

China's Rise as a Global Military Technological Power: Geo-Strategic and Geo-Economic Implications

Chaire des Grands Enjeux Stratégiques Contemporains 2018

Université de Paris I – Panthéon – Sorbonne, Paris, February 12th

Tai Ming Cheung, University of California, San Diego

At the 19th Chinese Communist Party Congress in October 2017 that solidified Chinese Communist Party General Secretary and Commander-in Chief Xi Jinping's hold on power, he offered a confident vision of China's growing long-term influence and might in the international system. Xi talked about "socialism with Chinese characteristics entering a new era" in which he described China as "moving closer to the global center stage", that China's brand of socialism offered a new option for countries who want to speed up their development while preserving their independence, and a China that was becoming a great power.¹

Xi spelled out a timeline for China becoming a militarily powerful and technologically advanced country by the middle of this century. China should reach the first tier of the world's most innovative countries by 2035 and at the same time the military would realize its objectives of becoming a fully modern force. By 2050, China would challenge for global leadership with a world-class military a centerpiece of the country's "comprehensive national strength". Are these goals realistic and achievable within the timeline put forward by Xi? How will China undertake this grand transformation? What are the geo-strategic and geo-economic implications if China is successful?

The Emergence of the Chinese Techno-Security State Under Xi Jinping

China under Xi Jinping is a security-maximizing state that is building its power and prestige on an increasingly capable and expansive economic and technological foundation. The country fits the profile of what can be defined as a techno-security state in which the development efforts of the state are prioritized to meeting expansive national security requirements, of which the cultivation of strategic technological and industrial capabilities are prime goals.

¹ Xi Jinping, "Secure a Decisive Victory in Building a Moderately Prosperous Society in All Respects and Strive for the Great Success of Socialism with Chinese Characteristics for a New Era", Report to the 19th Chinese Communist Party National Congress, *Xinhua News Agency*, 18 October 2017.

Since becoming China's paramount leader in 2012, Xi has invested considerable time, effort, and political capital to forge a techno-security state under his close personal control. He chairs a number of important entities that oversee critical national security and techno-security related functions. They include the Central Military Commission, National Security Commission, and the Party Cybersecurity and Informatization Leading Group. He has complemented this institutionalization of his authority with an extensive series of engagements with the national security and technology systems through site visits, keynote speeches, formulation of new policies, and the placement of trusted loyalists in key leadership positions.

Xi's vision of the Chinese techno-security state is heavily influenced by the ideological and organizational principles laid down during the Maoist era in the 1950s to 1970s and updated by his predecessors Jiang Zemin and Hu Jintao in the 1990s and 2000s. These principles are emphatically statist in nature:

- Technological development is strategic and fundamental for determining China's place in the global strategic and economic balance –it is a vital ingredient in grand strategic thinking.
- The state must invest in critical technological sectors because of high risks and long and costly research and development cycles.
- The state must nurture indigenous innovation capacity, although this should allow for absorption of foreign technologies to help catch up.
- Technology diffusion through spin-off or spin-on should be a central long-term goal
- Military and security considerations should be paramount.
- Emphasis should be on 'big science' mega-projects.

The grand strategy of Xi's techno-security state and has several core components:

- Building a strong national security state, especially prioritizing the development of military, internal security, and information control capabilities across a wide array of domains, of which cyber is of central importance.
- Building an advanced defense science, technological and industrial base.
- Forging a dual-use civil-military economy.

The Rise of the Chinese National Security State Under Xi

Between the late 1970s and the early 2010s, economic development was China's foremost priority, while national security issues were of secondary importance. This contrasted with the fortress-like military-national security state that Mao Zedong had ruled over before then.² Deng Xiaoping pressed ahead during the 1980s with economic reforms and opening up the country. But national security challenges regularly intervened and threatened to undermine the economic reform process, most notably in 1989 with the Tiananmen Square protests and again in the mid-1990s as tensions across the Taiwan Strait threatened to escalate into military conflict.

Under the tenures of Jiang Zemin and Hu Jintao between 1990 and 2012, there was an effort to find a more balanced relationship between economic development and national security, although economic issues remained the dominant priority. For Xi, the balance appears to have tipped in favor of national security considerations. Economic development remains an important priority for Xi though, especially as one of the key lessons learnt from collapse of the Soviet Union at the end of the 1980s was that excessive concentration on national security concerns to the detriment of economic interests can fatally undermine a regime's sustainability.³

A key driver behind Xi's intensive efforts to establish a potent national security state is the grave threats that he and the leadership believe that China is facing. In 2014, a newly established National Security Commission met for the first time and Xi was quoted as saying that 'China now faces the most complicated internal and external factors in [its] history.'⁴ This is an extraordinary claim as the PRC has faced especially severe threats to its very survival between the 1950s and 1970s from the United States and the Soviet Union.

The rationale behind Xi's pessimistic threat assessment was spelt out in the outline of the country's first ever national security strategy outline that was drafted in 2015.⁵ Admiral Sun Jianguo, a senior military official, explained that China faced three major dangers⁶:

1. **Invasion, subversion, and "splittism:"** This refers to the threats to the country's territorial integrity and sovereignty, both externally and internally. The external dangers primarily concern maritime sovereignty disputes in the South and East China Seas. China has been engaged in heated confrontations with Japan over the Diaoyu/Senkaku Islands and with a number of Southeast Asian countries as well as the U.S. over islands, atolls,

² See Xuezi Guo, *China's Security State: Philosophy, Evolution, and Politics* (Cambridge: Cambridge University Press, 2012).

³ Tai Ming Cheung, "The Rise of the Chinese National Security State Under Xi Jinping", *China Policy Institute Analysis*, University of Nottingham, December 2016, <https://cpianalysis.org/2016/12/15/the-rise-of-the-chinese-national-security-state-under-xi-jinping/>

⁴ "National Security Matter of Prime Importance: President Xi", *Xinhua News Agency*, 15 April 2014.

⁵ "Politburo Calls Meeting, Examines and Adopts the 'National Security Strategic Outline'", *Xinhua News Agency*, 23 January 2015.

⁶ "Unwaveringly Take the National Security Path With Chinese Characteristics: Study General Secretary Xi Jinping's Major Strategic Thinking on Overall National Security Concept", *Qiushi*, 1 March 2015.

and rocks that make up the Spratlys in the South China Sea. On territorial integrity, this is related to ensuring that Taiwan remains a part of China. Subversion and splittism is tied to the ethnic unrest that China faces with its autonomous regions in the far west, namely Tibet and Xinjiang. There have been major upheavals in these two regions over the past decade and Uyghur separatists have been engaged in terrorist attacks in Xinjiang, other parts of China, and against Chinese targets overseas.

2. **Undermining of reforms, economic development, and stability:** Mitigating social instability is a first order priority for the Chinese authorities in the face of widening social inequality, pervasive corruption, deep-seated structural unemployment, and numerous other social problems. Admiral Sun points out that there are ‘frequent occurrences of social contradictions and accumulating social contradictions.’ The identification that ‘undermining of reforms’ poses a national security danger is highly unusual as this would equate opposition to Xi’s reform agenda as a threat. There have been occasional reports in the official Chinese media indicating that reforms have run into difficulties. A widely published commentary in the Chinese state media in August 2015 said the ‘scale of resistance’ against Xi’s reforms ‘is beyond what could have been imagined.’⁷ This resistance appears to be coming from entrenched political and bureaucratic interests that stand to lose from reforms, such as state agencies and state-owned corporations.
3. **Socialist development of China being interrupted:** The biggest concern for the CCP leadership is the threat to its hold on power, which it views as coming from numerous quarters domestically and externally. This includes a deeply-held view among CCP leaders that the West is seeking regime change in China, which has only been reinforced in recent years by the spectacle of ‘coloured revolutions’ in Europe and the ‘Arab Spring’ political upheavals that swept the Middle East. Closer to home, the CCP authorities were unnerved by the student-led political unrest in Hong Kong known as the ‘Occupy Central’ in 2014, which Admiral Sun likened as the ‘Hong Kong version of the colour revolution’ stage-managed meticulously by a small number of radical groups in Hong Kong incited and supported by external forces.’

In the making of the national security state, Xi has put forward a concept that he describes as a ‘national security path with Chinese characteristics’ that is a mixture of assertive principles coupled with deep concerns of vulnerabilities.⁸ A number of key notions are behind the shaping of this concept:

- **National security is comprehensive:** Xi sees the domestic and external components of

⁷ Guo Ping, "Increase Reform Confidence, Maintain Stable Force and Tenacity", *Guangming Wang*, 19 August 2015. Guo Ping is a pen-name that the Chinese authorities use to comment on major issues in the official media.

⁸ "China To Follow Specific National Security Strategy", *Xinhua News Agency*, 16 April 2014.

national security as overlapping and tightly connected, which is very different from the compartmentalized approach that his predecessors pursued. This is an important reason why Xi decided to establish a new organization, the National Security Commission, to manage this integrated approach.⁹

- **National security is expansive:** Closely connected with the perspective that national security is comprehensive is the notion that it is expansive and covers many different domains. In a new national security law that is being finalized, national security is identified as covering 11 categories: political, territorial, military, economic, cultural, social, ecological, science and technology, information, nuclear, and natural resources.
- **Ensuring national security has to be done pro-actively, pre-emptively, and strategically:** It is important to identify and address national security challenges and opportunities early, strategically, and decisively rather than being reactive and tactical. This requires extensive and high-level leadership engagement, close coordination across the national security apparatus, and the development of a capable and substantial intelligence system to keep abreast of internal and international developments.
- **Strongly asserting China's interests:** Xi is stressing the need to engage in struggle (斗争) in the pursuit of national interests, especially in the military and diplomatic arenas. In describing China's approach in dealing with the U.S., Admiral Sun pointed out that 'facts have shown that without struggle it will be impossible for the United States to respect our core interests, without struggle it will be impossible to realize cooperation and win-win on the basis of equality, and without struggle it will be impossible to have an excellent situation today.' In other words, China needs to take a resilient stance and push hard against the United States in order to win its respect, although the Chinese leadership is also careful not to go too far and spark armed conflict as it remains much weaker.

The U.S. is front and center in China's strategic considerations, although Beijing does not want to point this out publicly because the U.S. continues to be far stronger militarily, economically, and technologically. Internally since the mid to late 2000s, China's national security policymakers have viewed the United States as a direct military competitor and potential adversary in response to escalating security frictions and competing interests that are deepening US–China strategic distrust. A central reason for this logic is a widely held belief among Chinese strategists that the U.S. has

⁹ See David Lampton, "Xi Jinping and the National Security Commission: Policy Coordination and Political Power", *Journal of Contemporary China*, Vol. 24, No.95, 2015; and You Ji, "China's National Security Commission: Theory, Evolution and Operations", *Journal of Contemporary China*, Vol. 25, Issue 98, 2016. It is interesting though that the activities of the NSC have disappeared from open view since its first and only publicized meeting in 2014. Whether the NSC has been become dormant or the authorities have decided to classify its activities is not clear, although the considerable political capital that was expended to establish this mechanism suggests the latter outcome. See Joel Wuthnow, "China's New "Black Box" -Problems and Prospects for the Central National Security Commission", *The China Quarterly*, Vol. 232, December 2017.

designated China as its main strategic opponent since second half of the last decade.¹⁰

Building an Advanced and Globally Competitive Defence Science, Technological and Industrial Base

At the heart of the forging of the Chinese techno-security state is the construction of a state-of-the-art defense industrial base that can meet the People's Liberation Army's (PLA) growing technological needs. The Chinese defense industry has grown strongly under Xi's rule because the building of defense and civil-military science, technology, and industrial capabilities intersect across two of Xi's most prized policy priorities, which are the strengthening of military combat strength and making innovation the primary locomotive of China's long-term development.

Xi has laid out the key steps needed in turning China into an advanced defense industrial power: "strengthen unified leadership, top-level design, reform, innovation, and the implementation of major projects; reform the defense science and technology industry; achieve greater civil-military integration; and build an integrated national strategic system and capabilities". Xi's statement encapsulates many of the key initiatives being undertaken to pivot the Chinese defense economy from catching up to innovating at the global frontier.

One of the first priorities to be implemented is the strengthening of the defense science, technology, and industrial leadership system. This was carried out in 2016 with a far-reaching reorganization of the upper-most echelons of the PLA armament management system. To carry out Xi's twin requirement of accelerating the pace of development and fielding of conventional armaments while at the same time pursuing more advanced, higher-risk, and longer-term research and development of next generation technologies, the PLA armament system has been restructured into two distinct parts.

The reform of the conventional weapons acquisition system saw the PLA General Armament Department (GAD) reorganized in 2016 into the Central Military Commission Equipment Development Department (CEDD). The emphasis is on more joint development programs compared to the ground force dominated focus of its predecessor. A more consequential overhaul has taken place in the management of the research and development of more strategic, cutting-edge, or revolutionary capabilities with the establishment of the CMC Science and Technology Commission (CSTC) that occurred at the same time as the CEDD was set up in January 2016.

When the CSTC was unveiled, there was considerable speculation in Chinese and foreign media that it was modelled on the U.S. Defense Advanced Research Projects Agency (DARPA). There are

¹⁰ Wang Faan (Ed), *China's Strategy for Invigorating the Armed Forces Amid Peaceful Development (Zhongguo Heping Fazhan Zhong De Qiangjun Zhanlue)* (Beijing: Military Science Press, June 2011).

similarities in the functions of the CMC-STC and DARPA, of which one noteworthy example is that they both actively engage with civilian universities to support basic research.

But there are also important differences that suggests the Chinese approach in conducting disruptive innovation is distinctive from the U.S. model. A key difference is that the CSTC is tightly integrated into the PLA hierarchy with a two-star lieutenant-general in charge, whereas DARPA enjoys considerable autonomy by being outside of the uniformed chain of command. A CMC science research steering committee has also been established to provide technical and strategic guidance to the CSTC. These institutional developments demonstrate a clear commitment by the Chinese military authorities to seriously engage in higher-end home-grown innovation research and development.

The implementation of the development of major armament projects is another overarching priority. There has been a relentless pace of output of major armament programs over the past decade. In the past year alone, naval shipbuilders have led the way with the launch of several high-profile projects that included its first indigenously built aircraft carrier in April 2017, which was an improved version of the Liaoning aircraft carrier and the first Type 055 DDG guided missile destroyer in June 2017. Both ships will take at another 2-3 years to be fitted out before they are ready for operational service. The aviation industry began serial production in 2017 of the J-20 fighter aircraft, which is China's first attempt to build a stealthy fighter.

The development pipeline for major weapons and dual-use projects appears to be bulging. They include a significantly larger and more advanced aircraft carrier, a new generation of nuclear submarines, ballistic missile defense, satellite navigation systems, and next generation Exascale high performance computers, and quantum communications technology.

Despite this impressive track record, the government is seeking to implement major reforms to overcome deep-rooted structural bottlenecks caused by the industry's central planning legacy. One important reform initiative that began in 2017 was a pilot project to overhaul the ownership structure of wholly state-owned defense research institutes and academies so they could be allowed to list. This would provide a lucrative source of capital as research institutes make up a significant proportion of defense corporations' fixed asset stock. Defense companies have been engaged in this process known as asset securitization since 2013 and have raised more than US\$30 billion by the end of 2017 from initial public offerings and other financial vehicles that have been ploughed back into product development, including weapons activities.

Another important reform is the consolidation of state-owned defense conglomerates. Each of the half a dozen sectors that make up the Chinese defense industry is controlled by one or two of the country's big defense corporations. Efforts to promote competition in the late 1990s by dividing these monopolistic behemoths into two competing entities were largely a failure because of poor institutional design. Consequently, the Chinese authorities began to remerge these firms, especially

so they can compete with much larger foreign firms on the global arms and technology markets. This began in the late 2000s with the consolidation of the aviation sector, but there was a long hiatus before the next merger took place at the beginning of 2018 between the two principal firms in the nuclear sector, China National Nuclear Corp. and China National Engineering Corp. The shipbuilding industry appears next in line for restructuring as one of its two dominant conglomerates, China State Shipbuilding Corp., has been adversely affected by a sharp downturn in the global civilian shipbuilding market.

Forging a Seamless Dual-Use Civil-Military Economy

The Chinese authorities have been championing efforts to promote the convergence of the civilian and defense components of the national economy since the beginning of the 21st Century, but with little tangible success because of limited high-level leadership attention, unclear strategy, ineffective implementation, and poor coordination between civilian, defense regulatory, and military agencies. Chinese authorities see this convergence, which is termed civil-military integration (CMI), as essential in the country's drive for original innovation and defense modernization.

The bulk of efforts to promote CMI have focused on reforms of defense corporations and on the implementation of policies, platforms, and other mechanisms by which private sector technology can flow into defense projects. This included opening up the closed and opaque defense acquisition system to allow civilian firms to take part and bid for projects and reducing red tape and excessive secrecy.

Xi has actively promoted CMI under his tenure, which he rephrased as military-civil fusion (MCF 军民融合) to distinguish a new approach that he was taking. To address the previous CMI strategy that was ad hoc, structurally misaligned, and of low policy importance, Xi designated MCF as a national priority in 2015 and defined it as a development strategy. A central goal of the MCF development strategy is, according to Xi, to build an “integrated national strategic system and strategic capabilities”. The development of such a strategic system and capabilities will allow China to “implement key science and technology projects and race to occupy the strategic high ground for science and technology innovation”, Xi added.¹¹

Key elements of this national strategic system are detailed in some of the MCF implementation plans that have been formulated since the adoption of the MCF development strategy. This includes the 13th 5-Year Special Plan for Science and Technology MCF Development issued in 2017 by the CSTC and the Ministry of Science and Technology (MOST) that detailed the establishment of an integrated system to conduct basic cutting-edge R&D in AI, bio-tech, advanced electronics, quantum, advanced energy, advanced manufacturing, future networks, new materials “to capture commanding heights

¹¹ “Xi Calls for Deepened Military-Civilian Integration”, *Xinhua News Agency*, 12 March 2018.

of international competition". This plan also noted the pursuit of MCF special projects in areas such as remote sensing, marine-related, advanced manufacturing, biology, and transportation.

The political significance of MCF gained even more prominence with the formation of the Commission for Integrated Civilian-Military Development (CICMD) in January 2017. The importance of this organization in leading MCF policy making and implementation was made clear with the appointment of Xi as its chair and Premier Li Keqiang as a vice-chair. At the CICMD's first meeting in June 2017, Xi said that there was a "short period of strategic opportunity" to implement MCF, pointing out the most fruitful areas that included infrastructure, equipment procurement, training, military logistics, and defense mobilization.¹² In its September meeting, the CICMD issued a series of plans and guidelines tied to the 13th Five Year Plan on MCF that covered defense industrial development, and military logistics.¹³

Global Implications: Intensifying U.S.-China Technological Competition

The Chinese techno-security state is flourishing and looks set to grow faster, bigger, and better under Xi Jinping's long-term leadership. While major weaknesses such as bureaucratic fragmentation, corruption, political interference, and entrenched corporate interests will complicate progress, there are numerous sources of strength that will allow the techno-security state to mitigate or overcome these obstacles. They include ample funding and good access to foreign technology and know-how.

The rise of the Chinese techno-security state has triggered deepening concern in the U.S. that its military technological superiority with China is under mounting threat. This has led to intensifying Sino-US defense technological competition that is likely to become more acute. The U.S. Defense Department has been pursuing a number of initiatives since the early 2010s in an effort to maintain its technological advantages, such as the Third Offset Strategy and the Defense Innovation Initiative that was pursued by the Obama Administration.¹⁴

While the Trump Administration no longer uses the Third Offset label, it has made clear that it embraces the view that the U.S. and China are now great power rivals. This is spelled out in the US national defense strategy issued in January 2018 that points out, "as China continues its economic and military ascendance, asserting power through an all-of-nation long-term strategy, it will continue to pursue a military modernization program that seeks Indo-Pacific regional hegemony in the near-term and displacement of the United States to achieve global pre-eminence in the future"

This competition in the defense domain has also spilled over into the broader U.S.-China technology

¹² "Xi Jinping Addresses Meeting of Central Commission for Integrated Military-Civilian Development", *Xinhua News Agency*, 20 June 2017.

¹³ "Xi Jinping Chairs Second Plenum of Central Integrated Military-Civilian Development Commission", *Xinhua Domestic Service*, -22 September 2017.

¹⁴ See Tai Ming Cheung and Thomas G. Mahnken (Eds), *The Gathering Pacific Storm: Emerging US-China Strategic Competition in Defense Technological and Industrial Development* (Cambria Press, 2018).

relationship, especially in areas such as high and strategic technology, communications technology, U.S. and allied curbs on Chinese investment in sensitive technological areas, and restrictions on research and development exchanges. The two countries appear to be spiralling into a technological cold war that has far-reaching negative consequences for not only their techno-security establishments but also for the development of their national innovation capabilities and for the global technological order as well.