

## **Cognitive Superiority: An Imperative for Winning in Multi-Domain Operations**

As the United States military continues to explore and understand the importance of achieving cognitive superiority in future conflict and multi-domain operations, are we falling behind peer competitors? Doctrine related to the cognitive domain is missing. Professional development and leadership vision and guidance is pre-decisional. Competition for technological superiority is unyielding. Supremacy in educating future generations that will serve is flailing. Finally, U.S. military organizational learning and adaptability are constantly challenged. What does all this mean and how should the military consider achieving cognitive superiority?

Achieving cognitive superiority is not adequately addressed in U.S. military doctrine. In late 2018, the United States Army Training and Doctrine Command published a document – *The U.S. Army in Multi-Domain Operations, 2028* – outlining how the Army will “compete, penetrate, disintegrate, and exploit” adversaries in future conflict. The document predicts that in an era of great power competition, in which conventional military conflict will be avoided, adversaries will confront and challenge U.S. power unconventionally and asymmetrically to fracture and erode our strategic advantages. The document describes how adversaries are developing and deploying capabilities “*in all domains* – Space, Cyber, Air, Sea, and Land” (italics added) to defeat U.S. forces.<sup>i</sup>

The cognitive domain is missing in this strategic document despite the fact that it will be decisive in the future of multi-domain operations. The cognitive domain of war has been explored and contested for centuries. Chinese strategist and philosopher, Sun Tzu, refers to winning war through intelligence, information, and deception; attacking enemies where they are least prepared; and breaking resistance and subduing adversaries indirectly without fighting.

Current Chinese military doctrine continues to recognize the importance of the cognitive domain, particularly in pre-conflict or crisis stage in the continuum of conflict. In the initial stages of

conflict, deception and unconventional “attacks” in the cognitive domain will shape how adversarial populations think. They will target a nation’s human capital. They will target societal weaknesses, social networks, and cyber and information systems.

By attacking, weakening, and defeating “systems” across all domains, they will compromise their adversary’s strategic advantages, as well as their deterrent capabilities. Liberal democratic societies will have a cultural resistance to militarizing the cognitive domain. Despite this resistance, to achieve national security objectives, protect national security interests, and prevail requires achieving cognitive superiority. But, what does that mean for a vision of U.S. military professional development, leadership, and education?

The Joint Staff currently has a DRAFT document entitled, “Developing Today’s Joint Officers for Tomorrow’s Ways of War, The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management.”<sup>ii</sup> The document appears to be pre-decisional and pending approval. Regardless, it recognizes that “the evolving and dynamic security environment, which includes disruptive changes in the character and conduct of warfare, demands immediate changes to the identification, education, preparation, and development of our joint warfighters...This cannot be achieved without substantially enhancing the cognitive capacities” of our military.

Achieving cognitive superiority requires more than enhancing the cognitive capacities of our military. It requires military leaders and civilian elites with the cognitive complexity, intellectual curiosity, political will, and courage to understand the national security implications of the cognitive domain. It requires understanding the importance of credibility and legitimacy in communicating to the public and across governmental institutions to coordinate all elements of national power in

protecting and retaining strategic advantage. A fundamental advantage the U.S. has historically retained is in technological innovation and augmentation.

Achieving cognitive superiority through technological advantage and augmentation translates into being able to gather, decipher, process, and understand tremendous amounts of data and information faster than the enemy. Fusing this capability with cloud-enabled computing, robotics, artificial intelligence, and virtual reality, augments the decision-making process, multi-domain operations, and the learning and adaptability of military organizations at the tactical, operational, and strategic levels. Communicating this knowledge internally and externally faster than a competitor is imperative. It provides the ability to get inside an enemy's decision-cycle; influence their perceived reality; and impose our will.

While Frederick the Great's and Clausewitz' *coup d'oeil* will always play a role in warfare, the ability to see things simply and innately is challenged as information, disinformation, and both true and false knowledge grow at exponential rates. Technological capabilities can augment our capacity to decipher fact from opinion, truth from falsehood, and science from conjecture. This faculty also relies on how we educate future generations that will serve in the military.

Achieving cognitive superiority is directly impacted by public policy related to education. Cognitive limitations come with being human. The ability to think rationally is limited or bounded. An example of bounded rationality is in how individuals instinctively use mental short-cuts to make decisions. Our emotions, belief systems, culture, education, and experience "assist" us in filtering the overwhelming information to which we are exposed. We filter information to create and reinforce perceptions of reality that conform to our values and beliefs.

To counter these limitations and achieve intellectual overmatch with our enemies, we must invest in public education.<sup>iii</sup> The public education system of the United States was once one of our

greatest strengths. Ranked first in the world in the 1960s and 1970s for producing high school graduates, the United States now ranks tenth globally.<sup>iv</sup> As public education has become politicized, we have hobbled ourselves as a nation. Our failure to understand the long-term implications of divesting in public education is crippling future generations, our society as a whole, and our competitiveness globally.

Understanding science and possessing the ability to think critically, for example, can counter against deception by our enemies, misinformation campaigns by bad actors, and distractions by charlatans that prey on ignorance and superstition. Educated, informed, critical thinking improves our ability to discern between true and false knowledge. Achieving this objective requires investment in our educators and commitment to life-long learning – from cradle to grave. An educated society, workforce, and military is critical at an individual level, as well as at an organizational level.

Achieving cognitive superiority at the organizational level requires a tiered, multi-dimensional approach to ensure organizational learning and adaptation are feasible. These dimensions include the individual, group, and organization; all levels of government; and all elements of national power. Coupling investments in technological advantage with investments in human capital enables comprehensive organizational learning and adaptation. Investment is not just about money, however. It is also about time and leadership

Successful organizational learning and adaptation requires investment in a healthy organizational culture.<sup>v</sup> Healthy organizational culture emphasizes and reinforces professionalism, discipline, common values and ethos, and competition. Studies suggest that organizations that reinforce these attributes are better prepared to cope with competitive, complex, uncertain, strategic environments.<sup>vi</sup> Achieving this takes time and the right leadership.

General James Mattis suggests that U.S. advantage across all domains of war have eroded.<sup>vii</sup> Political pundits and academics tend to agree. Our adversaries are no longer trailing behind.<sup>viii</sup> If accurate, our disadvantage has bipartisan blame. Indeed, our adversaries have foraged and stolen our intellectual property for decades unhindered and unpunished.<sup>ix</sup> Yet, the United States has distinct advantages that it must leverage.<sup>x</sup> American ingenuity and entrepreneurial spirit give it a winning advantage. However, to achieve cognitive superiority requires an unprecedented level of public-private partnership between government and industry.

In the end, the U.S. must understand the implications of information rapidly becoming a predominant form of national power. We know we are in the “Information Age.” Yet, as a society, we have not accepted the full implications for our polity and U.S. national security. Additionally, we must understand that conflict in the cognitive domain equates to persistent, unrestricted warfare in a gray zone between war and peace. It will target the entirety of a nation’s human capital. It will cause us to question our actions and responses to enemy provocations.

If we assume our adversaries will attack where our defenses are weakest, we must anticipate great power conflict and multi-domain operations in the cognitive domain. The keys to achieving superiority in the cognitive domain are in our possession. Comprehensive investment, public-private partnership, and bipartisan leadership will determine whether we win. Shortsightedness, parochialism, partisanship, and political polarization will determine whether we lose.

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<sup>i</sup> U.S. Army Training and Doctrine Command. 2018. "The U.S. Army in Multi-Domain Operations 2028." *TRADOC Pamphlet 525-3-1*. Found at [https://www.tradoc.army.mil/Portals/14/Documents/MDO/TP525-3-1\\_30Nov2018.pdf](https://www.tradoc.army.mil/Portals/14/Documents/MDO/TP525-3-1_30Nov2018.pdf)

<sup>ii</sup> Joint Staff. 2019.

<sup>iii</sup> Joint Staff. 2019. "Developing Today's Joint Officers for Tomorrow's Ways of War." The Joint Chiefs of Staff Vision and Guidance for Professional Military Education and Talent Management. Found at [https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs\\_vision\\_pme\\_tm\\_draft.pdf?ver=2019-10-17-143200-470](https://www.jcs.mil/Portals/36/Documents/Doctrine/MECC2019/jcs_vision_pme_tm_draft.pdf?ver=2019-10-17-143200-470)

<sup>iv</sup> Klein, Joel and Condoleeza Rice. 2012. "U.S. Education Reform and National Security." Council on Foreign Relations. March. Found at <https://www.cfr.org/report/us-education-reform-and-national-security/>

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<sup>vi</sup> Pierce, James. 2010. "Is the Organizational Culture of the U.S. Army Congruent with the Professional Development of Its Senior Level Officer Corps?" The Letort Papers. September. Found at <https://publications.armywarcollege.edu/pubs/2097.pdf>

<sup>vii</sup> Mattis, James. 2018. "Remarks by Secretary Mattis on the National Defense Strategy." Transcript. January 19. Found at <https://defense.gov/Newsroom/Transcripts/Transcript/Article/1420042/remarks-by-secretary-mattis-on-the-national-defense-strategy/>

<sup>viii</sup> Edwards, Charlotte. 2020. "China will 'rule the planet' until 2100 if it wins AI war against USA, expert claims." The Sun. January 22. Found at <https://thesun.co.uk/10794468/country-with-best-artificial-intelligence-rule-world/>;

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<sup>ix</sup> Department of Justice. 2020. "Harvard University Professor and Two Chinese Nationals Charged in Three Separate China Related Cases." Office of Public Affairs. January 28. Found at <https://justice.gov/opa/pr/harvard-university-professor-and-two-chinese-nationals-charged-three-separate-china-related>

<sup>x</sup> Gill, Indermit. 2020. "Whoever leads in artificial intelligence in 2030 will rule the world until 2100." Brookings. January 17. Found at <https://brookings.edu/blog/future-development/2020/01/17/whoever-leads-in-artificial-intelligence-in-2030-will-rule-the-world-until-2100/>