donbas Region

More recently, despite the loss of the Russian-backed Armenians in Nagorno-Karabakh (NK), the conflict, the Russians see valuable lessons to apply towards the development. In the NK conflict, the Turkish-backed Azerbaijanis defeated Russian-backed Armenians. Using drone technology and precision weapons, the Azerbaijanis overwhelmed the Armenians using older Russian equipment and tactics, similar to how the Russians treated the Ukrainians in the Donbas region. Consistently, Russian military journals mentioned the importance of preparation and that Armenia deserved to lose because they failed to update training and still used Soviet-era equipment.^{HHH} The journals also noted that rocket artillery and unmanned aerial systems (UAS) were critical to the Azerbaijani success.^{HH} Their journals also advocated for the need to increase the Russian Military's size and increase the amount of military spending.^{HH}

The costs of procuring new technology will hamper Russia's advance towards NCW. While the cost of UAS is much less than a 5th Generation Fighter, there is pressure in Russia to continue procurement from the Russian military-industrial complex. Due to shrinking military budgets, the Russian military industrial complex is currently under pressure to diversify outside of the defense industry.^H Their budgetary problems are not likely to change due to the projected less than 1% GDP growth predicted through 2035.^H

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the estimate's lengthy time frame, this report is sensitive to change due to new information.

Author: Kirk J. Junker

Russian Economy Unlikely To Support Continued Military Modernization Through 2035

Executive Summary

Stagnant GDP growth and a decreased political fortitude will not likely support increased spending needed to complete the current Russian State Armament Program (SAP) 2027. Current economic forecasts indicate that the Russian economy will likely remain stagnant through 2035. Despite the willingness of Russian politicians to sacrifice domestic spending for defense, they will likely not repeat the mistakes of the Soviet Union.

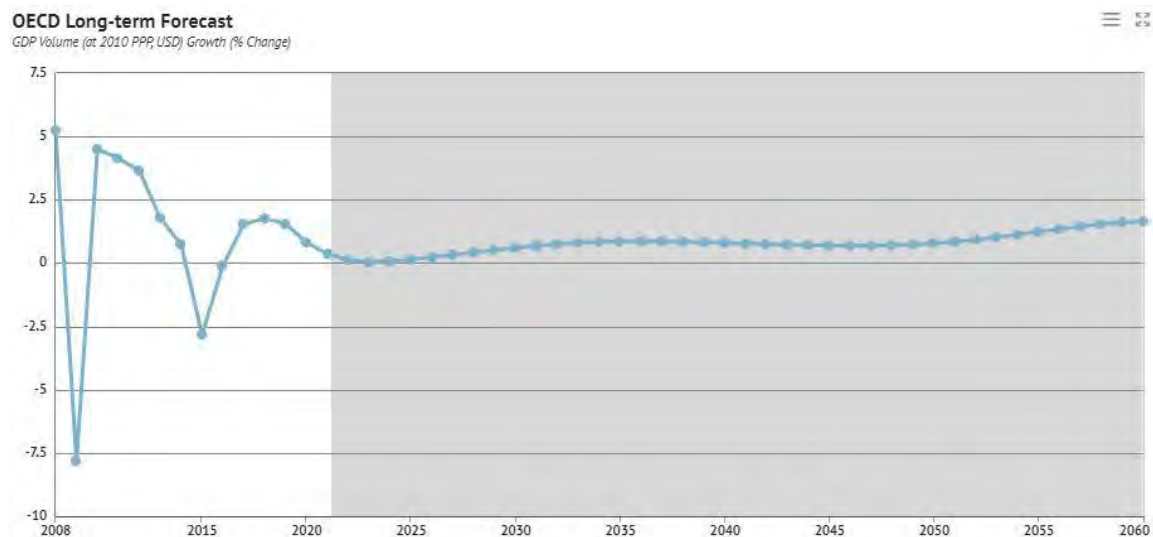


Figure 19 Source OCED: Russian Federation GDP Through 2060

Discussion

Since 2008, Russian defense spending grew to about 3.9% of the GDP ^H due to a recognized need for change following the Russo-Georgian War (2008) and concerns with the Russian defense industry's state. The increase in spending followed typical Russian drivers in defense spending, which are a combination of security concerns and the state-owned defense industries' viability. ^H Between 1990 and 2008, the Russian military did very little procurement, neglecting both the military and the defense industry. ^H In 2008, the Ministry of Defense recognized that it needed to invest in defense spending to maintain its defense industry's viability heavily. ^H

The initial increase in defense spending in 2008, called State Armament Program (SAP)2020, focused on reorganizing their ground forces, introducing new vehicles such as the T-14 main battle tank, procurement of the TU 160 bomber, and some naval systems ^H. Due to past economic constraints and recent COVID 19 restrictions, the

Russian defense industry has struggled to meet procurement goals associated with SAP 2020 [M](#)[H](#). In 2018, the Russian Ministry of Defense (MOD) embarked on SAP 2027. An effort focused on the development of hypersonic missiles and the Poseidon nuclear-powered and armed torpedo. An examination of the economic conditions that slowed procurement of SAP 2020 items should provide insight into the likelihood of achieving their SAP 2027 goals.

GDP since 2008 steadily declined from 5.2% in 2008 to 1.3% in 2019 and will likely remain stagnant through 2035 (See Figure 1). [H](#) Oil exports make up anywhere from 30% to 60% [M](#) of Russian GDP, leaving them dependent on rising oil prices to expand their economy. The price per barrel of oil has declined since the 2008 financial crisis from a high of \$162/bbl to as low as \$25/bbl. [H](#) Current projections anticipate modest increases in demand through 2035^{[H](#)} and a peak oil demand by 2040, with prices in the range of \$60 to \$80 /bbl. [M](#)[H](#) Since oil exports make up a large portion of the Russian economy and the projected modest increase in demand with relatively slight variation in prices, Russia's economy will likely remain stagnant through 2035.

Despite the steady decline in overall GDP Growth, the Russians increased defense spending because they had the political backing to preserve the defense industry. [H](#) Concurrent with the 2008 increase, the MoD instructed state-owned defense manufacturers to use the next ten years of increased spending to diversify their businesses to remain viable beyond 2020. [H](#) The political goodwill that supported increased spending in a time of economic stagnation will only go so far. According to Tor Bukkvøl, the senior Russian researcher for the Norwegian Defense Research Institute, "the Russians are willing to sacrifice domestic spending but not to the extent of the Soviet Union". [H](#)

Looking back, in 2016, Russia projected \$200 billion in defense spending by the year 2020 [H](#); in reality, their defense spending in 2020 was only \$63 billion. [H](#) Commensurately, Russia slowed procurement of crucial systems, decreasing from a high of approximately 100 fighter planes a year in 2014 to 25 per year following the 2015 economic downturn. [H](#)[H](#)

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another. There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the estimate's lengthy time frame, this report is sensitive to change due to new information.

Author: Kirk J Junker

Demographics Unlikely To Cause Significant Changes To The Russian Military By 2035

Executive Summary

Due to a mixed personnel system that incorporates conscription with professional soldiers and its relative popularity, the Russian Military is unlikely to see significant changes to its personnel policies and end strength despite the current and looming demographic challenges. Following the fall of the Soviet Union in 1989, birth rates in the newly formed Russian state plummeted and remained below the rate needed to maintain their current population levels. By 2030, Russia will experience another drop in population due to a more recent decline in fertility rates, especially among the critical 20-24 male demographic. The same factors that will likely sustain the Russian Military also make them casualty adverse, which likely contributes to private military company's use as a cost-effective and politically expedient alternative to using the Military abroad.



Figure 20 Source: eng.mil.ru

Discussion

The current Russian population problems began in 1989 at the time of the fall of the Soviet Union. For ten years, during those uncertain times, the Total Fertility Rate in

Russia plummeted to 1.2 births per woman by 1999⁴.^H The birth rate improved to a meager 1.77 births per woman by 2015. However, children of the '90s are not having children, and the Total Fertility Rate has declined to 1.5.^H Further exacerbating the birth rate issues, Russia's life expectancy is one of the lowest in the developed world at 72. For comparison, in the United States, the total fertility rate was 1.98, and the US life expectancy is 78 years for the same ten-year period. Russia's immigration rates are under half of the US.^H Putting these numbers into perspective, in 2019, according to the United Nations, Russia had 14.25 million men in the 20-34 demographic. If nothing changes, Russia will have, by 2030, only 11.23 million in the same demographic, a 21% decrease.^H

Recognizing the challenge with demographics, Vladimir Putin has made population growth a priority, and in 2018's Presidential Proclamation, increasing population was his first topic.^H Arresting the declining and aging and aging populations increase the costs of things like healthcare.^H Obviously, people are also needed for service in the Military. Due to the demographics cyclical nature, by 2035, the 21% decrease in the crucial 20-35 male demographic is likely a concern for the Ministry of Defense (MoD).^M

The Russian Military relies on a blended system of compulsory service and contracted soldiers (*kontraktniki*).^H The Military is popular; the draft is not due to poor living conditions, rampant hazing, and Russia's loss in Afghanistan in the 1980s.^H As a result, the MoD has implemented reforms to improve the life of a draftee, including improved living conditions, sanctions on hazing, and limitations on the use of draftees outside of Russia.^H These reforms have improved support for conscription within Russia, preserving it as an option for the future.^H

In 2007, the MoD embarked on State Armament Program (SAP) 2020 to develop and procure advanced, highly survivable systems like the T14 tank and the assorted family of vehicles.^H SAP 2020 started a trend towards a higher technology that continued in 2018 with SAP 2027.^H Both of the programs developed and procured, or are procuring, highly technical systems that require extensive technical training.^H The more complex systems require additional training and are likely a driving factor in the increased use of contracted soldiers (*kontraktniki*) to fill the ranks. Recruiting, training, and retaining *kontraktniki* is more expensive than conscription and accounts for a \$4 billion increase in personnel costs between 2000 and 2016.

⁴ Total Fertility Rate is measured as number of children per woman. A sustained birthrate over 2.1 is considered replacement level fertility.

The increase in *kontraktniki* and reduced compulsory service requirements make it likely that Russia will fulfill its manpower requirements in the future. The *kontraktniki*, mainly filling minor roles, has served successfully in Syria and Ukraine.^H However, the increased use of technology, coupled with the limitations placed on using draftees abroad, has made the *kontraktniki* much more valuable and the MoD casualty adverse.^H A politically attractive and relatively cost-effective option for operations outside of Russia is private military companies (PMCs). Despite the illegal nature of mercenary companies, Russia contracts with organizations like the Wagner group to conduct operations abroad.^H Political leaders nor the MoD do not acknowledge casualties related to PMCs which lessens the political impact within Russia.^H Also, PMCs are contracted for a specific mission and do not incur a standing Army's costs, making them cheaper.^H For additional information on PMCs, see report "Private Military Companies very likely an Integral Part of Russia's Approach to Competition Through 2035".

Analytic Confidence

The analytic confidence for this estimate is *moderate*. Sources were generally reliable and tended to corroborate one another; however, most did not directly link their analysis to their conclusion (i.e., demographics is a problem, but it will not affect the Military). There was adequate time, but the analyst worked alone and did not use a structured method. Furthermore, given the estimate's lengthy time frame, this report is sensitive to change due to new information.

Author: Kirk J Junker

Russian Army End Strength And Organization Unlikely To Change Over The Next 5-10 Years

Executive Summary

The Russian Army has increased in overall capability since the year 2000. While it has made significant strides to overcome the effects of the dissolution of the Soviet Union, it still has not achieved the overall capability of the Soviet Army. It is probable Russia's modernization efforts will continue along the same areas of focus they have over the past two decades. It is unlikely they will reach the modernization goals of the ground forces, specifically regarding armored and mechanized infantry equipment, that would make them a near-peer competitor of the United States by 2035.

Discussion

The Russian Army's size is such that it can achieve the political objectives of the Putin presidency.

Russia has allocated significant funds to the Army and military as a whole for the past two decades. Modernization efforts have been focused on their nuclear enterprise, increasing capability of

armored and mechanized forces, and air defense systems. They have also made significant investments in the professionalization of the force.



<https://abcnews.go.com/International/russia-celebrates-wwii-anniversary-annual-military-parade/story?id=62932755>

According to analysis by the Defense Intelligence Agency, the Russian ground forces are comprised of approximately 350,000 personnel.^H Based on information from the Rand Corporation, approximately one fifth are officers, one third are professional non-commissioned officers, and one third are conscripts. Conscripts have a high turnover rate, only serving for twelve months including initial entry training and schooling. The total size of the Russian military in 2017 was approximately 933,000 personnel.^H It is probable the Russian Army will remain its current size over the next decade based on demographic trends and internal state funding.

According to the Stockholm International Peace Research Institute (SIPRI), the Russian military has had its budget increase “significantly over the past two decades.”^M

Reporting from Crane, Olikier, and Nichiporuk, during the period of 2001 to 2016, “land forces have averaged obtaining 23 percent of the budget, the largest share of expenditures by service.”^H One method Russia allocated portions of its military budget to modernization is through research and development. Research and Development has averaged 5 percent of the budget during the 17 year period.^H Defense spending has outpaced inflation over the preceding ten years.^{ANNEX G}

Also according to Crane, Olikier, and Nichiporuk, the increases in defense budgets through 2015 permitted growth in the amount of resources for personnel costs, which has been a major area of emphasis of Russian reforms in recent years.^H

Based on stagnant fossil fuel prices and on-going deliberations within the European Union and United States pressure on the Nordstream II pipeline, the defense budget is likely to decrease over the next ten to fifteen years. That will impact the personnel reforms and modernization efforts of the Russian Army and military as a whole.

My analysis indicates Russian modernization efforts are focused in two distinct but related areas: developing a network centric military and upgrading Soviet era equipment. According to Roger McDermott, the network centric efforts are focused “among the conventional force along the command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) lines to counter peer adversaries along the country’s periphery.”^M Rand Corporation provides the Russian definition of modernized equipment as either brand new platforms or more likely “older systems with upgrade subsystems.”^H

The network-centric warfare efforts have been a focus among the Russian military since the turn of the century. Also according to Roger McDermott, “[a]nalysis of professional Russian military journals over the past 20 years reveals high levels of attention to network-centric warfare and related high-technology themes heavily tied to interest in forecasting the nature of future warfare.”^M My analysis indicates although this has been a theme of professional study, it does not appear that Russia has achieved its goal of fielding new ground combat equipment that is network-centric. This is corroborated by the Crane, Olikier, and Nichiporuk when they state “[t]he Armata program, which includes a new main battle tank and heavy infantry fighting vehicle . . . appears to be the farthest from actual fielding and has been criticized for its high costs.”^H

Related to the network-centric warfare effort by the Russian Army is the linking of drones and missiles. This sensor to shooter system is another focus area of Russian modernization between now and the year 2035.^M

As part of its deterrence program, Russia has prioritized modernizing its nuclear forces and air defense networks. Based on SIPRI analysis “[t]he nuclear forces have been a particular focus since the early 2000s, and their delivery systems have been extensively modernized.”^M Crane, Olikar, and Nichiporuk state “Russia has also developed strong capabilities in the surface-to-air missile systems. . . . Russia appears to have protected funding for its air defense programs, which is consistent with Russian doctrine and Russia’s concerns about the threat of air attack.”^H

Analytic Confidence

The analytic confidence for this estimate is *high*. Sources were generally reliable and corroborated one another. Time available for the research was adequate, however the work was conducted independently and without following a structured method. There was adequate time, but the analyst worked alone and did not use a structured method. Given the length of time of this report and potential changes within the Russian political and economic environments, the probability of outcomes is subject to change.

Author: James M. Mitchell

Annex A: Terms of Reference - Adversaries Evolution Estimate 2035

Requirement:

What are future adversaries'⁵ likely approaches to force design⁶ within the spectrum of competition, crisis, conflict and change through 2035?

- If adversaries evolve force design approaches:
 - What are the likely driver(s) of evolution?
 - What are the likely direction(s) of evolution?
 - What new roles and capabilities will the evolution likely imply and to what extent?

Methodology:

In general, the team intends to gather information through a variety of means, to include but not limited to, data collection from open-source outlets and interviews with academia, interest area experts, political scientists, military strategists, and international analysts. Analysts may adjust force design as well as DOTMLPF-P formats if they determine a better model for describing adversary military capabilities.

The team expects to execute this project in the following four steps (Note: This is a notional timeline only. The team will remain flexible to take advantage of opportunities and to address unforeseen limitations that may arise):

- Step 1: Data collection from multiple open-source outlets (November 2020 – January 2021)
 - Evaluate the expected environment that will drive an adversary's evolution.
 - Evaluate existing methodologies to see how the adversaries are developing non-material capabilities.
 - Assess the current and potential future of adversaries hard and soft power approaches within the spectrum of competition, crisis, conflict, and change.
 - Explore the new roles and capabilities the adversaries' evolution may imply.

⁵ Adversaries – any of the 2+3 from the 2017 NSS with a primary focus on China.

⁶ Force design will comprise of, but not be bound by, an analysis of DOTMLPF-P. Non-material aspects such as leadership, education, doctrine, organization, and training will be given priority.

- Step 2: Synthesize (February – March 2021)
 - Evaluate the research findings for non-material evolutions that provide greater insight into future roles and capabilities of adversaries.
 - Determine which potential evolutions are relevant to the United States Army.
 - Explore additional analytical techniques such as Relevance Tree⁷ to inform the topic and further the analysis.
 - Roadmaps may be used as a further model or framework to illustrate potential adversary evolutions.
- Step 3: Compile concepts and prepare report (March 2021)
 - Compile a comprehensive report that includes the team's findings regarding the drivers, directions, and roles and capabilities of the non-material advancements of adversaries.
 - Create adversaries' evolution roadmap and corresponding brief.
- Step 4: Out-brief Mr. Greco and his team (April 2021)

Challenges:

- The team's personnel are executing this study to complete a US Army War College requirement in addition to a full course load for a graduate degree.
- This estimate must be completed by April 2021.
- COVID restrictions imposed by the various organizations to include state and federal guidelines effect the ability to travel, access to personnel, and availability of resources.
- The amount of information on this topic is currently unknown as we explore the future environment.
- Due to time and equipment constraints, the team has access to mostly open source information and the final product will be unclassified.
- Limited funding is available to support travel and other related expenses.
- Adversaries will likely attempt to limit disclosure of force design and processes they have or will develop. Analysts have access only to open source information.
- Research on adversaries will require translation as no team member is fluent in Chinese or any other adversary language.

⁷ Relevance Tree is an analytical technique that subdivides a large subject into increasingly smaller subtopics.

Resources:

- The team will utilize the US Army War College databases and resources along with other commercial and educational resources available.
- The team will identify and connect with government, international, organizational, and private subject matter experts.
- The team will utilize open source media and published information from academic and professional institutes.
- The team is comprised of Army and Air Force officers with diverse backgrounds.
- The team will leverage personal and professional relationships with domestic and international colleagues spanning military, government, academic, organizational, and institutional entities.

Administration:

- The final product will be provided in PDF format and is for the sole use of Mr. Tom Greco, DCS G2 for TRADOC and those he so designates.
- The draft out-brief will be ready for presentation upon completion of peer-review, with final out-brief April 2021. Optimal time for the outbrief is between 26-29 April 2021.
- The research team includes (all phone numbers are personal cell):
 - Team Point of Contact:
 - James Mitchell:
james.mitchell@armywarcollege.edu; 337-353-8041
 - Alternate Team Point of Contact:
 - Leslie Semrau:
leslie.semrau@armywarcollege.edu; 703-991-3288
 - Team Members:
 - Kirk Junker:
kirk.junker@armywarcollege.edu; 360-688-4330
 - James Kievit:
james.kievit@armywarcollege.edu; 910-574-0888
 - Patrick Malone:
patrick.malone@armywarcollege.edu; 253-228-0793
 - Official Mailing Address:
COL James Mitchell
US Army War College
122 Forbes Ave., Box 276
Carlisle Barracks, PA 17013

Annex B: Defining Words Of Estimative Probability - Intelligence Community Directive 203

almost no chance	very unlikely	unlikely	roughly even chance	likely	very likely	almost certain(ly)
remote	highly improbable	improbable (improbably)	roughly even odds	probable (probably)	highly probable	nearly certain
01-05%	05-20%	20-45%	45-55%	55-80%	80-95%	95-99%

Analysts are strongly encouraged not to mix terms from different rows. Products that do mix terms must include a disclaimer clearly noting the terms indicate the same assessment of probability.

Source: [Intelligence Community Directive #203, pg. 3, 02 January 2015.](#)

Annex C: Peterson's Analytic Confidence Worksheet

	Points Possible	Points
Use of Structured Method(s) In Analysis	(1-10)	
<i>For example: ACH, IPB, Social Networking, Bayes, Simulation, etc...</i>		
<i>10 indicating highest possible score when considering factors below</i>		
<i>Consider</i>		
<i>Number of</i>		
<i>Applicability of methods to the analysis</i>		
<i>Level of robustness of method</i>		
<i>Degree to which methods' results coincide</i>		
Overall Source Reliability	(1-10)	
<i>A rating of 10 indicates the highest reliability</i>		
Source Corroboration/Agreement: Level of conflict amongst sources	(1-5)	
<i>5: No conflict amongst sources</i>		
<i>4: Very little conflict amongst sources</i>		
<i>3: Moderate conflict amongst sources</i>		
<i>2: Significant conflict amongst sources</i>		
<i>1: Sources conflict on nearly all points</i>		
Level of Expertise on Subject/Topic & Experience	(1-5)	
<i>5: Deep intimate knowledge and understanding & 3+ years experience with topic</i>		
<i>4: Wide knowledge & 1-3 years experience with topic</i>		
<i>3: Moderate knowledge & 6-12 months experience with topic</i>		
<i>2: Minimal knowledge & 0-5 months experience with topic</i>		
<i>1: No knowledge & no experience with the topic</i>		
Amount of Collaboration:	(1-5)	
<i>5: Part of aggregated individual analyses</i>		
<i>4: Work on a team</i>		
<i>3: Worked with a partner</i>		
<i>2: Casual discussion</i>		
<i>1: Completely individual work</i>		
Task Complexity	(1-5)	
<i>5: Minimally complex & challenging</i>		
<i>4: Somewhat complex & challenging</i>		
<i>3: Moderately complex & challenging</i>		
<i>2: Quite complex & challenging</i>		
<i>1: Very complex & high challenging</i>		
Time Pressure: Time given to make analysis	(1-5)	
<i>5: No deadline</i>		
<i>4: Easy to meet deadline</i>		
<i>3: Moderate deadline</i>		
<i>2: Demanding deadline</i>		
<i>1: Grossly inadequate deadline</i>		
	Score:	
	Total Possible:	45
	Score/Total Poss:	
		X10
	Analytic Confidence	
	Adjusted Score:	

Annex D: Friedman Corollaries

Two questions a researcher should ask oneself in order to reassess bias and improve validity to an estimate.

1. Is my estimate within the range of reasonable opinion surround the question?
2. How likely is it that new information will change my estimate?

Source: [Jeffrey A. Friedman](#)

Annex E: Standard Primary Source Credibility Scale

Standard Primary Source Credibility Scale

Source reliability is noted at the end of each citation as low L, moderate M, or high H. The citation is hyperlinked to the source, unless the source is a paid subscription; in that instance a footnote is provided at the end of each writing illustrating the source for credibility. Source reliability is determined using the Trust Scale and Website Evaluation Worksheet found in Annex

<u>Importance</u>	<u>Factor</u>	<u>Description</u>	<u>Satisfies Criteria (Yes /No)</u>
HIGH	Has a good track record	Source has consistently provided true and correct information in the past	
	Information can be corroborated with other sources	Information provided by the source corroborates with information from other primary and/or secondary sources	
	Information provided is plausible	High probability of the information being true based on the analyst's experience of the topic/subject being investigated	
	Information is consistent and logically sound	Information provided is consistent when queried from different angles and is logically sound	
	Perceived expertise on the subject	Source is perceived to be an expert on the subject / topic being investigated and/or is in a role where subject knowledge is likely to be high	
	Proximity to the information	Source is close to the information – a direct participant or a witness to the event being investigated	
	Perceived trustworthiness	Source is perceived to be truthful and having integrity	
MEDIUM	No perceived bias or vested interest in the subject / topic being investigated or on the outcome of the research	Source has no perceived bias or vested interest in the subject / topic being investigated or on the outcome of the research	
	Provides complete, specific and detailed information	Information provided is specific, detailed and not generic	
LOW	Is articulate, coherent and has a positive body language	Source is articulate, coherent, has a positive body language and does not display nervousness or body language that can be construed to be evocative of deceptive behavior	
	Recommended by another trusted / credible third party	Source is recommended by others the analyst trusts but the analyst herself does not have any direct experience working with the source	
	Sociable	Source comes across as outgoing and friendly. Easy to get along with and talk to	
	Perceived goodwill to the receiver	Perceived intent or desire to help the receiver or the analyst	

Annex F: Trust Scale And Web Site Evaluation Worksheet

Trust Scale and Web Site Evaluation Worksheet

Trust Scale and Web Site Evaluation Worksheet (Updated OCT 2013)													Score:	Trust Scale:
Piece of Evidence #:			Y or N	Y or N	Y or N	Y or N	Y or N	Y or N	Y or N	Y or N	Y or N	Y or N	0	
Criteria	Tips	Value												
Content can be corroborated?	Check some of the site's facts	2												15-20 High
Recommended by subject matter expert?	Doctor, biologist, country expert	2												11-15 Moderate
Author is reputable?	Google for opinions; ask others	2												8-10 Low
You perceive site as accurate?	Check with other sources; check affiliations	1.5												5-4 Not Credible
Information was reviewed by an editor or peers?	Science journals, newspapers	1.5												
Author is associated with a reputable org?	Google for opinions; ask others	1.5												
Publisher is reputable?	Google for opinions; ask others	1.5												
Authors and sources identified?	Trustworthy sources want to be known	1												
You perceive site as current?	Last update?	1												
Several other Web sites link to this one?	Sites only link to other sites they trust	1												
Recommended by a generalist?	Librarian, researcher	1												
Recommended by an independent subject guide?	A travel journal may suggest sites	1												
Domain includes a trademark name?	Trademark owners protect their marks	1												
Site's bias is clear?	Bias is OK if not hidden	1												
Site has professional look?	It should look like someone cares	1												
Total		20												

18 Dec 2001: The criteria and weighted values are based on a survey input from 56 analysts. For details see: <http://dxnorman.googlepages.com/analysis>. Based for simplicity by Kriston J. Wheaton, OCT 2013.
 1 Feb 2012: Excel spreadsheet which adds auto-sum was produced by Bill Wachen, Deputy Director, Center for Intelligence Research Analysis and Training, Maryland. Change.
 28 Jan 2013: Trust Scale and Web Site Evaluation Worksheet is in the PUBLIC DOMAIN.

Annex G: Transcript of a Meeting Between Tor Bukkvol and Kristian Åtland, Researchers from The Norwegian Defense Research Establishment

20 January 2021: **[Kirk Junker]** Let us know you know, where are you? Where are you all working? What capacity in kind of introduce yourselves at appreciate?

[Tor Bukkvol] Yeah, so we work at something called an elite defense research establishment, which is a research institute under the ministry [00:00:17] of Defense. So, we are academics, but we are employed. We're not we're not independent. We can't say we're independent, but we do math most of our research on Russia open source, which means that we write academic [00:00:32] or once we and we participate in the debate in Norway and so on then the defense research establishments. It is basically a technological Research Institute. We don't have a big arms industry Norway. [00:00:47] So to have expertise on the technological aspects of military equipment throughout the services. We need to have kind of an institution that that knows this if even if we don't produce that much of it or cells so and Kristian and I belong to a part of the Institute that does backtrack background analysis for long-term knowledge defense planning. So, we have a small group of Russia experts its Kristian me and to others who do Russia. So basically, what we write about and I know you've seen some of our publications that Russian Defense and security policy politics, generally so we do this academic. Yeah, and then we also participate in producing scenarios for our armed forces and give input to the defense planning process. So, to say Kristian, maybe you want to add something?

[Kristian Åtland] [00:01:47] Just a few words. as you understand. I'm Tor's colleague at the Norwegian Defense research establishment. I'm a senior research fellow political scientist. I got a PhD in political science, and I've been working as a defense researcher for 18 years before that I served as a diplomat in the Norwegian Foreign Service. So, I've been stationed in Ukraine and the US.

[Tor] Yeah. Also, maybe you want you'd like to know that we both actually came back from the United States last summer. So, Kristen had stayed a year at Berkeley, and I had stayed here at The NPS in Monterey.

[Kirk] Thank you, sir. that's very helpful. I appreciate it. I did send you some questions to the kind of frame the discussion a little bit and It seems you know, we had the initial research question from TRADOC, which is you know, what our adversaries does, you know approaches the force design, you know looking at looking out through 2035.

[Kirk] So essentially for us for this small group subset, it's what's Russia going to what's the rush of military going to look like in 2035? What's driving their change? What direction [00:03:35] is it going? And so, what are the implications of that? And then the other thing we're looking at is reeling through this lens of the spectrum of competition crisis conflict and change. So that's the other we're kind of framing this and so, you know the spectrum we're you know, largely the Army at least we're trying to get away these this phased approach to Warfare where you're in Phase 0 through Phase 5 and looking at more holistically as you know, we have a period of competition. There's maybe a crisis that leads, can lead to a larger conflict and ultimately there's some change that happens where you have to consolidate your gains and then and then you transition back to this competition phase. So that's just a different way of looking at you know, the way we approach things at least our adversaries. And so that's what we kind of got from TRADOC and then so doing our research I read through a lot of your papers. I read your 2011 paper "The Iron Cannot Fight" and you did a great job of laying out these traditionalists the modernist and the revolutionaries is that kind of dynamic still exists, and if not, what's replaced it?

[Tor] Okay. So, if we start with that, I don't think really takes his very much very much anymore. You may find traces of it. I guess they'll but things have changed so much since 2011 that I wouldn't use that that way of framing the debate in Russia [00:05:20] anymore. The main thing is, of course at that time, when I wrote the article there was still a discussion within both within Russia and even within the Russian military about what the threats are. Now they don't really as far as I [00:05:35] can see discussed that anymore the threat is the West. So that's kind of stifle or it, maybe not stifle but made debate less necessary because if everybody agrees on where the threat is, you don't really need [00:05:50] to discuss all these different ways of forming the Armed Forces. I would still say that there is probably a discuss, a tug-of-war to some extent between traditionalist and [00:06:05] and revolutionaries, but then maybe terms of money. So there is, Kristian May feeling or disagree with me afterwards, but I see at least the Russian army going forward to like [00:06:20] 2035 as you described as Soviet in appearance or at least significantly Soviet in appearance, but with new arms in areas where I think that's [00:06:35] important such as missiles first of all, but also drones I mean they will try to well they are trying to follow the west or keep up with the West in the number of new [00:06:50] technological capacities while largely maintaining, on the army inside at least something that looks so what the Soviet Union had. And though, it cannot be like the Soviet Union because that was much bigger country, but they will [00:07:05] as far as I can see they will keep large army with very huge like divisions.

[Tor] They will they're going back to the Visions to some extent. It's back to a to a land Force geared towards [00:07:21] the big war with NATO somewhat similar to what they did in the Cold War but with this additional capacity. And the final before point before I gave Kristian the Kristian the floor is that I would also say that [00:07:36] that division into traditionalist revolutionaries and modernist is now less relevant just because there's less discussion, When I wrote that article there was significant discussion not only among expert but [00:07:51] also I think within the military and this goes back all the way the beginning of the 1990s where they really discussed concepts. Now, it seems I mean, we follow the Russian military Publications quite a lot and the [00:08:08] they seem this seemed more and more to think the same it is streamlining of it's not getting to new knowledge by discussing. It's more. [00:08:24] Everybody saying the same thing just in different ways and I think this has to do with one [Sergey] Shoygu became minister of defense. I just today I noticed that the head of the general staff General Gerasimov [00:08:39] has now just recently been elected also head of the military academy in Russia. The military academy was in principle at least meant to be a source of new ideas. But now the same guy Is in charge of the general staff [00:08:54] and also the military academy so it's let's just let's say that is my impression.

[Kirk] Okay, so yeah, I know they you know, they're working heavily and a lot first before we fry go on Kristian, you have something?

[Kristian] [00:09:11] Well predicting what the Russian military is going to look like in 2030 5S as a difficult and big task and I think we could perhaps approach it from the perspective of what the Russian military looks like [00:09:26] today and what they have done in the past decade and they have been through a comprehensive reform and modernization process. And the main purpose of this process has been to increase the [00:09:41] combat effectiveness of the country's armed forces and to enhance Russia's ability to handle the security challenges that that the country is facing, today and will be facing in the future. And this increased [00:09:56] combat Effectiveness is to be increased through a combination of organizational change and rearmament and I think main feature of the organizational change has [00:10:11] been the transition from a conscription based, mass mobilization or me to an army consisting of permanent readiness brigades, in which professional contract soldiers [00:10:26] play an increasingly important role. Today the contract soldiers outnumber the conscripts by a factor of approximately [00:10:41] 1.8.

[Kristian] The almost twice as many professional soldiers today and Russian army as there are conscripts the officer Corps has been dramatically down-sized, particularly at the senior levels [00:10:56] and the military command structures have been also reformed and streamlined most notably through the establishment of 4 and later 5, regionally-based [00:11:11] operational strategic commands also called OSKs one for each of the currently five military districts one in the north one in the west one in the South one in the center and one in the east. Then the [00:11:26] transition from a division Centric to a brigade Centric structure and the creation of these five military districts or regionally based into service commands [00:11:41] allows for greater flexibility in the way that the forces are used, and it also enables commanders to deploy forces more rapidly and two hot spots within Russia as well as outside [00:11:56] the country's borders. When it comes to the rearmament dimension, there is no doubt that this has been and remains an important priority for Russia's political current political [00:12:11] leadership. There's been a steady growth in Russia's Defense spending and since 2011 the Russia's defense expenditures have grown faster than the country's GDP and this [00:12:26] indicates a growing political willingness to prioritize the defense sector partly at the expense of other important sectors. [00:12:41] The Russian State's main instrument and its contacts are the state armaments program for the period up to 2027. These usually these armament [00:12:57] programs usually have a 10-year Horizon and the current one started in 2018 will run up to 2027. And also, the annual defense orders from the ministry [00:13:12] of Defense which are growing year by year. In absolute numbers. Russia has climbed to fourth place on the list of top global Military Spenders [00:13:27] superseded only by the US China and an India. In recent years we've seen sort of a leveling out of Russia's Defense spending. They reach the peak in 2016 both in terms [00:13:42] of absolute numbers and in terms of the percentage share of GDP last year Russia's Total Defense. Nothing was approximately 65 billion US dollars [00:14:00] or three point nine percent of the country's GDP. So, we're talking about approximately 9% of the US defense spending to give you [00:14:16] perspective on how much money they spend on their military. Obviously, they will be the amount of money that you are willing to unable to spend on arms procurement is just one of many Factor factors determining a country's military capability. [00:14:32] An equally important factor. I think is the personal factor the ability to recruit train and retain sufficient numbers of personnel. And this is an area where Russia has [00:14:47] been struggling in recent years and the same goes for the ability of the domestic defense industry to design and develop and produce what the Armed Forces need [00:15:02] and in important sectors such as military ship building. The implementation of the state armament program is well behind schedule in other sectors such as the manufacturing of [00:15:17] fighter aircraft and helicopters and air defense systems.

[Kristian] Significant progress has been made particularly in terms of production volumes and whether this trend will continue in the period up to 2035 [00:15:32] remains to be seen.

[Kristian] There are a number of drivers here or factors that will shape the future Russian military. I think I will just briefly mention five. First of all, Russia has [00:15:47] threat perceptions and security policy priorities, I think is important factor. Secondly Russia's economic performance and GDP growth rates. [00:16:02] Third the degree of domestic political and societal support for the military. Fourth, Russia's demographic situation and demographic development in this period [00:16:17] and fifth, the state of the Russian Defense industry and the military industrial complex. I think these are issues that we perhaps could come back to in the discussion.

[Kirk] Thank you. Now that's perfect. I was getting ready to ask, with this increase in spending, of course, we've increased our spending as well, but you know we're doing it because we are recovering from Iraq and Afghanistan and we need to modernize. So that's really driving our development. But [00:16:47] you know Russia hasn't gone through that and so I was getting ready to ask you what's driving this Increase in spending and I think you laid it out pretty succinctly. One thing I am interested in is you know, I'm [00:17:02] pretty sure Norway sees this the same way we look at increased defense spending, as a necessity for our own security. Does Russia, with the state-owned defense industry to they see it the same way do they look [00:17:17] at their defense spending as strictly security or is there an economic component to that? That perhaps you know as because they sell a lot of their stuff. Is that a driver as well or is it strictly the altruistic?

[Tor] Okay. So [00:17:32] that's a very good question is actually something I wanted to add to what Kristen said on because well you cannot necessarily differentiate like that. They definitely see there's been a defense [00:17:47] spending to Wrap up their security, but when they decided on the big Armament program, the one that's just finished that was mainly to [00:18:02] save the defense industry. I would say or it was to a large extent to this the defense industry. And you said you need to modernize after Afghanistan and Iraq. They had to modernize after not spending money [00:18:17] on arms for 15 years. So, from 1990 until about 2005. They more or less bought nothing when you keep the nuclear forces out of it. They bought something but very little. So, we [00:18:32] know this pretty well that there was actually a meeting it as far as I know in 2009 where the defense Ministry gave a presentation to the leadership of the Kremlin where they basically said that unless we start buying arms. [00:18:47] We will not have an arms industry anymore because it's going down the drain.

[Tor] They have survived for 15 years more or less without orders some survived better than others because as you mentioned because so arms export [00:19:02] but that was very uneven so Air Defense, fighter planes, to some extent submarines, are certain items could be sold on a continual basis and therefore those parts of the industry did [00:19:17] better than the rest, but they were on the brink of actually losing in their capacity to produce broadly arms for their own armed forces. And given the situation we have today. It's easier to understand but that's just not a question [00:19:32] of all the people working in that industry. It's also the also question of the country's security because if you're in a situation where nobody is willing to sell your arms and you don't have your own industry died, [00:19:48] that's the that's, troublesome. So that's I think that's one of the main reasons why they have this huge uptick in in spending on arms. I also think that [00:20:04] they're not go they'll go not going to repeat the mistakes of the Soviet Union. They're not going to, as Kristian said spend a lot of on they will continue to spend a lot of money on the military to the detriment of other sectors of society [00:20:19] and we can see this both in education and in health care, but they're not going to do it to the extent that the Soviet Union did I think because I think to some extent still they have learned from this and we know that when the Armament spending [00:20:34] started the arms industry or the defense industry was explicitly told that there will be a lot of money for you now for a period of five to ten years, maybe a little bit more but [00:20:49] then it's going to be different again. So, you need to use those years that are ahead of you now not only to produce. Weapons for our Armed Forces but also to restructure your production so that [00:21:04] when there will be less money again, you will be able to produce for the civilian market and the military Market at the same time thus you can survive also when we cannot spend this amount of money on you anymore, and that's something [00:21:19] that I haven't really done or to a very small extent and that's going to be a problem looking ahead. I just looked for example at fighter planes this morning and the peak [00:21:35] in terms of peak in terms of new fighter planes that the Russian Air Force got was in 2014, then they got about 100 Fighter airplane fighter planes now, they're back to something between 20 [00:21:50] and 25 year and this is going to be repeated throughout the different branches of the military. That they will buy they will buy new stuff but the kind of Bonanza that [00:22:05] you they have had for about 10 years. That's over.

[Kristian] Yeah, I think it needs to be said that the Russian Armed Forces today are in a different situation than they were in when the when the defense modernization started [00:22:50] 12 years ago in 2008. The Russian military today is better equipped better trained better paid [00:23:06] more mobile more highly motivated and capable of carrying out a wide spectrum of operations, not only in in the post-soviet space but also [00:23:21] out of area.

[Kristian] They have demonstrated this capability in recent years during for instance the annexation of Crimea in March 2014, during the still ongoing war and in eastern [00:23:36] Ukraine, during the Russian intervention in Syria since 2015, which was an operation taking place at the significant distance from [00:23:51] the Russian Homeland, outside of Europe. Russia have also intervened elsewhere. Including with the use of private military [00:24:07] companies (PMC) and security companies that are short or can tell you more about the has done some research on that and you Russia's use of mercenaries at the same time. I think Russia's approach to the use of military [00:24:22] force, the view of the usefulness of you will or of military force has changed. I think the approach now it's much more holistic. They have a [00:24:37] different perspective on how to coordinate military and non-military means of influence kinetic and non-kinetic means of influence the use of [00:24:52] cyber means of influence. What they call hybrid Warfare information operations propaganda use of economic means to influence and [00:25:07] in a sort of a more coordinated manner, and I think this is as a growing or did this also represent a growing challenge for Russia's neighbors including our country.

[Kirk] [00:25:22] I think you just had a Cyber-attack this year will late last year. And we experienced our own recently as well. [00:25:38]

[James Mitchel] Sir, something that you just said Kristen that I think in our recent readings here. We were had to read about the Gerasimov Model and Doctrine and then as I've started doing this this research, I came across two or three articles that basically said for true Russian students of the Russian military. [00:26:08] That's sort of a vetting thing Gerasimov is how Russia is organizing is not the case is the small model that [00:26:27] that we were up is that an active part of the rest may be similar but not truly how they're looking at how to fight a large-scale combat operation?

[Kristian][00:26:43] the sound was little on and off there, but I understand you asked about grow some of Doctrine and this his emphasis on the fact that non-military means of influence are equally important in terms [00:26:58] of reaching National objectives equally important to military means of influence now that is that is the thinking that is a thinking that is widespread within [00:27:13] the Russian military and Russia's political leadership and but every conflict every operation is unique. [00:27:28] I think this was very significant in connection with the aggression against Ukraine, perhaps less so in an operation like Russia's involvement [00:27:43] in the Syrian Civil War which in Russia's case essentially has been an air War not exclusively. But mainly where the non-military dimension has [00:27:58] perhaps been somewhat less prominent.

[Tor] If I could just add to that it's also been repeated many times [00:28:13] while Gerasimov did publish this piece his main point was to criticize what we are doing not to say what they plan to be doing. So, their idea is that we are going to do they think we [00:28:30] created the coup in what they call a coup in Ukraine. They It is the same in Georgia, especially I think you did it not so much Europe, but the United States. They think that you are for [00:28:45] meant fomenting popular uprisings all over the place. And in the end, you will try to do the same in Russia. And when that happens that might very well develop into an also a kinetic War [00:29:00] So I don't think there's sit around fearing that somebody's going to attack Russia just like that. but there's going to be a political conflict leading up to something that then will become [00:29:15] an armed conflict. And most likely because, especially the United States but also to some extent the rest of the West thinks that we can use popular uprisings [00:29:30] cyberspace or other kinds of means to change the regime in Russia and make Russia a pliant part or somebody that will [00:29:47] will put people in top positions there after done this that will make Russia not a challenge to us anymore something.

[Kristian] I would agree with what Tor just [00:30:02] just set and this also relates to the issue of threat perceptions and security policy priorities. I think the Russian Elites view of the country's surroundings [00:30:18] and the domestic situation. This is an important factor shaping the development of the military and I think the top security goals seems to be stability, which is a concept [00:30:33] that in Russia's case. Perhaps has a broader meaning than that. It has in the west stability implies first and foremost domestic political stability, in other words avoidance of popular unrest [00:30:48] separatism terrorism and other perceived threats to the country's political and constitutional order and Russia. Also, Russia seeks stability externally most importantly [00:31:03] on its bordered orders because there's a perceived link between events there and stability inside Russia. So, stability is defined particularly as the avoidance of [00:31:18] color revolutions regime change scenario. And I think a second security policy goal is to increase and strengthen Russia's influence in the near abroad that is in the post-soviet [00:31:33] space minimizing the influence of the west or in Russia's neighborhood countries, like Ukraine Belarus Moldova the North and South Caucasus and so [00:31:48] on and to work against further the enlargement of the EU and of NATO. Moscow is also concerned about Central Asia. [00:32:03] State breakdown and Central Asia, especially since week states there may facilitate the spillover of Islamic extremism into Russia and potentially also necessitate [00:32:18] Russian military interventions, and that that region. The west and more specifically the United States, represent a fourth category of perceived threats to Russia. [00:32:33] The US has traditionally been seen and continues to be seen as a threat to Russia are directly as well as indirectly.

[Kristian] And direct military conflict between NATO and Russia [00:32:48] in Europe is viewed as a low probability event. but a high consequence events and defending against NATO is and will remain a key objective in Russia's [00:33:03] Defense and security policy. Then finally China is a fifth and far more distant threat for Russia given [00:33:18] Russia's confidence and its so-called strategic partnership with Beijing but you never know things could change in the future and Russia's relationship [00:33:33] with the China could deteriorate but China isn't as centers as Central factor in Russian defense planning as it is in for instance us defense planning in my view. [00:33:52]

[James] know what you just said it was very helpful. So, something you both alluded to corroborate something I was reading, but if I can just get your take on Russia's thoughts on [00:34:07] the use of Tactical low-yield nuclear weapons. It's one of the few places. They've effort in [00:34:22] consistently is nuclear weapons and then some reading that they've at least proclaimed that they are definitely willing to employ a nuclear weapon if the motherland if they feel the motherland is going to be threatened.

[Tor] So I may [00:34:53] be Kristian has more on this than me, but I think that was the case for so, may be Kristian has more on this end me. I just briefly would like to say that I think there was something to that with the early use of tactical nuclear weapons. Probably some time ago when Russia was weaker, conventionally speaking. [00:35:23] I think that's less the case today. I haven't done any research on this myself, but we have a colleague here in Norway. It was at the University and she is she has looked at this question in detail, [00:35:38] and she thinks that this idea that Russia is going to use tactical nuclear weapons in the kind of escalate to deescalate scenario. That's overblown. She thinks basic maybe [00:35:53] the maybe there was something to eat for a while is her conclusion, but not so much anymore. But I have that's all maybe Kristen you have more.

[Kristian] I'm not sure. I heard the entire question, but it was about Russian [00:36:09] nuclear strategy. It is my impression also that Russia's threshold for the use and particularly the first use of nuclear weapons tactical or strategic is very high [00:36:25] and there was a new doctrine adopted a few years ago which someone considered to lower that threshold but our colleague [00:36:40] that Tor spoke about who is working on these issues did not share that view obviously Russia has a huge nuclear [00:36:55] arsenal of more than 4,000 nuclear warheads of which approximately 1500 are achieved strategic nuclear warheads [00:37:10] delivered or carried by ballistic missiles and by heavy bombers and the nucleus in the Russian nuclear.

[Kristian] Arsenal has been shrinking in size and recent years and I think that is [00:37:25] the development and that will continue but the means of delivery have become more sophisticated one issue that we know which ones are following closely [00:37:40] is the weapon star that are being tested in in the barren sea and in the air space above the Barents Sea and there has been a lot of talk about Russia so-called doomsday weapon programs [00:37:56] which includes new hypersonic vehicles that can be carried by the latest heavy ICBM [00:38:11] and a nuclear-powered a nuclear-armed underwater drone or underwater torpedo the so-called Poseidon Program and also a nuclear-powered cruise [00:38:26] missile with Inter-continental range. This is a these are systems that are being developed and tested and these are nasty weapon systems which are not [00:38:42] the use of which is not limited by any currently existing Arms Control agreements. And this is an issue. I think we should follow closely in in the years ahead. [00:38:58]

[Kirk] Leslie did you everything you wanted to add question.

[Leslie] I would just ask how specialized is their Force. So, I know you said they move from conscripts right to a regular force. That's very versatile. [00:39:13] But now when they added all this technology, how is the training behind actual utilizing and employing the technology?

[Kristian] [00:39:29] Okay. This has been part of the hold defense modernization. What is also called the new look [00:39:44] reform of the Russian armed forces that I not only modernize the equipment and they are actually a achieved a lot in that in that regard. It is estimated in [00:39:59] That currently approximately 7% of the equipment within the Russian Armed Forces also called modern that would say that means on a par with similar Western Equipment this varies between the different branches of the military [00:40:14] obviously, but as part of the new look reform they wanted to modernize not only the equipment but also Doctrine training. [00:40:30] Personnel policies leader development all those things that are included in the what you what you call DOTMILPF-P, so they have a large perspective on this, and they have reformed the system [00:40:45] of military education the way they approach these issues these brigades that we mentioned are highly Deployable [00:41:02] based on the on the permanent Readiness. Brigade stay can generate task specific Battalion tactical groups [00:41:18] which have artillery and have air defense units attached and these forces can be tailored to do the task at hand and combined with all [00:41:33] the units as needed. So, they have achieved much higher mobility and flexibility than they had when the defense modernization started one General [00:41:48] challenge relates to Russian military culture, which traditionally has been very hierarchical.

[Kristian] Its decisions are made at the top. There is a reluctance [00:42:03] to the sort of delegate authority and share information with the troops at the lowest levels. And they had this is an issue that they have been grappling with because in order [00:42:18] for network-centric system to work you have to you have to delegate Authority you have to share information with the with the foot soldiers and think this is an issue that the Russian military is still grappling with.

[Kirk] [00:42:34] do you think the that you know with less conscripts and more professional-looking army, do you think that they will trend towards out that way being able to delegate Authority or is it they're still kind of stuck in the mud?

[Kristian] [00:42:51] I think the first is the case that this is a trend that we will see more of handling complex. Okay, technically complicated weapon systems are something that takes it takes time to learn [00:43:06] and conscripts in Russia serve one year and obviously in many cases you need more than one year to learn to operate this these systems currently there are four hundred and five thousand [00:43:21] contract soldiers in the Russian military. So almost twice as many as conscripts. There are a little over. 225,000 a conscript in Russian military today and conscription is [00:43:36] quite unpopular in Russia. And in those operations that I mentioned the intervention or interventions in Ukraine Syria. It's mainly [00:43:52] professional contract soldiers that have been deployed because they have traditionally Level of training and are more experienced than conscripts.

[Kirk] Do either you see a potential [00:44:07] future situation where there's a where they've gone to an all-volunteer army? Where they get rid of the conscript program itself and just simply to recruit professional soldiers?

[Tor] I don't think that's very likely that was the [00:44:37] idea from the politician side throughout the 1990s and into the into the 2000s and the military fought that idea with all they had through all those years and I think to some extent now they have come [00:44:52] to a situation where they see they kind of want that battle. I mean they had to accept a smaller Army, much smaller than it used to be but they preserve the conscript system. And that's it that says victory [00:45:07] for at least parts of the officer Corps that they're not going to give up. I think it is true that well the figures all contract soldiers sometimes maybe look a little bit more impressive than they actually are. [00:45:22] One, because they generally are good at getting people to sign on as a contract Soldier for the first time or for the first three years, but they have a problem keeping them after [00:45:37] that. Because conditions are not as good as these people would like.

[Tor] Now, this is less of a problem today probably when the economy is stagnant then it was in the 2000s because it into thousands. It was easy for these [00:45:52] young people to find other types of employment if they were not happy with how it worked in the in the military now with the economy stagnant. It may be actually be somewhat easier to keep or keep the contract soldiers. [00:46:07] But if you if very few stay on for more than three years, you won't build up that expertise that that you really like to have. And the second thing is that contract soldiers that's very [00:46:22] much in the in the Air Force and in the Navy. They are also twist large extent in the Army, but what still much less than the in the two other services. So, if we get back to Leslie's question about how specialized these forces actually are [00:46:37] or how specialized I will be in the future my guess at least in the framework you are looking at to 2035 is that the picture will be very uneven they will be they will be units that are quite specialized [00:46:52] and good and there will be a lot of units for the most part at least manned by conscripts. But not really, I mean they can they're only good for the big [00:47:07] war. So, to say when you push all your resources into winning, they are not enough the forces that you choose to fight in Syria or in the small world like in Ukraine or somewhere else. I think [0:47:22] the whole thing will be uneven.

[Tor] On Kirk's point about If they let me have more contract soldiers whether that will lead to delegation of authority. [00:47:37] What the Ukrainian's say at least is that that did not really happen or hasn't happened so far, their experience from fighting the Russians in in Donbas is that there is a delegation of authority in terms of [00:47:52] creating the plan for an operation. When the Commander's create a plan for an operation. They have significant leeway in how to do that. But once the plan has sat, they have very [00:48:07] few openings for changing that plan as the operation is implemented. So at least at that level there's much less of a delegation of authority. I have heard, but [00:48:22] these are just rumoring from some Israeli colleagues who have monitored the Russian fighting in Syria that at least in elite units. There is no experimentation [00:48:37] with delegation of authority down to very low levels, but that's probably mostly I guess among Special Forces and maybe Naval infantry office was more the elite forces.

[Tor] Then [00:48:52] so I as a as a system throughout the fourth is I doubt it and then well, I don't know how this works in your organization. But in Russia, you are not allowed to [00:49:07] make mistakes. And that's the problem. If you want to delegate Authority, it should be it should be possible to make mistakes and also to tell your superiors about them and in the hole and this is not just the [00:49:22] Military this is the whole Russian Society if you make a mistake you cover it up. And that's yeah, that's that creates a lot of problems. Not just in the military generally in Russian politics.

[Kirk] Well tell you in this and it [00:49:37] depends on the mistake. The Tactical errors are generally at least as in James or Leslie can talk differently, but tactical errors are generally forgiven and then it's the [00:49:53] more the social aspects and you know unnecessary risk-taking unnecessary risk that isn't thought through it is generally not forgivable, but it is making a [00:50:08] calculated risk that that you know where you try to mitigate it and it just doesn't work out that I mean it happens. It's just part of the Fog of war. So, what I hear you saying [00:50:23] is that's just not acceptable either in the Russian military.

[Tor] I don't think so. For example, they have a new this is a new tendency over the last two three four years where they're actually made the [00:50:38] laws on this much clearer. So, if you now on either in operations abroad or in training at home, if you wreck some of this equipment that you're deploying you have to pay for it yourself [00:50:54] even up to a fighter plane, which is impossible because it's way too expensive for any, but it's there really were trying to by punishment preventing people for destroying equipment. [00:51:09] And this means that the same thing happened in the Soviet Union. So, in before training for going to Afghanistan for instance Soviet helicopter Pilots would never fly the kind of missions. They knew they [00:51:24] would be flying in Afghanistan because the danger of your helicopter being broken by flying those kinds of risky missions made nobody try to do that. So, they just flew in a straight [00:51:39] line high up from one place to another and then they came to Afghanistan ahead and had to fly around the mountains and everything and it was not doing that before is that it's a big problem and we see something of the same old happening today.

[Leslie] I'd say it's a great perspective. I could not imagine trying to [00:52:09] go out there and carry the fight somewhere in the world, not having trained for it.

[Kirk] Yeah, it's kind of think I'm pretty sure that would be the same in Norway's, you know, if the failure to do that level of training prior to showing up [00:52:24] in theater would be grounds for you know over relief, but it would be the failure to do that training would be a mistake that's unforgivable. But doing the training itself and assuming those necessary risks, it's just part of doing [00:52:39] business. One thing I wanted to tie together is, you know, we've talked about a lot of the technological development [00:52:54] and a lot of the changes with more professional Army and but we and then the necessary training associated with that but what's interesting to me is we see a lot of change but [00:53:09] we at the very beginning we talked about, you know, the there's not an imposition.

[Kirk] It is for change in Doctrine. You know, we've tied the military academy to the senior military leader. We you know, [00:53:24] they seem to be happy with network-centric Warfare. And yes, they're making adaptations in those areas. But do you see them, you know, tying their development their technological development their r approaches [00:53:39] to a doctrinal change or are they kind of stagnated this kind of academic approach to thinking about this, they're just strictly looking at a pacing threat to the West. There's just a driver for change. If I say, hey, we want our we want our doctor to look like [00:53:54] this and this is we're going to tie our development to it, or they simply have a doctrine that they like and they're just doing technological development as a pit to keep Pace with the West.

[Tor] So if I go first, they do make [00:54:09] doctrinal changes and B cannot always see them because the not all of this is its open source, so it's sometimes hot hard to get at. It's [00:54:25] one of your questions in the email was whether Russia has a system similar to the one they have in NATO and the US (referring to DOTMLPF-P), so I actually sent an email to our defense attaché in Moscow to ask you about this because of [00:54:40] your question because I didn't really know how to respond to that. I've never seen something like that myself going through all open source documents. He had never heard of anything like it (DOTMLPF-P). I do remember that when we had some Russian colleagues over [00:54:55] here in Oslo for this like seven eight years ago. These are they are not military, but they work in an organization or in the research institute that's close to the Russian military and when they were given the Norwegian presentation [00:55:10] of how we do this in Norway. They were just like, “wow we are way behind there are things we have we need we need to shape up” or so. I think the process of turning new threat perceptions [00:55:25] into new doctrines and new documents for how to fight is less stringent. I don't know how strange it is easy in the west either I know in or whether there's a lot [00:55:40] of hiccups in that process as well. But I think it's even it's even more haphazard in a way in Russia. There is something called the 46th To Twitch is supposed to help the mod with this kind of a secretive [00:55:55] organization, which is supposed to do stuff like that. But I would say that the closest probably you get would be the main Armament program. Although that is basically a shopping list and it's not it doesn't concern [00:56:10] The Human Side of the military or the Personnel side. It's still Just some extent document on how they play and to fight in the future. But I don't think you will find in really an [00:56:25] equivalent in Russia to what you ask for in that question.

[Kirk] Yeah, because that's where I was that's where I was trying to get to, I'm sure they go through something like DOTMLPFP-P. Obviously, they've gone to more professional army as they bring on more technology. [00:57:11] That's a natural kind of connection. But they may not think of an advance or probably thinking of it and maybe not as an organized way. Thank you.

Tor Bukkvoll

Senior Research Fellow (B.A., M.A., PhD)

Tor Bukkvoll has studied political developments in Russia and Ukraine since the mid-1990s, especially in the areas of defence and security. He speaks Russian and Ukrainian, and obtained his PhD from the Norwegian University of Science and Technology. Bukkvoll has spent much time in Russia and Ukraine.

Bukkvoll was a visiting research fellow at the Changing Character of War program at the University of Oxford in 2008, worked as an associate professor of international relations at the Norwegian Military Academy 1996-1999, and has previously also worked at Fafo Institute for Applied International Studies and the Peace Research Institute of Oslo (PRIO).

ABOUT THE SCIENTIST



Download high resolution image 

POSITION
Senior Research Fellow

EDUCATION
PhD

CONTACT INFORMATION
tor.bukkvoll@ffi.no
+47 63 80 77 33

Figure <https://www.ffi.no/en/research/scientists/tor-bukkvoll>

Kristian Åtland

Senior Research Fellow (B.A., M.A., PhD)

Kristian Åtland holds an MA degree in Russian cultural studies from the University of Oslo and a PhD in political science from the University of Tromsø.

In the period from 1994 to 2002, he was employed in the Norwegian Foreign Service and served as desk officer in the Foreign Ministry's Russia and CIS division, as Second Secretary at the Norwegian Embassy in Kiev, and as Consul at the Norwegian Consulate General in San Francisco.

Since 2002, he has worked as a research fellow at the Norwegian Defence Research Establishment (FFI). He has published a number of articles, research reports, and book chapters on various Russia-related topics. Many of his recent publications focus on security issues in the High North/Arctic.

In the academic year 2019–2020, he was a Visiting Scholar at the Institute of Slavic, East European, and Eurasian Studies (ISEEES), University of California, Berkeley, where he worked on a project related to the Donbas conflict in the Eastern Ukraine.

ABOUT THE SCIENTIST



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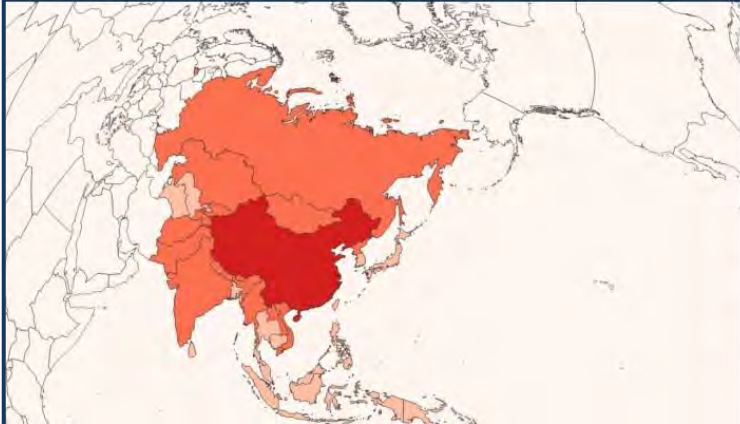
POSITION
Senior Research Fellow

EDUCATION
PhD

CONTACT INFORMATION
kristian.atland@ffi.no
+47 997 34 288

Figure <https://www.ffi.no/en/research/scientists/kristian-atland>

Annex H: Team Indovino Nefario Briefing Slides



China &
Russia

Adversaries Evolution Estimate
2035

Indovino Nefario
United States Army
War College
April 29, 2021

1



COL James Kievit – USA
COL James Mitchell – USA
LTC Kirk Junker – USA
LTC Patrick Malone – USA
Lt Col Leslie Semrau – USAF

2



What are future adversaries' likely approaches to force design within the spectrum of competition, crisis, conflict and change through 2035?

- If adversaries evolve force design approaches:
- What are the likely driver(s) of evolution?
- What are the likely direction(s) of evolution?
- What new roles and capabilities will the evolution likely imply and to what extent?

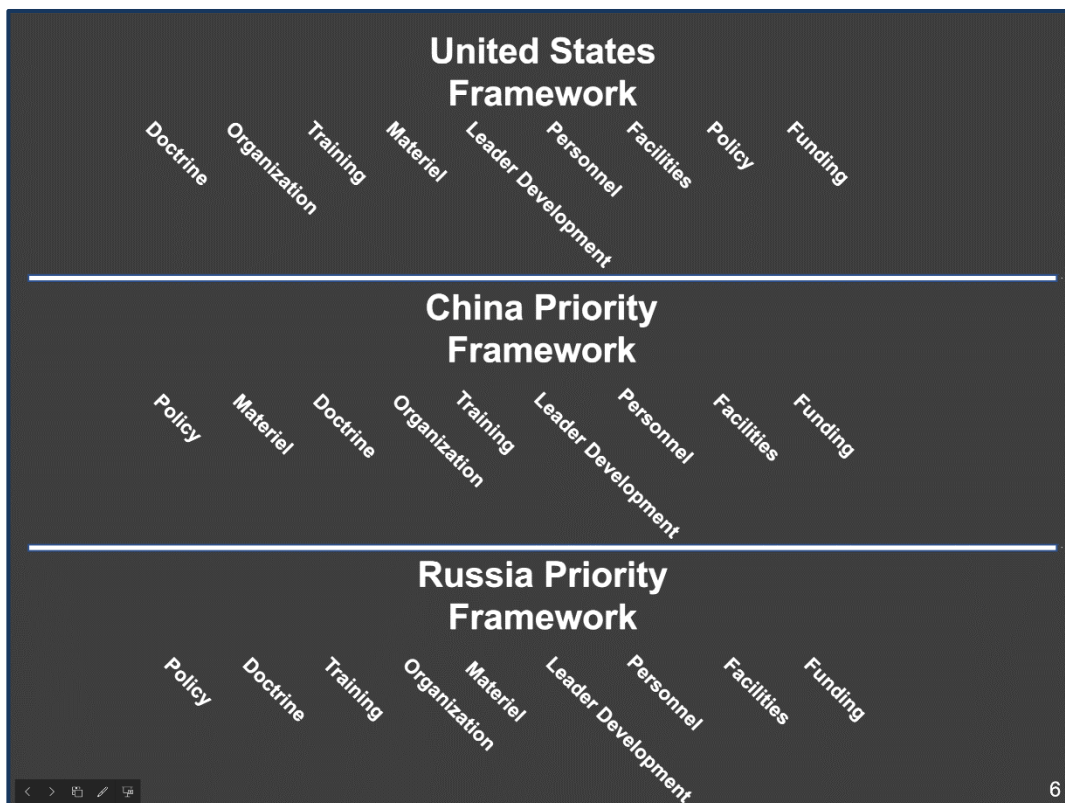
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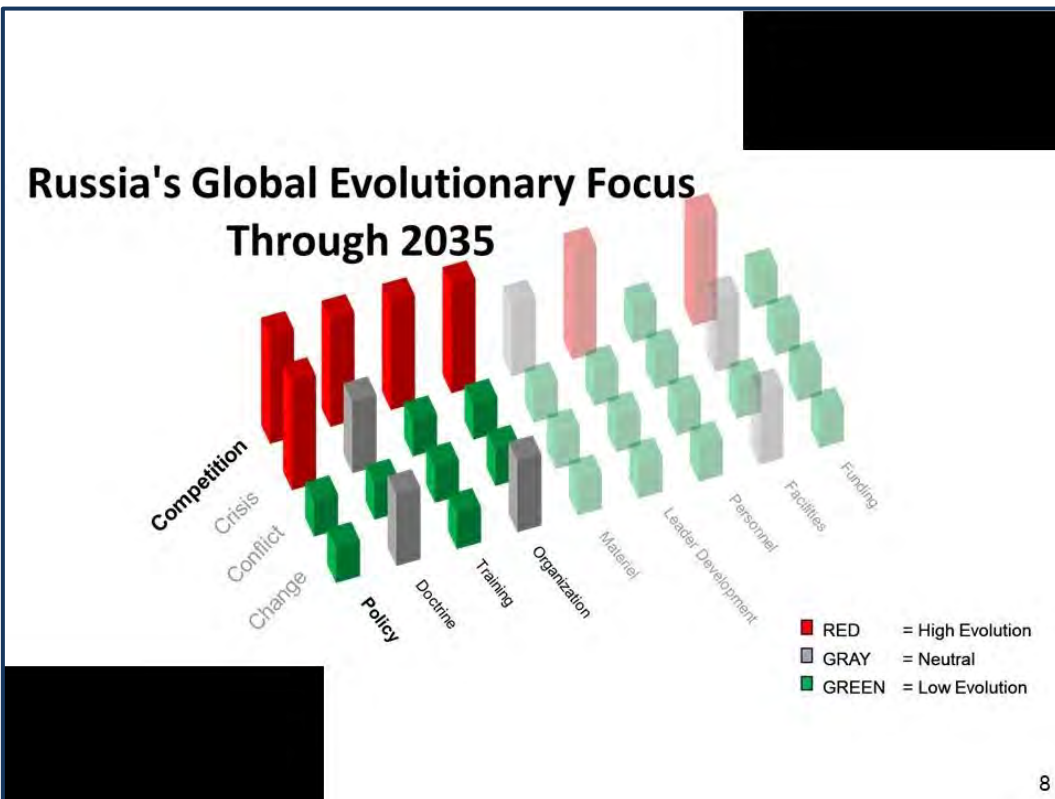
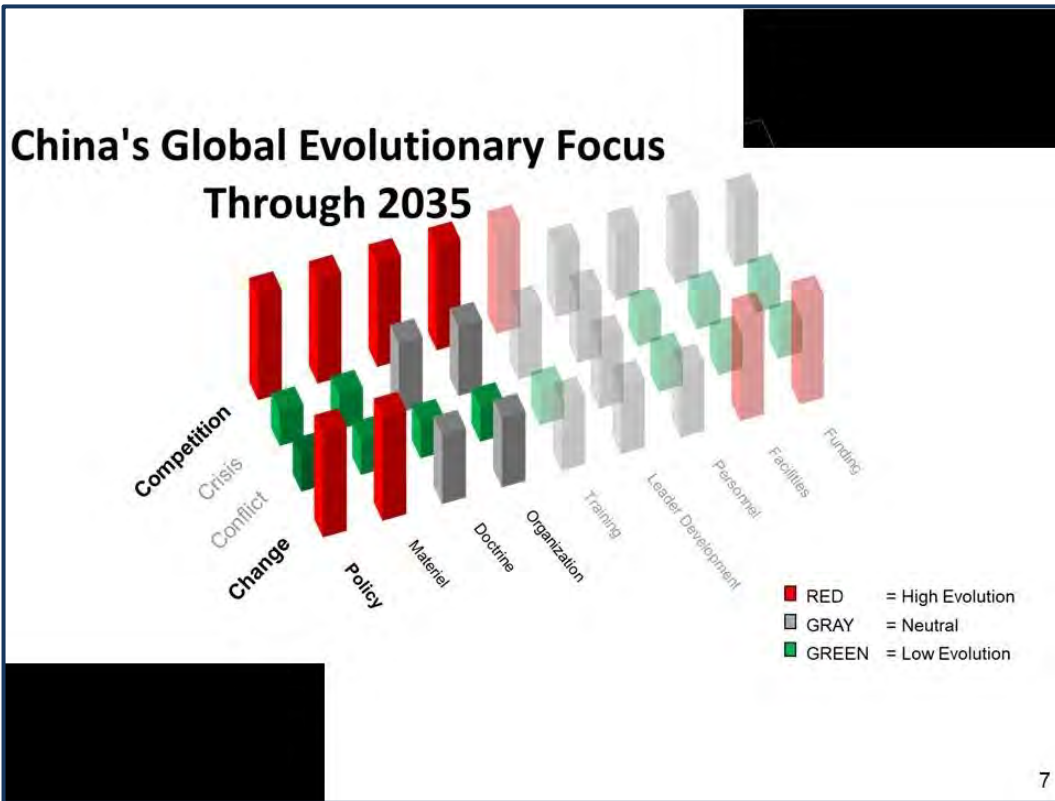
almost no chance	very unlikely	unlikely	roughly even chance	likely	very likely	almost certain(ly)
remote	highly improbable	improbable (improbably)	roughly even odds	probable (probably)	highly probable	nearly certain
01-05%	05-20%	20-45%	45-55%	55-80%	80-95%	95-99%

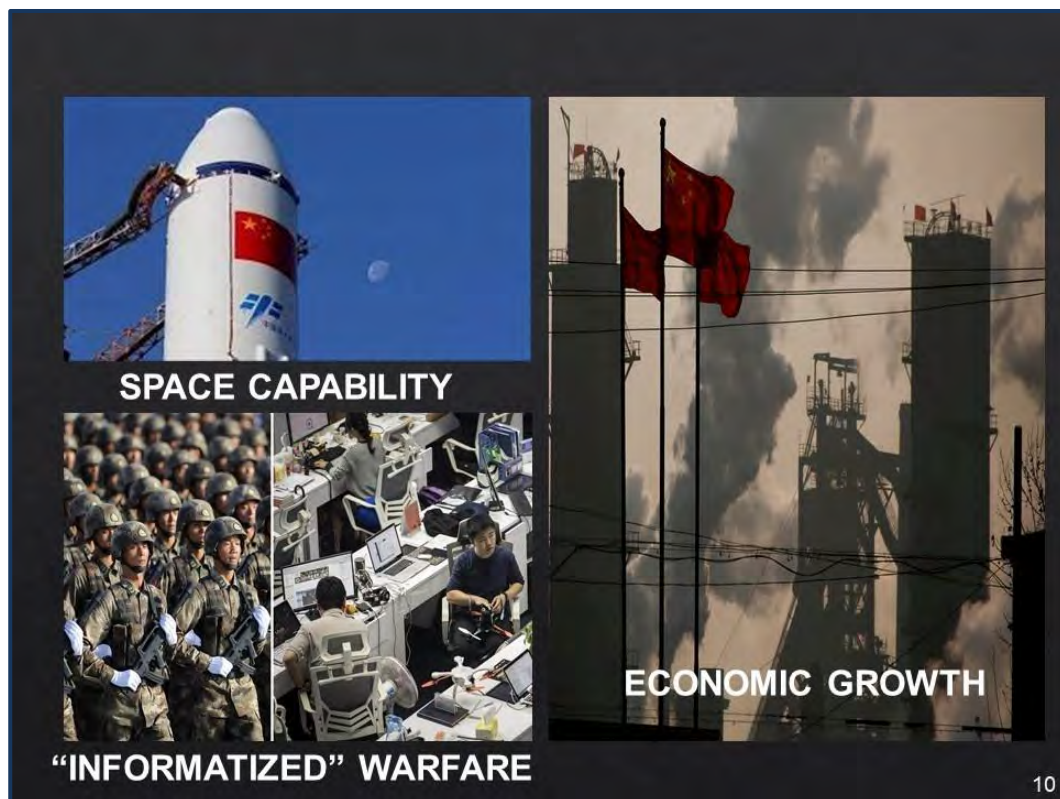
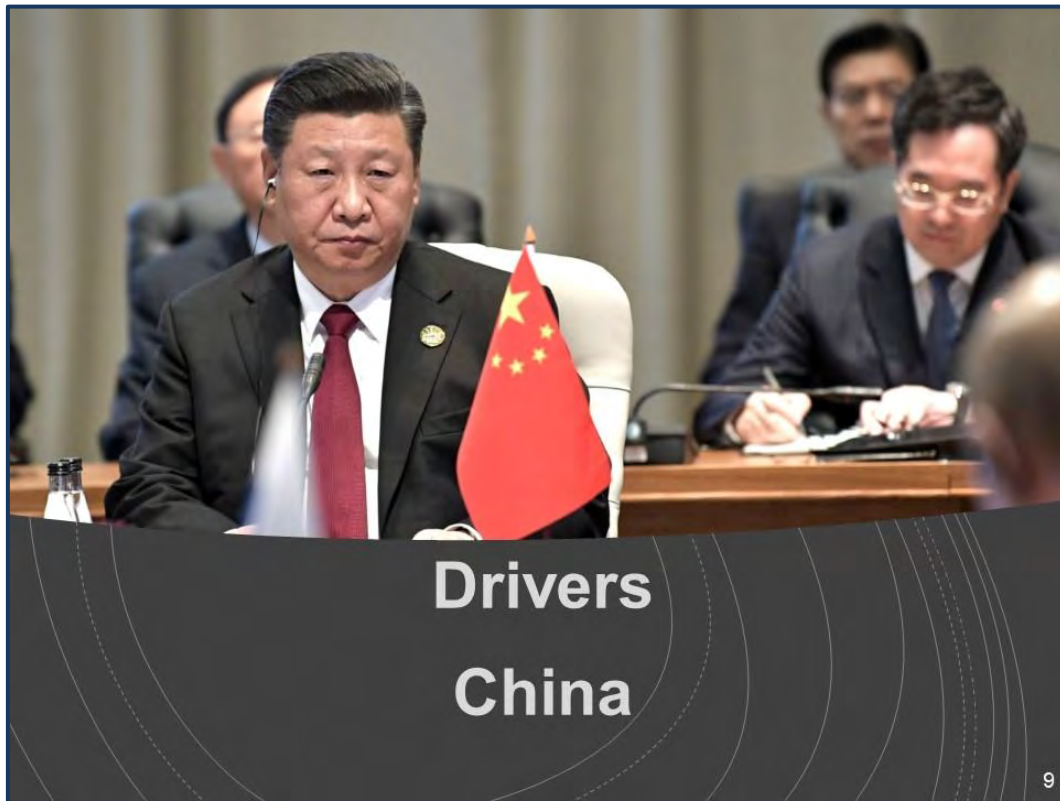
Intelligence Community Directive (ICD) 203

Analytic confidence: unless otherwise indicated our confidence is MODERATE.

4










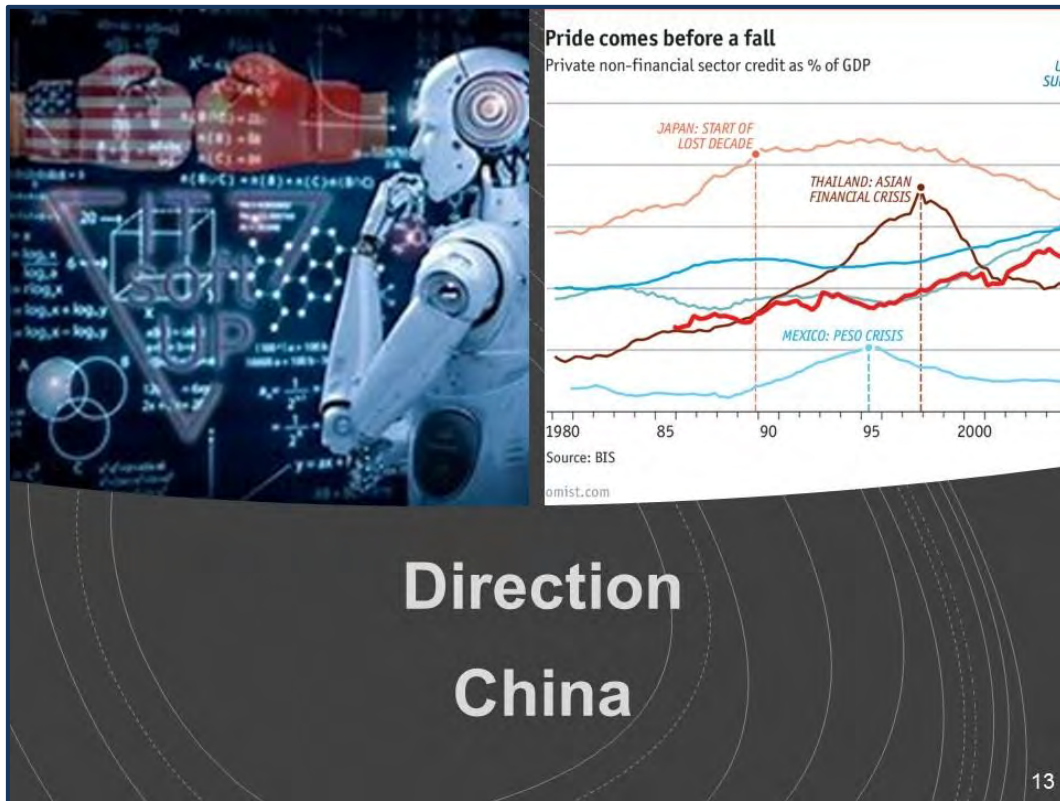
“to ‘fuse’ its economic and social development strategies with its security strategies”

11



“To transform from a bloated, corrupt and outdated force with a continental, defensive mindset to a world-class, 21st century expeditionary force able to project power.”

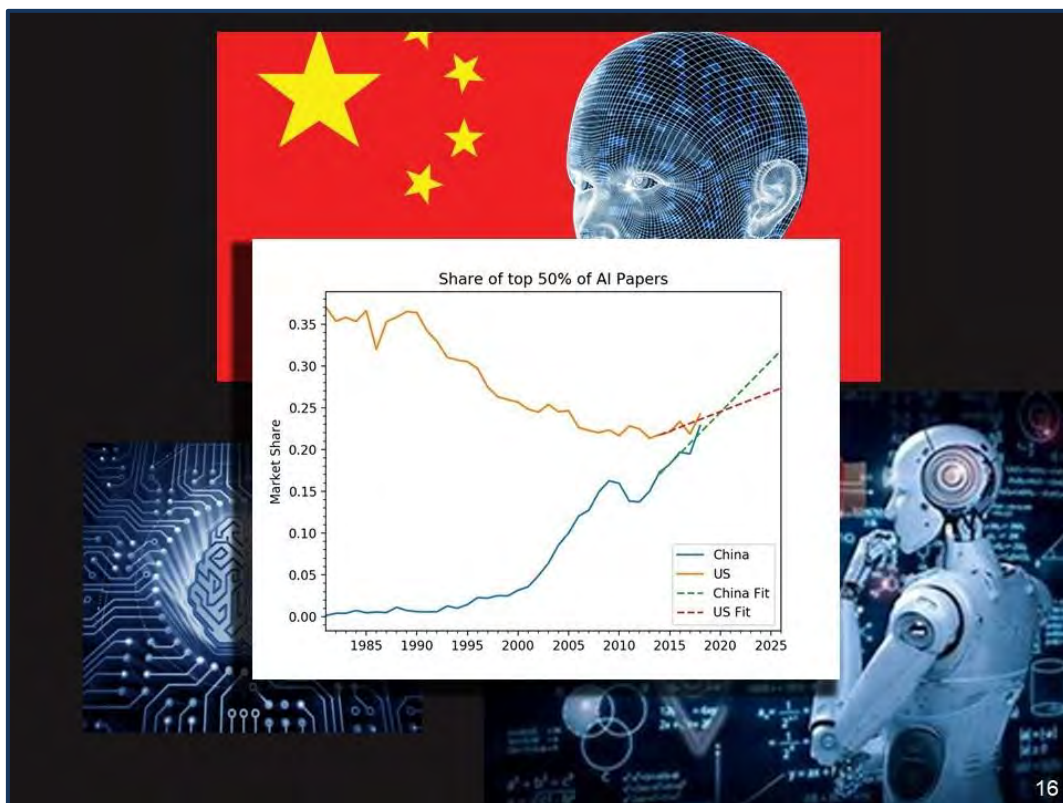
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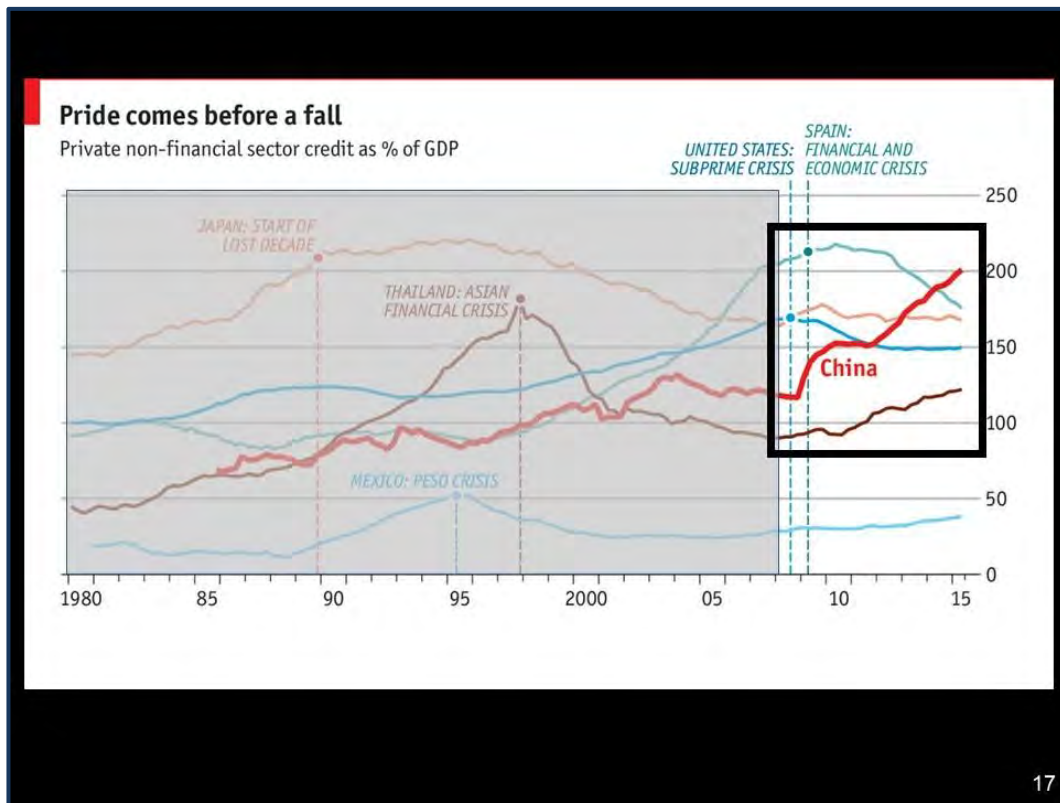


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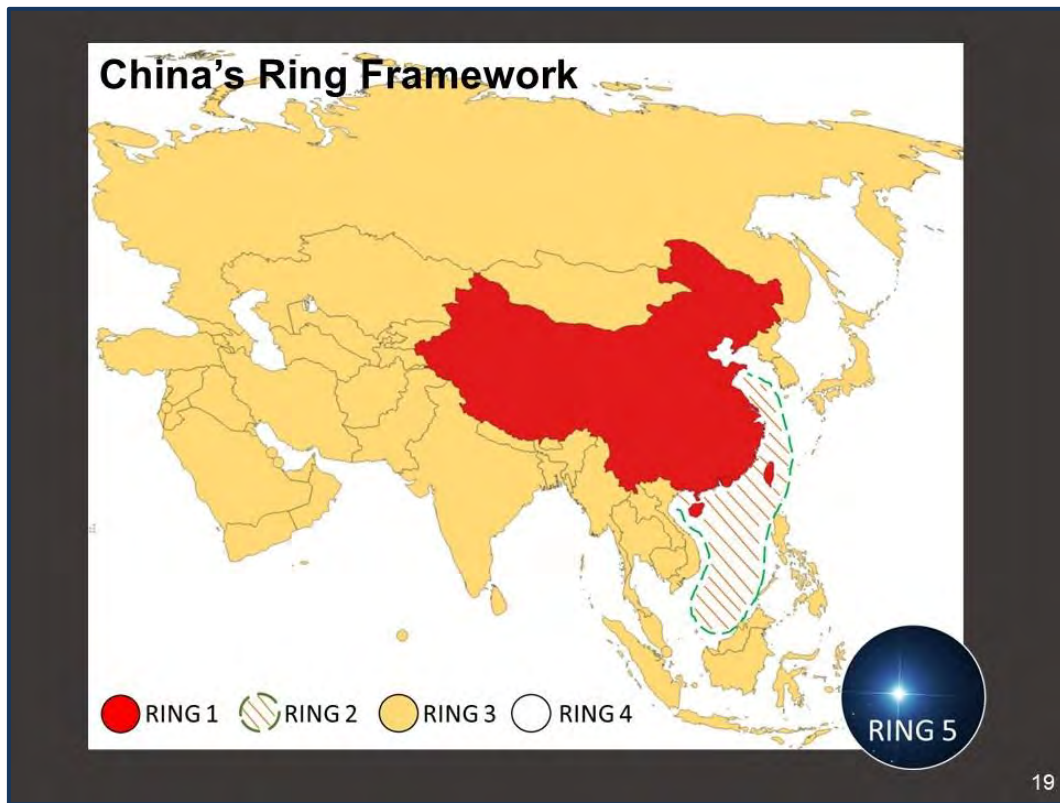
China Ring Framework

The map illustrates the China Ring Framework, showing concentric rings of influence around China. The rings are defined as follows:

- RING 1**: Mainland
- RING 2**: South China Sea
- RING 3**: Asia
- RING 4**: World

Roles and Capabilities
China

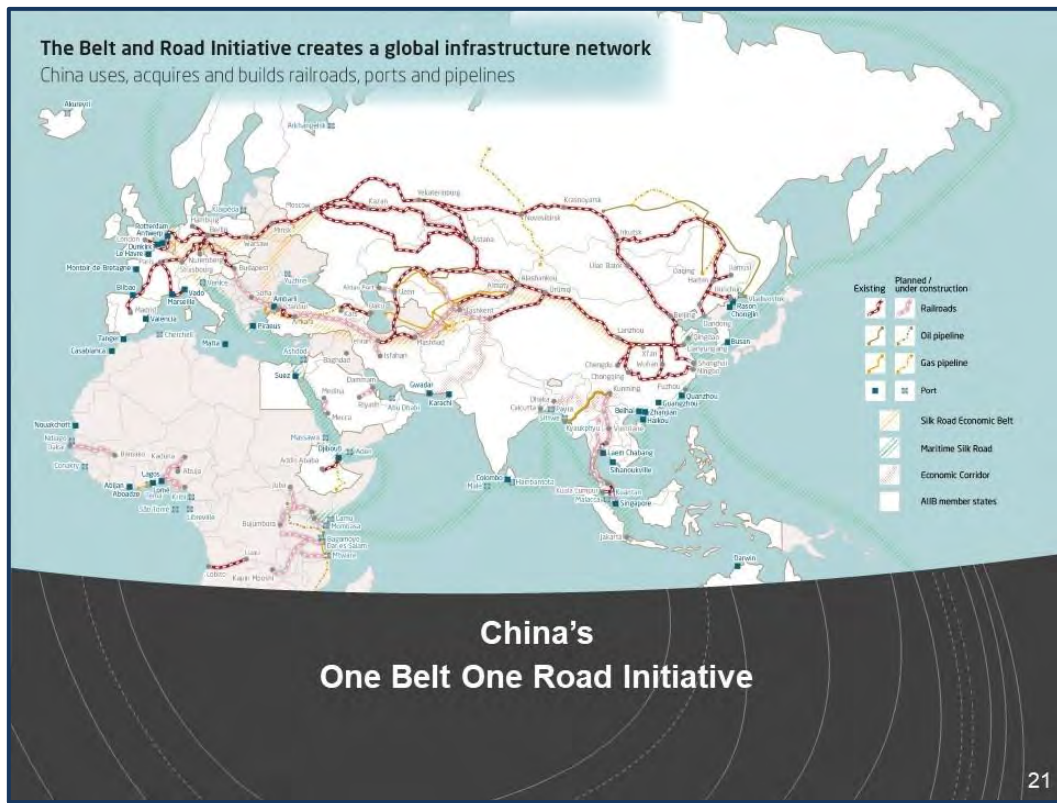
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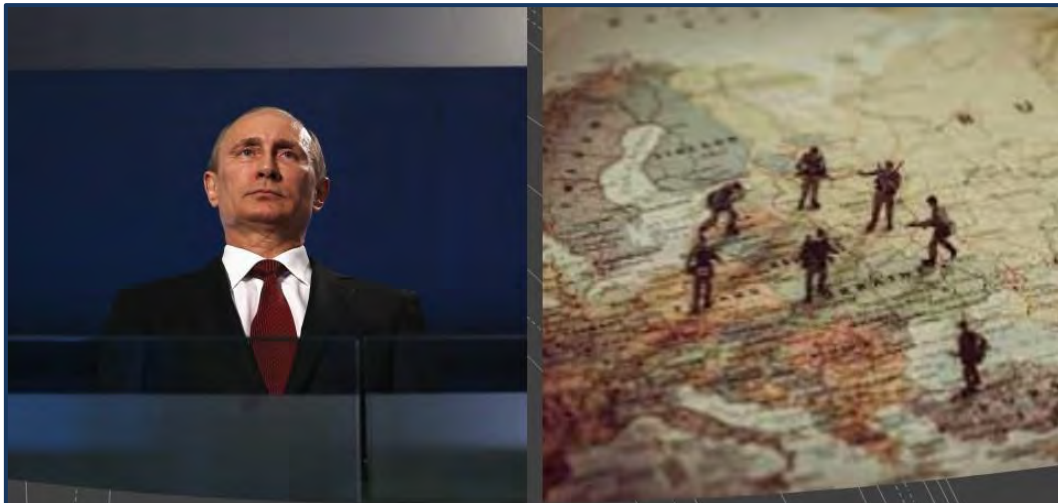


19



20





**Drivers
Russia**

23

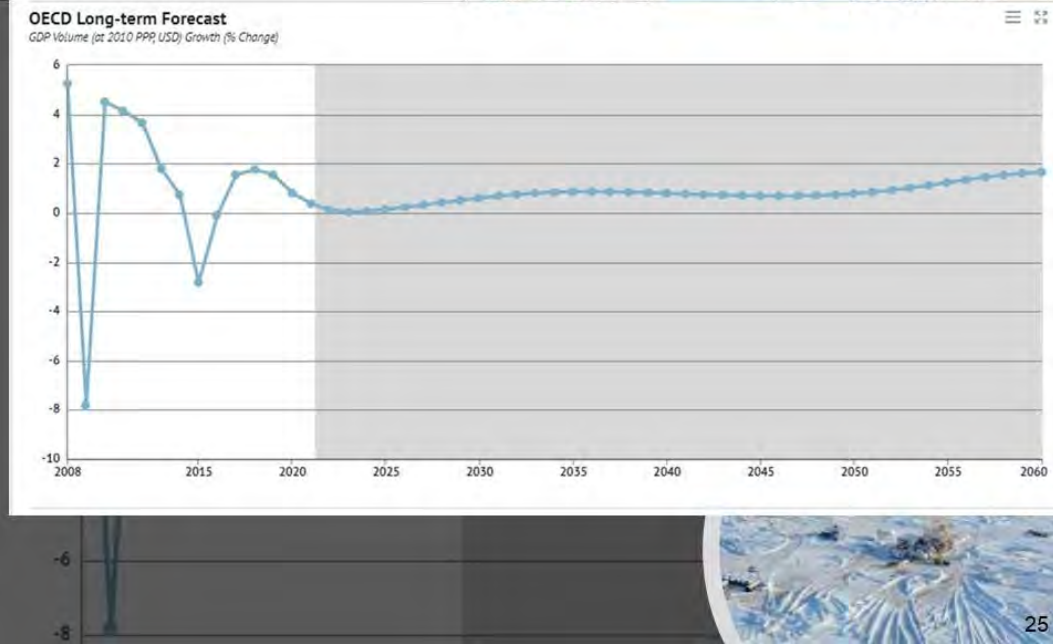
“Having collapsed from the level of the USSR... Russia, returned to its natural and its only possible condition: that of a great and growing community of nations that gathers lands.”

**-Vladislav Surkov
Vladimir Putin’s (former) Chief of Staff**




24


Despite Russia's intent their economic situation makes many of their goals difficult to achieve.



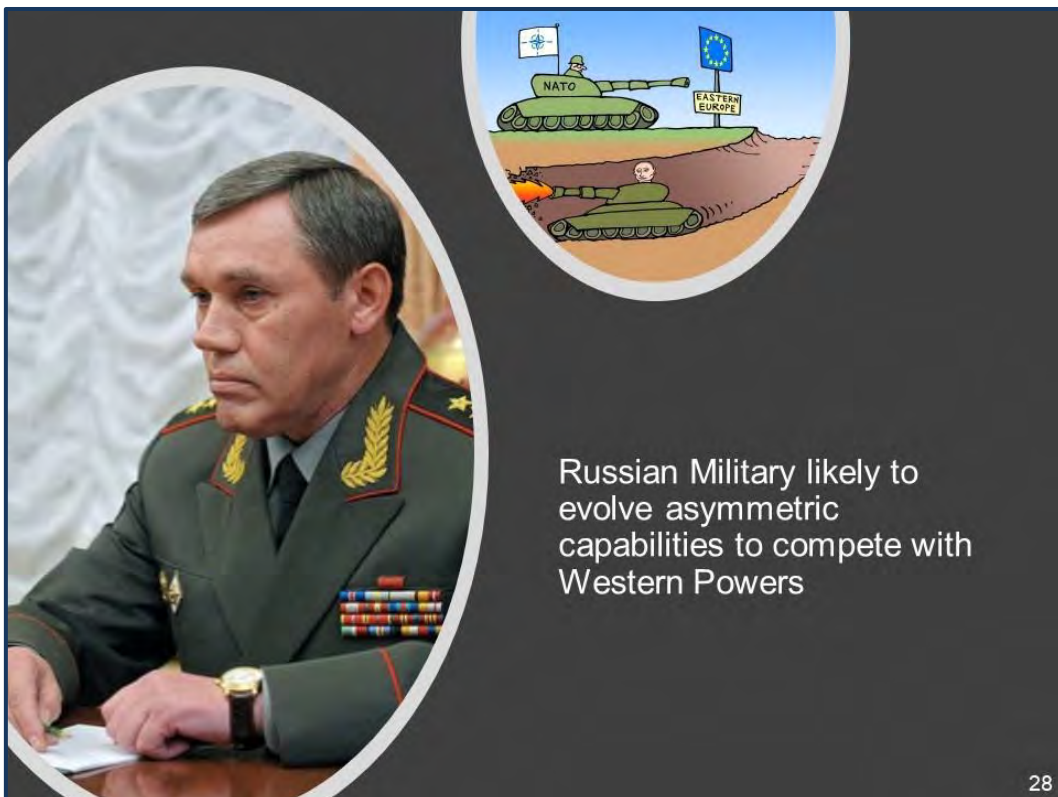
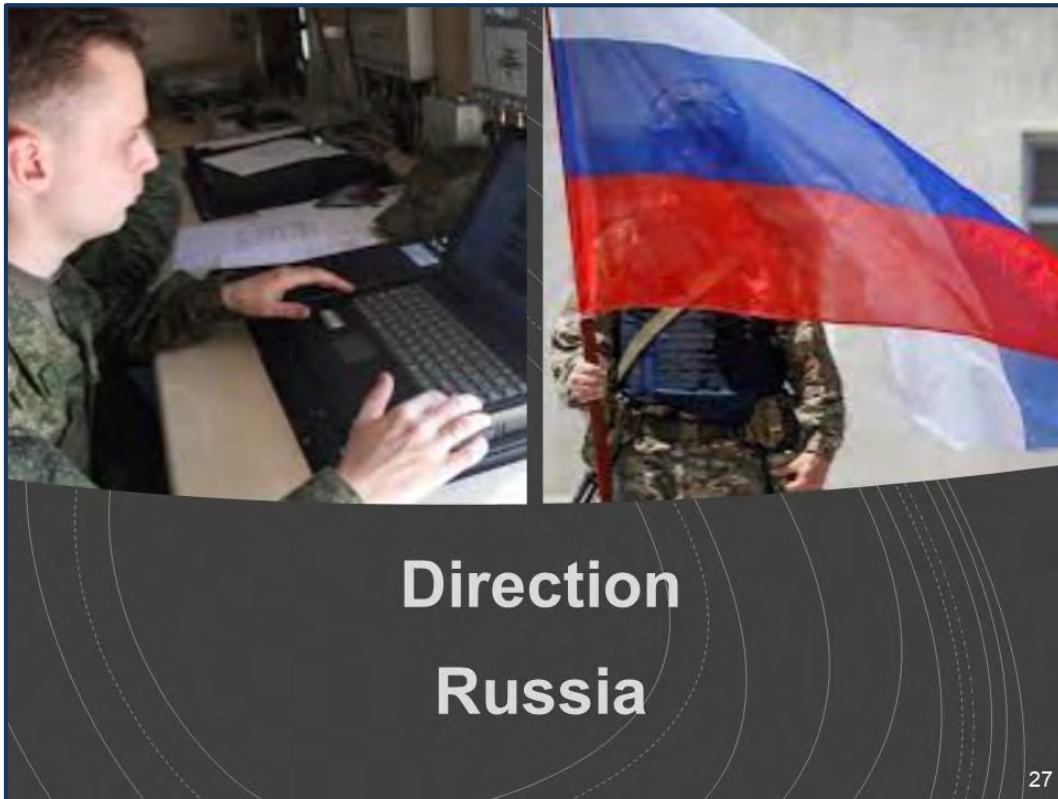
Norwegian defense researchers stated that Russia will not repeat the mistakes of the Soviet Union, destroying their economy to modernize the military



Tor Bukkvoll

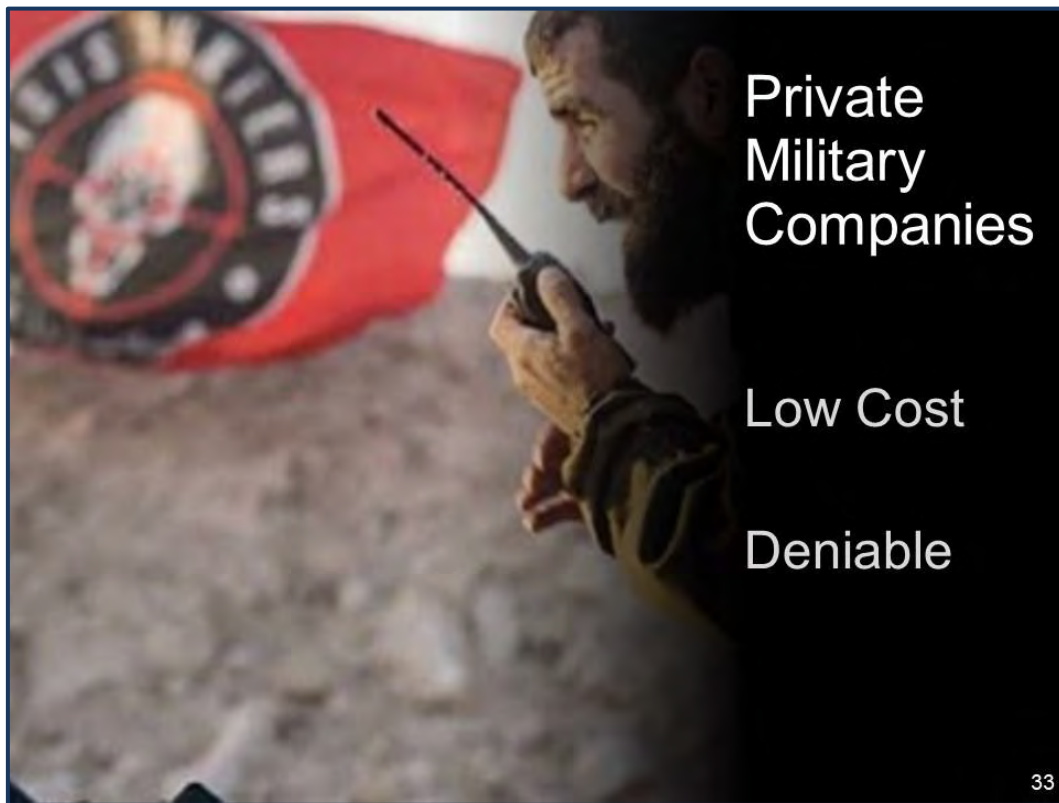


Kristian Åtland









Proven Technology
over Hypersonics

Network Centric
Warfare


Counter
UAS

Realistic Training



35

Russia is likely to focus
on improvement of **Air
Defense** and **Field
Artillery** systems over
the next 10 – 15 years



36



SAP 2027

Long Range Munitions

Air Defense

Unlikely to Complete



37



Roles and Capabilities

Russia

38

