

Chapter 3

The Rise of the Chinese Techno-Security State and its Strategic Implications¹

Tai Ming Cheung

The techno-security sphere is where economics, technological innovation, military power, and national security intersect and has become a principal arena for competition between established and rising great powers. China has become a central challenger to the United States for global techno-security dominance and this paper examines the components, characteristics, and development trends of the Chinese techno-security state.

The techno-security state refers to innovation-centered, security-maximizing regimes that prioritize the building of technological, defense, and national security capabilities to meet expansive national security requirements based on heightened threat perceptions and the powerful influence of domestic pro-security coalitions. A core premise behind the techno-security state concept is the pivotal role of the state in technology development, especially related to strategic and national security capabilities.

Four key dimensions of the Chinese techno-security state will be examined: 1) the centrality of national security; 2) the primacy of innovation; 3) the urgency of military transformation; and 4) the ambition of fusing the military and civilian spheres.

The Hard Turn of the Chinese National Security State

Upon taking office in 2012, Xi Jinping moved expeditiously to engineer a far-reaching reframing of the country's national security posture. There was no single seminal shock that triggered this hard national security turn. For China's realist-minded security policy makers at the helm in the early 2010s, the country's national security situation was complicated but manageable. The official assessment articulated by outgoing leader Hu Jintao in 2012 was that "the world today is undergoing profound and complex changes," but the overall "balance of international forces is developing in a direction favorable for the maintenance of world peace, creating more favorable conditions for overall stability

¹ This paper is derived in part from a longer book-length study of the Chinese techno-security state by the author that was published by Cornell University Press in 2022.

in the international environment.”²

For Xi, however, these traditional *realpolitik* perspectives painted only a partial and far-too-rosy picture of China’s actual security environment. He brought to office a very different set of assumptions and viewpoints as to what constituted the most worrying sources of dangers to the Party and the country and how they should be addressed. As a long-time provincial apparatchik, Xi’s worldview was dominated by domestic and Party concerns. Xi was in particular haunted by the collapse of the Soviet Union that happened more than two decades ago.³ Shortly after becoming paramount leader, in a speech asking why the Soviet Union and the Soviet Communist Party had collapsed, Xi said this was “a profound lesson for us. To dismiss the history of the Soviet Union and the Soviet Communist Party, to dismiss Lenin and Stalin, and to dismiss everything else is to engage in historic nihilism.”⁴

Xi was determined that the Chinese Communist Party should avoid the same fate, even though China in the 2010s bore little resemblance to the late decrepit Soviet regime. Xi’s answer was a hand-in-glove strategy of hard-hitting ideological purification and the building up of a repressive national security state. This need to prepare for danger in times of peace and to be ready for sudden incidents became important strands in the weaving of a tapestry that would eventually become known as the Holistic National Security Outlook (HNSO 总体国家安全观). Unveiled in April 2014, the HNSO has become the overarching conceptual framework for Xi’s national security state. The country’s first-ever national security strategy, which was issued in 2015, is derived largely from the HNSO.⁵ A central argument of the HNSO is that “China now faces the most complicated internal and external factors in [its] history.”⁶

At first glance, this statement would appear to be overly alarmist as China had endured existential nuclear threats from the U.S. in the 1950s and border clashes with

² Hu Jintao, “Unswervingly Advance Along the Path of Chinese Characteristics, Struggle To Complete the Building of a Well-Off Society in an All-Round Way,” Report to the Eighteenth Chinese Communist Party National Congress, 8 November 2012, *People’s Daily*, 9 November 2012. <http://politics.people.com.cn/n/2012/1109/c1001-19529890.html>

³ See Evan Osnos, “How Xi Jinping Took Control of China,” *The New Yorker*, 6 April 2015. <https://www.newyorker.com/magazine/2015/04/06/born-red>

⁴ “Leaked Speech Shows Xi Jinping’s Opposition To Reform,” *China Digital Times*, 27 January 2013. <https://chinadigitaltimes.net/2013/01/leaked-speech-shows-xi-jinpings-opposition-to-reform/>

⁵ “Xi Jinping Chairs Political Bureau Meeting on Outline for National Security Strategy,” *Xinhua News Agency*, 23 January 2015. http://www.xinhuanet.com/politics/2015-01/23/c_1114112093.htm

⁶ “National Security Matter of Prime Importance: President Xi,” *Xinhua News Agency*, 15 April 2014. http://www.xinhuanet.com/politics/2014-04/15/c_1110253910.htm

the Soviet Union in the late 1960s that nearly escalated into a full-scale war. But the point being made by the HNSO is that the dangers imperiling China in the twenty-first century are not the gravest that it has ever faced but the most complex. Based on Xi's reconceptualization of national security, the most dangerous threats are not external but internal, not traditional but non-traditional, not geo-strategic but political, and not in the here and now but emerging. From this vantage point, the world is a far darker and more menacing place, thus justifying the establishment of a strong national security state. So the concrete security environment that China faced in the early 2010s had not radically deteriorated, but the way its new leaders perceived the situation had been significantly altered.

On the issue of core national interests, the balance between development, security, and sovereignty has also been revised under Xi's tenure. From Deng Xiaoping to Hu Jintao, development was by far the most important national priority, but Xi has elevated security to the same level, if not higher. "We not only emphasize development issues but also security issues," Xi said at a meeting of the Central National Security Commission in April 2014.⁷ Moreover, Xi said that national security and development are deeply intertwined with each other. "Security and development are two sides of the same issue, two wheels in the same driving mechanism. Security guarantees development, and development is the goal of security."⁸ What this means is that China needs to pursue a more pro-active and assertive approach in shaping and protecting its security environment to promote development rather than its previously more reactive and low-key posture.

Innovation-Driven Development Strategy

The Innovation-Driven Development Strategy (IDDS 国家创新驱动发展战略) represents the Xi administration's bold overarching development strategy of realizing China's long-term ambition of becoming a world power by mid-century. The strategy is state directed but market supported, globally engaged but framed by techno-nationalist motivations. It seeks a seamless integration of the civilian and military domains, and employs a selective authoritarian mobilization approach targeted at core and emerging critical technologies.

⁷ "Xi Jinping Chairs First NSC Meeting, Stresses National Security with Chinese Characteristics," *Xinhua News Agency*, 15 April 2014. http://www.xinhuanet.com/politics/2014-04/15/c_1110253910.htm

⁸ "Xi Jinping's Speech at Opening of Second World Internet Conference," *Xinhua News Agency*, 16 December 2015. http://www.xinhuanet.com/politics/2015-12/16/c_1117481089.htm

The Xi administration has set the implementation of the IDDS against a Hobbesian backdrop of a life-or-death struggle for the economic and strategic renaissance of China. Its leaders see the world as engaged in an intensive zero-sum technological revolution for national and military competitiveness that requires China to urgently get its innovation house in order so it can effectively compete for the global commanding heights. This assessment was made well before the sharp deterioration in U.S.-China relations in the mid- to late 2010s, which has only reinforced the Chinese leadership's belief that it has made the correct policy choices.

The IDDS represents a whole-of-nation effort in the pursuit of technological innovation. This allows the authorities access to enormous institutional capabilities and material resources that can be applied to critical objectives. This selective authoritarian mobilization model is what Xi calls the superiority of the socialist system and has been successfully used on a number of pivotal S&T projects in the past.

A key measure of the authoritativeness and ability of the IDDS to guide China's development is the extent and long-term commitment of top-level leadership support. The IDDS is personally intertwined with Xi, who first put forward the concept and was intimately involved in its formulation, approval, and rollout. In a political setting where power rests more in the person of Xi and less in institutions, the IDDS is likely to benefit from its tight association with Xi in at least two ways. First, Xi's strong commitment to the IDDS sends a clear signal to the administrative bureaucracy to vigorously implement the strategy and associated policies and plans or suffer the consequences. Second, the lifting of term limits in 2018 on Xi's tenure in power means that the IDDS can expect to enjoy an extended shelf life, which is important because of its long-term focus.

The IDDS framework also demonstrates the ambition and risk-taking appetite of the Xi administration in its goal of transforming China from a catch-up imitator into a world-class original innovator by the first half of the 2030s. This will require a fundamental overhaul of how the Chinese national innovation system has traditionally been organized, incentivized, and governed. The 14th Five Year Plan covering the 2021-2025 period provides the medium-term implementation roadmap for achieving this goal.

The IDDS has also promoted international S&T cooperation but selectively and on China's terms, of which ensuring that China has a prominent say in the making of the global innovation order is a top priority. Xi has said that it is essential for China to "plan and promote scientific and technological innovation with a global vision, comprehensively strengthen international scientific and technological innovation cooperation, actively

integrate into the global network of scientific and technological innovation, enhance the level of opening of up the state's science and technology programs to the outside world, actively participate in and lead international scientific projects, and encourage Chinese scientists to initiate and organize international scientific and technological cooperation projects."⁹ One example of how China is developing its global innovation reach is through the Belt and Road Initiative, which Xi says should be used to build S&T innovation alliances, bases, and common platforms. Moreover, Xi says that it is important to enhance China's influence and rulemaking ability in global science and technology governance. This includes standards setting, norm making, and the building of international regimes and institutions, such as in cybersecurity and 5G.

The principal task of the IDDS and its constellation of associated plans and strategies is to support China's overall development, of which integral elements are national security and defense. While defense-related matters are only briefly touched upon in the IDDS, they are referred to throughout the outline that suggest that they are important but should not be drawn attention to. In the discussion on building a national innovation system, for example, there is mention of the need to "build a defense innovation platform for defense science and technology integration." When the outline states that China will contend for global innovation leadership by 2050, it also notes that "defense technology will have reached global leadership levels" by this time. Xi has sought to explicitly link the IDDS with the PLA's efforts to embrace innovation. At a meeting with PLA delegates at the annual National People's Congress in March 2016, Xi called on the PLA "to fully implement the innovation-driven development strategy, place combat capacity at the center of all their work, and step up theoretical and technological innovation."¹⁰

The indigenous development of strategic and core technologies is one of the foremost priorities of the IDDS and its associated plans and consequently receives plenty of attention. Strategic and core technologies refer to capabilities that are crucial for national security and long-term national competitiveness. The IDDS put forward a two-step development approach with the first near-to-medium stage to 2020 and the second long-term stage to 2030 (since extended to 2035). In the first step, the focus was on accelerating the implementation of megaprojects already underway with

⁹ "Xi Jinping Delivers a Speech at the Opening of the 19th Meeting of the Academicians of the Chinese Academy of Sciences and the 14th Meeting of the Academicians of the Chinese Academy of Engineering," *Xinhua News Agency*, 28 May 2018.

¹⁰ "Xi Jinping Attends Plenary Meeting of PLA Delegation, Stresses Comprehensive Implementation of Innovation-Driven Development Strategy and Promote Realization of New Strides in National Defense and Army Building," *Xinhua News Agency*, 13 March 2016.

the 2006-2020 Medium and Long-Term Science and Technology Development Plan (MLP). This includes high-end universal chips, basic software products such as operating systems, very-large-scale integrated circuit manufacturing equipment and turnkey techniques, new-generation broadband wireless mobile communication networks like 5G mobile communications capabilities, high-grade numerical control machinery and basic manufacturing equipment, large-scale advanced nuclear power plants with pressurized water reactors and high-temperature gas-cooled reactors, large-sized passenger aircraft, specifically the C919 airliner, high-resolution earth observation systems to allow the establishment of a comprehensive ground, atmospheric, and marine observation network, and manned spaceflight and lunar exploration projects like the Tiangong-2 space laboratory.

Military Strengthening

The possession of a strong, vibrant, and technologically advanced military and defense economic apparatus is pivotal to the forging of a potent techno-security state. Xi's thinking on the building of China's military power is formally known as "Military Strengthening in the New Era" (新时期的强军) and calls for a three-step transformation of Chinese military power to the middle of the twenty-first century.¹¹ The first step was to achieve the mechanization of the PLA by 2020 along with making major progress in the development of "informatization" and strategic capabilities. This has been largely accomplished. The second more ambitious phase is to "basically" complete defense modernization by 2035, which would mean that the PLA and the defense science, technology, and industrial base would have finally caught up with the world's top tier of advanced defense countries. The third and most challenging stage is for China to become a comprehensive world-leading military power by 2050, in which it would overtake the United States in global superiority.

One of the chief purposes of the Chinese techno-security state is to enable the development of a strong, technologically advanced, and politically reliable military establishment that is able to meet an expanding portfolio of missions and responsibilities. However, the PLA has rarely had the luxury of enjoying high-end military technological

¹¹ 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," *19th Chinese Communist Party National Congress*, 18 October 2017, http://www.gov.cn/zhuanti/2017-10/27/content_5234876.htm.

self-reliance, which is a basic requirement for any aspiring great power. The development of strategic nuclear and ballistic missile deterrent capabilities in the 1960s and 1970s was one of those occasional moments when self-sufficiency was achieved in advanced military capabilities, but for the most part the conventional weapons system has struggled mightily because of chronic early dependence on imported Soviet technologies and know-how and deep-seated structural barriers that stymied coordination and development.¹²

There is rising optimism and expectation within the contemporary Chinese defense establishment that this dismal state of affairs is coming to a decisive end and the country will soon be able to join the world's advanced defense industrial powers at the global technological frontier. The overarching objective of Xi's military strengthening guidance is to catch up and lead as quickly as possible. This requires close coordination and collaboration between the military strengthening guidance, the IDDS, national security strategy, and military civil fusion (MCF) development strategy.

Xi began to put forward his ideas and thinking on military strengthening immediately upon becoming party general secretary and CMC chairman at the 18th Party Congress in November 2012. At an expanded CMC meeting following the congress, the new commander-in-chief instructed the assembled military chiefs that the PLA needed to step up its deterrent and combat readiness, be prepared for military struggle, and embrace a revolution in military affairs with Chinese characteristics.¹³

The application of Xi's high-level military thinking into the duties, missions, and responsibilities of the military establishment is the domain of the Military Strategic Guidelines (MSG), which is the Chinese version of a national military strategy and constitutes the PLA's "programs and principles for planning and guiding the overall situation of war in a given period," or how the PLA would prepare to fight a future war.¹⁴ As the MSG is classified, any examination of its nature and contents is limited to circumstantial openly available information.

The Chinese government issued a 2015 defense white paper on "China's Military Strategy" that can be viewed as a circumscribed de facto public outline of the MSG

¹² See Tai Ming Cheung, *Fortifying China* (Ithaca, N.Y.: Cornell University Press, 2009).

¹³ "Hu Jintao, Xi Jinping Attend Enlarged Meeting of Central Military Commission, Deliver Important Speeches," *Xinhua News Agency*, 17 November 2012.

¹⁴ Taylor Fravel, *Active Defense: China's Military Strategy Since 1949* (Princeton, N.J.: Princeton University Press, 2019), 28. See also David M. Finkelstein, "China's National Military Strategy: An Overview of the 'Military Strategic Guidelines,'" in Roy Kamphausen and Andrew Scobell (Eds.), *Right Sizing the People's Liberation Army: Exploring the Contours of China's Military* (Carlisle, P.A.: Army War College, 2007), 67–140.

carefully edited to avoid disclosing any sensitive information. The white paper spelled out noteworthy adjustments to the country's military strategy, especially the need for heightened preparations for maritime conflict, information-era warfare, and the prioritization of the oceans, outer space, and cyberspace as the new "critical security domains."¹⁵

The white paper provided an assessment of the global strategic environment that highlighted several significant technological trends. The first was that the global revolution in military affairs was at a new stage and was "posing new and severe challenges to China's military security." A second feature of the rapidly evolving technological landscape was the emergence of new domains, of which outer space and cyberspace are emphasized as the "new commanding heights in strategic competition." A third accelerating trend was a fundamental change in the nature of warfare toward informationization, which refers to the information age and the rise of information-related processes and capabilities. The white paper pointed out that it was the "major powers" that are in the vanguard of this process and are "speeding up their military transformation and force restructuring."

The drafting of the 2014 MSG took place in the early years of the Xi administration and ahead of the completion of the major innovation, national security, and military strengthening strategies. All of these strategies point out that the 2010s was a transitional stage of development and more deep-seated and transformative improvements will only materialize from the 2020s onwards.

Several of the key components of the 2014 MSG show signs of major change that cumulatively point to a consequential change to China's thinking and approach to future war. First is the concept of military struggle. From solely a war-fighting prism, the 2014 MSG made what appears to be a modest amendment from winning local wars under informatized conditions to winning informatized local wars. But some Chinese military analysts argue that the Xi regime introduced an important shift by broadening the scope of the meaning of military struggle to incorporate other dimensions of geostrategic struggle. PLA Senior Colonel Luo Derong pointed out that China should "combine military struggle with political and diplomatic struggle."¹⁶ In addition, Luo points out that the 2014 MSG includes references to the HNSO that views China's national security

¹⁵ State Council Information Office, *China's Military Strategy*, 25 May 2015.

¹⁶ Luo Derong, "Action Guidelines for Armed Forces Building and Military Struggle Preparations: Several Points in Understanding the Military Strategic Guidelines in the New Era" (军队建设与军事斗争准备的行动纲领:对新形势下军事战略方针的几点认识), *China Military Science* (中国军事科学), no. 1 (2017), 88–96.

more expansively to cover economic and domestic affairs. Moreover, China has embraced the use of so-called grey zone tactics that blur the civilian-military divide.

Second is the identification of the strategic opponent. At the time that the 2014 MSG was being drawn up, the military-strategic competition between the United States and China was still in its infancy and the two countries continued to pursue cooperative working relations. From the mid-2010s, however, and especially with the arrival of the Trump administration in 2016, the pace, scale, and intensity of bilateral military rivalry escalated across the defense spectrum from defense technological competition to contested forward military deployments in the Asia-Pacific region and major adjustments in force structures directly targeting the other side.

The PLA had been very careful in its official public assessments of the United States as a military and strategic threat, but this began to change in the second half of the 2010s. While the 2015 Chinese defense white paper made only mild and indirect comments about the United States, the 2019 version is more pointed and direct in identifying the United States as the main culprit in undermining stability and challenging China's national security through "growing hegemonism, power politics, unilateralism, and constant regional conflicts and war."¹⁷ The white paper adds that the United States "has provoked and intensified competition among major countries, significantly increased defense expenditures, pushed for additional capacity in nuclear, outer space, cyber, and missile defense, and undermined global strategic stability."

Military-Civil Fusion

At the heart of the Chinese techno-security state is the grandiose idea of a strategic economy that seamlessly serves civilian and military needs that Xi Jinping has vowed to create. In a keynote address at the 19th Party Congress in 2017, Xi called for the building of an "integrated national strategic system". This is a daunting challenge because of the long-standing and deeply entrenched separation between the civilian and defense sectors.

The means to achieve this integrated national strategic system is through military-civil fusion, which Xi has pursued since the mid-2010s. Before Xi took office, MCF (军民融合) was a mid-level policy priority that vied for attention with other issues. In 2015, Xi elevated MCF to a national-level priority and called this move a "major achievement

¹⁷ *China's National Defense in the New Era* (Beijing: People's Republic of China State Council Information Office, 2019).

in our efforts of exploring the law of effecting well-balanced development of economic construction and national defense building over a long period and is a major policy decision based on the overall requirements of the national security and development strategies.¹⁸

The rationale for a fundamentally different way of pursuing MCF compared with prior administrations was that the relationship between economic development and national security had significantly altered. The Xi regime now viewed military/security priorities as equally, if not more, important as economic priorities. The formulation of the MCF development strategy took more than five years to complete and steadily grew bolder and bigger over time. This can be largely attributed to Xi's increasing interest and involvement in MCF-related matters. At the beginning of his tenure, Xi was keenly interested and engaged in military modernization, national security, and science, technology, and innovation. As he intensively worked on these domains during his first several years in power, he came to appreciate the role that MCF would play as a crucial link between these topics. This learning experience led Xi to become more actively involved in MCF policy-making and strategic thinking from the mid-2010s onwards. This is most evident in Xi's appointment as the head of the Central Military-Civil Fusion Development Commission that was established in January 2017 to manage the MCF effort.

The MCF development strategy was formally approved in March 2018 and is officially known as the "Military-Civil Fusion Development Strategy Outline" (军民融合发展战略纲要). While this development strategy has not been publicly released, it is clear that MCF is a top priority for the Chinese civilian and military authorities.¹⁹ The MCF development strategy represents a crucial link in Xi's efforts to coordinate between national security, economic development, and technological innovation. The strategy is the last piece in the jigsaw puzzle of national strategies that Xi has drawn up spanning from the IDDS to the HNSO.

¹⁸ "Military-Civil Fusion Is the Strategic Decision for Enriching the Nation and Strengthening the Military," *Liberation Army Daily*, 17 March 2015.

¹⁹ Jin Zhuanglong, "Opening Up a New Era for a New Situation for In-Depth Military-Civil Fusion Development," *Qiushi (求是)*, 16 July 2018.

Conclusion

For the Chinese techno-security state, heightened threat perceptions, centralized top-down coordination and techno-nationalist dependence have been the principal drivers in its development. The Chinese authorities have used deepening concerns over the external security environment since the late 1990s, and especially the grand techno-security threat posed by the United States, as a catalyst to ramp up the development of its techno-security capabilities. This has especially been the case in areas such as strategic deterrence and anti-access/area-denial capabilities.

These perceptions of the U.S. threat have only grown more dire, pressing, and expansive under Xi's tenure and are a hugely powerful existential motivating factor in driving the long-term development of the Chinese techno-security state. Moreover, the aftermath of the Russia-Ukraine war can be expected to add to this impetus as the Chinese and Russian techno-security states enjoy a strong relationship of arms transfers and technological exchanges with each other that stretches back to the beginning of the 1990s.