Defense Paper Series

Adaptation War – Confronting the New Adversary Learning and Adaptation Bloc

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Introduction

When writing the next National Defense Strategy (NDS), the most important priority to emphasize will be the need to cultivate a culture of adaptation across the Department of Defense. Without such a transformation, none of the other urgent problems facing the Department – such as preparing for great power competition against China, reforming the acquisition process, harnessing emerging technologies, or modernizing the force, will be achievable. A defence enterprise that remains risk-averse, rigid, and bureaucratic will struggle to implement even the most well-conceived strategies, while one that embraces adaptation and innovation will be capable of turning strategic intent into operational reality. In this sense, cultural change is not simply another priority; it is the essential precondition for success across every other dimension of national defence.

American adversaries have already learned this lesson. During the ongoing invasion of Ukraine, Russia has *learned to learn* more quickly and to disseminate lessons throughout their military and industrial systems with increasing speed. While Ukrainian forces often outpace Russian innovation, Russian forces have learned to be fast followers.[1]

This learning and adaptation enterprise spawned by the war in Ukraine, as well as the different wars in the Middle East, has now metastasised into an international learning and adaptation competition. A new adversary learning and adaptation bloc has emerged. While not a formal alliance, China, Russia, Iran and North Korea have developed a mesh of different agreements and strategic partnerships that have allowed them to construct a connected knowledge market on 21st century strategic competition and conflict. This forms the basis of a larger Adaptation War against America. Investigating, understanding and responding to this Adaptation War should be the highest priority for the Department of Defense.[2]

Characterizing the Adaptation War

Understanding the *character* of the Adaptation War can provide insights into the strategic strengths and vulnerabilities of potential adversaries. These insights can inform the prioritisation of the kinds of learning and adaptation required by America and its allies. Like the character of war, the character of the modern adaptation war will evolve over time. However, the current character of the Adaptation War is described in the following paragraphs.

Concurrency. Learning and adaptation are occurring at many different levels, in many different organisations across multiple geographic regions concurrently. It is a multi-domain learning and adaptation environment, with efforts underway in the ground, air, space, maritime, cyber and information domains. This parallel learning and adaptation can complicate understanding the entirety of all dimensions of the adaptation war. But the enormous complexity of concurrent

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[1] This insight was provided by the author's interviews of multiple senior Ukrainian military personnel during visits to Ukraine in 2025 and 2024.

[2] *Offset-X: Closing the Deterrence Gap and Building the Future Joint Force,* Special Competitive Strategies Project at 21-22 (2023).

learning at multiple levels of organisations and nations, because of the human nature of learning and adaptation, will also unveil many gaps and vulnerabilities in adversaries and in our allies.

One Learns, All Can Learn. For the first time in human history, the adaptation war has spawned the potential for a real-time, global knowledge market among authoritarians and potentially, among America's allies and security partners. In previous eras, learning took time to be absorbed into organisations, and even longer to share between organisations and nations. Now, there is the potential for all members of an adaptation community, regardless of their location, to access lessons almost as soon as one member can collect and analyse them. This means that among America's competitors, when one learns a lesson about America's weaknesses or vulnerabilities, all of them can benefit from the lesson.

Uneven Learning. Notwithstanding the potential for the global knowledge market in the Adaptation War, learning and adaptation is ultimately a human endeavour. Organisations might seek to automate collection, analysis and dissemination through AI, but this system still requires humans at the point of learning and collection and for humans to accept and implement lessons at different organisational levels and in different cultures and nations. This human dimension of the adaptation war can be a strength but also provides many vulnerabilities.

Military institutions, and the different agencies in a nation's security apparatus, rarely compromise a monoculture. Individual services within each military organization possess their own cultures and even sub-cultures.[3] Different cultures arise within individual organisations and this can provide targetable 'seams'. As such, different learning cultures differ between adversary institutions and nations is a vulnerability. Understanding this uneven learning underpins vulnerability assessments.

Imperfect Insight. It is unlikely that full visibility is achievable about what the adversary learning and adaptation bloc is doing, as individual nations or collectively. Just as war is full of uncertainty, knowledge of adversary learning and adaptation endeavours will also be rife with uncertainty. The efforts of military attaches, intelligence agencies, open-source collection, business intelligence and luck will all provide insight into how adversaries learn and adapt, but there will always be gaps.

Not a Technological but an Intellectual Competition. Learning and adaptation is a human trait. While insights about technology play a role in learning and adaptation, human decision-making, energy, and creativity are critical elements. Even if AI becomes more central to learning and adaptation, the adaptation war will remain a largely human endeavour. Providing the right purpose and incentives for learning and adaptation, and undertaking the right training, educational and organization reform to improve friendly learning and adaptation is vital.

However, military institutions of all types experience bureaucratic inertia and other human factors that impedes change. This has been observed and documented in all western military institutions as well as in Russia and China. For example, obstacles to reform in the Russian military have been assessed by some as the result of imbalances in civil-military relations and dysfunctional civilian

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[3] Peter Mansoor and Williamson Murray, *The Culture of Military Organizations*, Cambridge University Press at 457 (2019).

control.[4] Others have pointed to a highly centralised bureaucracy, widespread corruption and an over-emphasis on theory over implementation.[5]

China too has experienced challenges in military reform. The historical dominance of the ground forces and inter-service rivalry has impeded change.[6] Other issues for the reform of the People's Liberation Army have been identified as corruption and distrust between the Chinese president and his military forces.[7] The imperative for political indoctrination and conformity in the People's Liberation Army may also conflict with the ability of commanders to lead the development of a learning culture and military innovation.[8] Therefore, while human agency plays a central role in learning and adaptation, it can also lead to obstacles in the innovation process. This, like uneven learning, provides targetable vulnerabilities

Speed. What makes this new global Adaptation War more challenging to respond to, is the speed at which authoritarian actors are learning, adapting and sharing lessons among themselves. As the British Future Operating Environment 2035 report notes, "the rate of technological change will accelerate out to 2035, serving to highlight inadequacies in less adaptable procurement processes within Defence. Civil companies will be able to raise revenue far more quickly, driving technology development in new directions and at faster rates."[9] Since 2022, both Russia and Ukraine have demonstrated the ability to learn how to learn better, and to do this learning and adaptation at a faster pace over time. Recent examples include:

- Drone and counter-drone adaptation is accelerating.[10]

- The Ukrainian Unmanned Systems Force and Russia's Rubicon Centre of Advanced Unmanned Systems is unifying drone and EW operations, learning and adaptation.[11]

- Battlefield tactics are changing frequently, especially on the Ukrainian eastern front.[12]

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[4] Kirill Shamiev, Brass Tacks: Why Russia's Military Fails to Reform, European Council on Foreign Relations (2024).

[5] Katherine Kjellstrom Elgin, More of the Same? The Future of the Russian Military and its Ability to Change, Center for Strategic and Budgetary Analysis (2024).

[6] Joel Wuthnow and Phillip Saunders, Chinese Military Reform in the Age of Xi Jinping, Institute for National Strategic Studies (2017).

[7] K. Tristan Tang, Xi Struggles to Keep Military Construction Reform on Course at Two Sessions, The Jamestown Foundation (2025); Masaaki Yatsuzuka, New Chinese reform addresses overlaps, reflects challenge of military control, Australian Strategic Policy Institute (2024).

[8] Joel Wuthnow and Phillip C. Saunders, China's Quest for Military Supremacy, Polity Books at 22-23, 29-30 (2025).

[9] Future Operating Environment 2035, UK Ministry of Defence at 14-15 (2015).

[10] David Hambling, Ukraine Deploying 'Tens Of Thousands' Of Interceptors To Stop Shaheds, Forbes (2025). Insights into timeframes for change gained from author interviews with key Ukrainian military personnel in 2024 and 2025.

[11] Dara Massicot, Rubicon Center, Twitter (2025); David Axe, Lying In Wait On The Ground, Russia's Best Attack Drones Devastate Ukrainian Convoys, Forbes (2025).

[12] Insights into timeframes for change gained from author interviews with key Ukrainian military personnel in 2024 and 2025.

■ An increasing application of AI in military organisations, and its potential to significantly accelerate learning and adaptation.[13]

America's Response to the Adversary Learning and Adaptation Bloc

There is an array of relationships between nations in the adversary learning and adaptation bloc. But the nature of these linkages, between Russia and Iran, as well as between Russia and China, can provide insight into the limitations of such relationships.[14] This in turn permits the construction of strategies to undermine such relationships. To aid in the development of these strategies, four key findings about the Adaptation Ware are proposed, with each accompanied by recommendations.

Finding 1: Ukraine and Russia have *learned to learn* more quickly in the past three years, and to proliferate lessons into their military and industrial systems with increasing speed.

Recommendation: The Department of Defense must embrace adaptation as an integral aspect of its institutional culture. Senior leaders should nurture people and teams incentivised and resourced to continuously learn and that are capable of adapting quickly.[15] This culture begins with clear statements about leadership tolerance for risk and new ideas. Appropriate authorities are necessary for leaders to aggressively conduct decentralised, but linked, adaptation.

Recommendation: Leadership selection plays a central role in rapidly closing the gap between the emergence of new technology and its adoption by military institutions. The selection of all military leaders should include assessments of their risk tolerance, and how they nurture learning and innovation in subordinates. Service Chiefs and senior joint leaders must define the range of acceptable failures, and leaders at all levels must make clear statements about their willingness to absorb risk to permit subordinates learning and adaptation.[16]

Recommendation: The Department of Defense should increase investment in learning how Ukrainian, Russian and other military organisations have learned how to learn.

Finding 2: Learning and adaptation in Ukraine, as well as in the Middle East, has metastasised into an international learning and adaptation competition. A new adversary

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[13] See my exploration of how AI can improve learning and adaptation here: Mick Ryan, Supercharging Adaptation: AI and War in the 21st Century, Australian National University (2025)

[14] András Rácz and Alina Hrytsenko, Partnership Short of Alliance: Military Cooperation Between Russia and China, CEPA (2025).

[15] This senior advocacy is one of the essential elements of successful institutional learning and reform. For a useful case study involving the massive transformation of the US Army in the wake of the Vietnam War, see Don Starry, To Change an Army, Military Review at 20-27 (1983).

[16] This senior advocacy is one of the essential elements of successful institutional learning and reform. For a useful case study involving the massive transformation of the US Army in the wake of the Vietnam War, see Don Starry, To Change an Army, Military Review at 20-27 (1983).

learning and adaptation bloc has emerged. When one of the parties of this bloc learns, all of them can learn.

Recommendation: Vulnerable elements of the adversary learning and adaptation bloc should be targeted by America and its partners in a collaborative effort to match and better the adversary learning and adaptation bloc. In support of this work, an Indo-Pacific version of the NATO Joint Analysis and Lessons Learned Centre should be formed and linked to the Commander of Indo-Pacific Command as well as the Department of Defense for rapid dissemination of lessons.

Recommendation: The United States and its allies should develop a better understanding of the relationships between different adversary nations to better understand how the flows of knowledge between different nations are, and are not, impacting their military effectiveness. Better understanding the nature of these linkages, between Russia and Iran, as well as between Russia and China, would also provide insights into the limitations of such relationships.

Finding 3: In Western military organisations, there remains a gap in time between when problems are recognised by an institution, solutions are identified, and the technological, conceptual and organisational elements of the solution are disseminated and implemented.

Recommendation: The learning and adaptation activities of the Department of Defense should focus on closing the gap between the emergence of new technologies and battlefield employment by having leaders take more risk with innovation. This will require an increased institutional tolerance for failure, which is a crucial element of learning and adaptation.

Finding 4: New technologies to gather information from commercial and military sources and prioritise the analysis of the most compelling insights offers the potential to better understand adversary learning and adaptation, and to improve U.S. learning and adaptation.

Recommendation: The Department of Defense should implement tailored analytical AI for strategic and operational functions to support learning and adaptation. AI can help fuse disconnected learning processes, accelerate analysis, speed up and enhance the quality of military adaptation and strategic decision-making. The U.S. should share this AI-supported learning and adaptation key allies and security partners.

Leadership Creates Culture

The 2018 National Defense Strategy described how "the current bureaucratic approach, centered on exacting thoroughness and minimizing risk above all else, is proving to be increasingly unresponsive."[17] The strategic threat of this institutional lack of agility is magnified by that posed by the adversary learning and adaptation bloc. The pace and breadth of learning, as well as the productive challenge of these four states combined means that they pose a considerable challenge to global stability as well as the security of individual democratic states.

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[17] [Summary of the 2018 National Defense Strategy of the United States of America](#), Department of Defense at 10 (2018).

To overcome the challenge of the Adaptation War will take deeper learning collaboration within the Department of Defense, and between the military, intelligence and other national security agencies of other allies and partner nations. Most importantly, sustained and visible leadership from political and military leaders to build and sustain adaptation cultures will be crucial. Adaptation in technology, organisations and ideas is now moving at a speed that challenges legacy approaches and thinking on the conduct of conflict. This must change. The 2025 NDS must focus on generating America's competitive advantage in the 21st century by setting the necessary conditions and culture to win the new Adaptation War.