



**Statement before the
House Committee on Armed Services**

“DOD’s Role in Competing with China”

A Testimony by:

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Chairman Smith, Ranking Member Thornberry, thank you for the opportunity to testify today on the topic of “DoD’s Role in Competing with China.” This topic is a broad one, and I believe appropriately so. China has shown every intention of competing vigorously with the United States, and the rest of the world, in every domain of commercial and military activity. The comprehensiveness of this competition suggests that the United States think broadly about its response. China’s interest in assuming a role of world leadership in both economic and military arenas is not unique, but its potential to fulfill this objective, and to do so in ways that could run counter to U.S. interests, is potentially unique. China is also prepared to work for decades, if necessary, to achieve its strategic objectives. The United States must adopt a strategy to respond to China’s efforts and to shape the nature and direction of this strategic competition to the benefit of the United States and its allies. We must meet the China challenge, as I and many of my colleagues at the Center for Strategic and International Studies put it in our 2018 report on this topic.¹ As China’s efforts are far reaching, determined, and comprehensive, the United States will need to respond with a strategy that is similarly extensive.

It is quite possible, highly likely in fact, that the primary arena in which success in this competition will ultimately be determined is in the commercial economic realm rather than in direct or indirect military competition. However, while the DoD’s role is most significant in the military domains, it has a significant role to play in the broader competition as well by enabling U.S. and allied success in the development of key technologies that are likely to form the commanding heights of global markets in the future. At the same time, DoD is required to compete militarily in a way that deters, prepares for, and if necessary, wins any military engagements that do occur. In exploring DoD’s role, I will focus my testimony on the capabilities and activities of the defense acquisition system, and the ways in which that system will need to operate in order to support U.S. objectives in a competition with China. As the primary means for developing, acquiring, and implementing new military capabilities, the defense acquisition system will be a key part of DoD’ role in meeting the China challenge, and more broadly, the challenge of peer competition with the United States.

Needed Capabilities of the Defense Acquisition System

The most central point to understand is that there is no single solution nor any single area of focus that will ensure the U.S. defense acquisition system can deliver all the capability the nation needs for this strategic competition. The acquisition system will be called upon to do many things that will require an ability to shape and adapt to different priorities and manage different activities. Different elements of the system, therefore, need to be capable of operating in very different manners. At times, the priorities of different parts of the acquisition system will be in tension with one another. These tensions will need to be managed because they cannot be fully eliminated.

The acquisition system will need to be able to develop highly capable, expensive systems that meet the exacting specifications required to operate in the most challenging conditions, such as nuclear weapon systems and long-endurance undersea systems. These are the kinds of challenges

¹ James Andrew Lewis, ed. “Meeting the China Challenge: Responding to China’s Managed Economy,” Center for Strategic and International Studies, January 2018.

the defense acquisition system specialized in addressing during the Cold War. Although the pace of commercial technology development means that alternative, commercially based approaches can meet or exceed the performance of purpose-built defense articles in many areas, the need for an acquisition system capable of developing purpose-built solutions to specific defense requirements remains.

The system also needs the capability to pioneer breakthroughs in fields such as artificial intelligence, quantum computing, directed energy, and hypersonic systems where non-defense oriented research and commercial activity may set the pace of the leading edge of technology, but where fundamental challenges that relate directly to defense requirements remain. Advances in fundamental science and engineering must be made for these technologies to reach their full capability in both defense and commercial applications and DoD can play a critical role, particularly in advancing the art of testing and evaluating these challenging new technologies.² This is another area in which the defense acquisition system excelled during the Cold War, working with private industry and research universities to advance key technologies and building critical test centers that helped advanced the state of the art in both the defense and civilian sectors. Today the concept of the national security innovation base, highlighted in the national security strategy, articulates the importance of working with the research community and the tech sector and the needed linkage to national security.³

In addition to continuing defense acquisition system roles that look familiar from the Cold War era, the acquisition system will also need to increase its ability to perform new roles to compete with China. It will need to be able to follow fast - understanding and catching up to breakthroughs achieved by the Chinese that outpace our own development in key areas. Given the scope and scale of China's efforts and the resources at its disposal, it should be anticipated that China will succeed in achieving breakthroughs in militarily relevant technologies. The defense acquisition system must be capable of rapidly responding in these instances. The acquisition system will need to be able to build adaptable systems, which combine multifunctional capabilities with the ability to add new features so that we can deploy emerging capabilities into military operations rapidly.⁴ Adaptable systems will help the United States maintain technological advantage in areas where we lead, and catch up quickly to technologies on which we fall behind. True technological breakthroughs are relatively uncommon, but adaptable systems can utilize and combine existing technologies in innovative ways that make a major difference. Developing adaptable systems will require a substantial change to how DoD engages in software development.

Perhaps the most critical role for the defense acquisition system in competing with China is building a strong connection to commercial technology providers. DoD has struggled to successfully acquire commercial technology to serve military requirements, especially information technology, and it has also struggled to be a good customer and partner with the

² Lindsey Sheppard, Andrew Hunter, Robert Karlen, and Leonardo Balieiro, "Artificial Intelligence and National Security: The Importance of the AI Ecosystem," Center for Strategic and International Studies, November 2018.

³ <https://www.csis.org/events/implementing-innovation-21st-century-national-security-innovation-partnership-conference>

⁴ Maura McQuade, Andrew Hunter, and Schuyler Moore, "Acquisition of Software-Defined Hardware-Based Adaptable Systems," Center for Strategic and International Studies, August 2019.

commercial sector. The acquisition system will need to leverage and support a robust network of commercial technology providers so that DoD remains in touch with the cutting edge of fast-moving commercial technology. DoD's investments can also serve to support the United States' larger economic and strategic objectives where they can appropriately serve such a role, particularly through its work with the national security innovation base.

Relatedly, the competition with China features a struggle to shape and master global supply chains across a range of today's key industrial sectors such as semiconductors, networking technology (including 5G), advanced materials, and data analytics, as well as the key industrial sectors of tomorrow such as quantum-based systems, intelligent systems, and synthetic biology. One real possibility is that today's global supply chains, in which the United States and China are highly dependent on one another, will bifurcate between a Chinese-led supply network and a separate network of U.S.-affiliated market economies. Such a bifurcation could take different forms where, for example, each country would be ultimately forced to choose one or the other network or even where individual firms would have to make such a choice. However, it is also distinctly possible that global supply chains persist for the most part, but each supply chain becomes a source of intense, continuous strategic competition. In either scenario, the defense acquisition system will need the ability to manage supply chains in a more complex business and security environment than ever before. And it will need to do so in a manner that does not divorce DoD from commercial suppliers.

China's Acquisition of Defense Capabilities

China has developed structures for providing all the acquisition capabilities described in the preceding section. While China's structures aren't ideal, or even always terribly effective, China is making notable progress along each of the major lines of effort required for the acquisition of effective defense capabilities.

In the arena of complex weapon systems purpose-built for defense requirements, China has made significant progress in becoming a developer of defense capability. From rockets and missiles, to ships and submarines, to fighter aircraft and defense electronics, China has significantly advanced the number and capability of its defense assets. While the quality and capability of China's systems currently remains somewhat behind Western standards in most areas, its ability to produce new systems in volume and at relatively low cost makes its development and production of new weapon systems an area of real concern. What is notable is how extensive China's development of new systems across all military domains has been. China has spared little in this effort. It has significantly ramped up its defense budget in recent years while retooling its force structure. This combination has allowed China to dedicate substantial resources to investing in new systems. It has also bought, leased, copied, and stolen defense technology and design information liberally.

China's progress in defense technology, however, is likely not the result of it having cracked some previously unknown code for defense acquisition. While it is challenging to gather accurate information on developments in China, an unpublished CSIS assessment of timelines for developing major weapon systems suggests U.S. and Chinese timelines for developing new

purpose-built defense systems is quite similar.⁵ China's advantages in growing resources, lower costs, and access to technology shortcuts is likely offset by weaknesses in corporate structure, manufacturing quality and sophistication, and experience. Indeed, China's greatest advances have usually built on areas notable for their commercial success, such as shipbuilding and electronics. China's commercial activity in these sectors have built up impressive reservoirs of industrial capacity and human talent. China has also shown the capability for being a fast follower, building its own versions of U.S. systems like long-endurance drones and stealth aircraft. China's research capacity is also impressive. Its research institutions are robustly supported by the government, and Chinese researchers are at the leading edge in many scientific fields, often serving as co-authors on papers published by leading U.S. research institutions.

The size and growth of the overall Chinese market serves as a key reinforcing function for its efforts, sometimes allowing China to progress despite deep flaws in the design and implementation of its programs. A key element of China's strategy is to leverage this market size effect to its advantage in the military sector through its policy of "Civil-Military" fusion. Civil-military fusion inherently links technology development efforts in the civilian and military arenas to ensure that the best technology is provided to China's People's Liberation Army. It links China's dynamic technology companies to its government-sponsored research institutes and legacy defense industry comprised of state-owned enterprises that have historically been much less dynamic. China's Civil-Military fusion approach reinforces and leverages the "national champion" companies that are promoted in China's overall economic policy, and at the same time, reinforces the leverage of the state over the private sector. The size of China's market not only draws resources in, but it can distort global markets in ways that China seeks to leverage to its advantage by capturing market power over key supply chains to expand its industrial capabilities.

As a whole, China's approach to competition with the U.S. in producing defense capabilities has both key strengths and key weaknesses, but it's comprehensive nature and the deep level of commitment to it from national leadership necessitates a serious U.S. effort in response.

Needed Changes in the US Defense Acquisition System

There are several efforts underway in the defense acquisition system that are crafted to deliver the capabilities needed for the competition with China. In several areas, CSIS research has been done in recent years that discussed these developments and makes detailed recommendations. I've worked to reference these reports throughout this testimony.

A core concept in the effort is the capability to apply multi-faceted and distinct approaches to different elements of the competition, a concept captured in DoD's Adaptive Acquisition Framework. The framework specifies a wide range of processes and pathways to developing defense capabilities that can be applied to different lines of effort. While the concept has been formally embraced in policy, DoD is only beginning to develop the capacity to use many new elements of the Adaptive Acquisition Framework and has yet to identify best practices for the

⁵ CSIS is performing a study of schedule in major defense acquisition programs through a research grant awarded in 2019 by the Naval Postgraduate School. Publication of the completed study is scheduled for fall 2020.

use of approaches such as the middle tier of acquisition and new software acquisition pathways. A key test will be DoD's ability to field and deploy capabilities developed through alternative approaches in the framework, something which has not yet been demonstrated at scale. Appropriate acquisition pathways for software development within the Adaptive Acquisition Framework will take significantly more development to meaningfully enable strategic competition with China, and an adaptable systems lane within the framework would help DoD accelerate the deployment of new capabilities.⁶

Another central concept in the effort is the national security innovation base. This concept has grown from DoD's initial outreach to the tech sector through the Defense Innovation Unit Experimental (DIUX) to today, where a growing body of major technology companies are actively competing for DoD business in cloud computing and big data applications. While episodes such as Google's withdrawal from Project Maven show that there are real threats to DoD's ability to access the national security innovation base, the overall situation is currently one of increasing engagement. The research university component of the national security innovation base is also deeply engaged with DoD but is challenged by the fact that a high proportion of graduate students in key fields are non-U.S. citizens without security clearances. These thorny issues between DoD and its partners in the national security innovation base show that management of human capital is one of the key issues in the strategic competition with China. The U.S. is in a competition for talent with China and must protect its ability to appeal to the best technical talent as a core asset. The continuing dynamism of the U.S. economy depends on this asset.

Clarity on the key technologies of the future is also beneficial. The National Defense Strategy (NDS) enumerates a set of core technologies vital to national defense that are highly congruent with the key technologies being pursued in the commercial sector. This clarity will help DoD and the federal government more broadly engage in a focused dialogue with the national security innovation base, and the rest of the private sector, on developments in the strategic competition with China to leveraging private sector R&D in core technologies.⁷ A key missing ingredient to date, however, has been a serious DoD commitment to investing in the key technologies identified in the NDS. While DoD's investment accounts have grown substantially in the last three years, this growth has been highly concentrated in buying systems from existing production lines and doing prototypes of military systems. New investments in the NDS technologies have been modest in comparison, particularly with some of the fundamental science and engineering challenges that confront both DoD and its commercial counterparts. More robust investment in these technologies will not only speed their development, but also support diversifying risk in technology development across the economy through greater competition.

Furthermore, the strategic competition with China gives rise to challenges that can undermine the defense acquisition system's ability to stay linked to commercial markets. China's aggressive use of cyber technology theft and the threat of counterfeit parts has led to efforts protect defense

⁶ Maura McQuade and Andrew Hunter, "The Change We Need: Making Defense More Future Proof through Adaptable Systems" Center for Strategic and International Studies, March 2019.

⁷ Ryan A. Crotty and Andrew P. Hunter "Keeping the Technological Edge: Leveraging Outside Innovation to Sustain the Department of Defense's Technological Advantage" Center for Strategic and International Studies, September 2015.

supply chains, sometimes in ways that could unintentionally cut DoD off from access to commercial markets.⁸ Our current efforts to protect defense supply chains are hindered by the fact that control of our supply chains is highly fractured and frequently obscured. We have a long way to go to achieve the mastery of supply chains which the United States and its allies will need in this strategic competition. A close and continuing dialogue with industry is required to build effective supply chain awareness and enable sound supply chain management.

Finally, I recommend that the committee consider establishing some core metrics for evaluating the defense acquisition system's performance in meeting the China challenge and require that these metrics be monitored over time. At a minimum, such metrics should include the level of DoD's investment in the key NDS technologies and success in leveraging commercial R&D in these areas, the acquisition system's performance in developing and fielding purpose-built military systems such as the performance reports DoD published from 2013-2016, measures of DoD's engagement with different elements of the national security innovation base, and measures of DoD's ability to identify and manage key risks in its supply chain.

I thank you for the opportunity to submit this testimony.

⁸ Dwyer, Morgan, "Does the Defense Department's New Approach to Industrial Base Cybersecurity Create More Problems Than It Solves?" Center for Strategic and International Studies, December 18, 2019.