Leadership Matters

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Looking back to 2010 and the creation of Army Cyber Command, I am impressed by the tremendous progress in developing, employing, and sustaining those capabilities required to operate in the cyber domain, including the electromagnetic spectrum, at scale. Advances in cyber policy, force design, force development, and operational deployment are stunning with the creation of a branch, units, and operating concepts and practices. Yet this progress remains fragile, and we must continually adapt because change is an enduring characteristic of war and in this domain, change happens at warp speed. There are significant opportunities and challenges ahead for our people and teams, as well as for our future operations and technologies. Future cyber forces will neither resemble nor operate like today's forces. Operational concepts are changing. We are experiencing revolutionary changes in technology, and much of that change applies both to the government and commercial sectors and can be used for good or evil. Thus, this note is a call for every cyber leader to exercise the fundamentals of leadership to ensure that our cyber force into the future will remain unequaled.

The Army's adaptation to build, sustain, and employ the initial cyber capabilities as envisioned is largely complete – but it is also insufficient. General Nakasone called this out at the Intelligence and National Security Alliance Leadership Breakfast in December 2023 saying, "I think all options are on the table except status quo."[1] To engage this challenge will require fully and perpetually engaged leadership, willing to imagine and doing the hard work of leading change within the Army's cyber community.

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is the United States Military Academy Academic Chair for Cyber and has served the Nation for over 36 years, including assignments in Germany, Bosnia-Herzegovina, Iraq, and Korea. From September 3, 2013 to October 14, 2016, he transformed and scaled U.S. Army Cyber Command into the peerless cyber force we know today, with new organizations (including Task Force Ares), operational constructs, headquarters, and talent models that served as the foundation for the ARCYBER of today. Since retirement he has created a portfolio approach focused on helping individuals and teams tackle and solve intractable problems.

The cyber domain is a man-made, contested, and competitive domain that is continuously evolving and adapting with the ever-changing convergence and divergence of people, technologies, and processes. It is characterized by disruptive technologies and applications. Time is a critical component – software changes at the speed of new code, hardware at the speed of new chips, and people at the speed of new ideas. This domain will always be somewhat unstructured; hence, today's established law, authorities, regulations, processes, structure, and concepts may be inappropriate, or even dysfunctional, tomorrow. This dynamic renders even more important the question: why?, which in turn forces continuously revisiting the purpose behind our missions and operations, especially when the current structures, processes and tools increasingly become constraining rather than enabling.

As the character of war in competition, crisis, and conflict evolves, so too must our strategies and capabilities with constant invention, innovation, and integration of cutting-edge technologies and operations. Our Soldiers, Civilians, Industry and Academic partners from Army Cyber Command and the supporting/supported Army and Joint organizations will lead this effort to increase the effectiveness of our Army and further the broader missions of our Nation. Our storied history of past achievement was built by the dedication of those who went before us. Going forward, the sheer pace of change renders that pioneering spirit more important than ever. As leaders, we are responsible for inspiring and motivating those we lead not only to accomplish today's missions, but even more important, do the hard work of understanding, visualizing, describing, and directing tomorrow's cyber force.

People thrive when driven by a shared sense of purpose, impactful mission, and a strong sense of community. Cyber is brimming with opportunities for growth and contribution. Embracing the traits and norms of dynamic, innovative cultures is a collective endeavor

that requires internalization and adaptation. Effective communication and idea-sharing are paramount in this endeavor. It aligns seamlessly with the Army's renewed emphasis on professional writing, exemplified by the Harding Project.[2] The power of writing extends beyond mere documentation; it directly shapes policy, disseminates valuable lessons learned, and informs critical debates within the Army, particularly regarding realms like cyber and electronic warfare. As such, this journal must evolve into one of the primary platforms facilitating such exchanges within our ranks. We must all scrutinize ourselves with a critical eye, seeking avenues for improvement and sharing insights that elevate our collective community. While introspection is essential, we must also cast our gaze outward, exploring novel approaches to capability development and operational enhancement. Only by synthesizing external perspectives with our internal realities can we maintain a perpetual combat edge in effectiveness and resilience. Effective leaders improve the community every day, always making it better than they found it.

Good leaders must have a competitive mindset – to be and stay the best. Harvard Business School Professor Michael E. Porter, the author of *The Competitive Advantage of Nations*,[3] wrote extensively on competition, encouraging a focus on gaining, maintaining, and sustaining a competitive advantage through a culture of continuous improvement, innovation, and inventions. This mindset is essential to success in our domain. For example, artificial intelligence and large language models are causing sweeping changes today across the commercial sector. How is the Army moving at speed and scale in harnessing these technologies for cyber and electronic warfare? Competitive edge is not limited to technologies – the same exists for concepts. The concept "hunt forward" has been outstanding in delivering advantage for our partners and allies. What is the next big concept? Given advances in digitization, mobile, cloud adoption, advanced connectivity, and artificial intelligence, new concepts are needed at scale for both offense and defense.

Technology and concepts alone are inadequate – our real competitive advantage remains our people. The way we recruit, train, educate, deploy, and retain our force also must adapt. Again, the warp speed pace of change today – some highlighted above – requires everyone in our force to be life-long learners, perpetually looking outside the box. I also believe in permeability – people need to move seamlessly in and out of our cyber forces. For example, the advances in large language models are moving much faster in commercial industry. Large language models may have the highest probability of causing disruptive levels of change within our force in the near term. How best can we leverage our commercial sector capabilities?

Aviation efforts to build, develop, and test new aircraft and new technologies are commonly referred to as "pushing the edge of the envelope." The flight envelope of an aircraft is commonly referred to as a Vg diagram, the linear representation of speed and altitude, representing the upper and lower limits of speed, power, maneuverability, altitude, etc of a given

aircraft.[4] Pushing the edge of the envelope entails looking "out there,' to and even beyond the outer limits, to see where we can go, what we can do, and what we can learn. As cyber leaders, we must call upon ourselves, and each other, to push the envelope's edge. Just like aviation, each specialty in cyber has its own Vg diagram with limits of what is technologically possible today. Pushing the limits of AI, machine learning, the electromagnetic spectrum, and quantum computing will provide us, or our adversaries, the leverage to shape the future to our ends. If we don't do it, it will be shaped by an adversary that gets there first. We should strive always to know where the edge of the envelope is and push out past that edge.
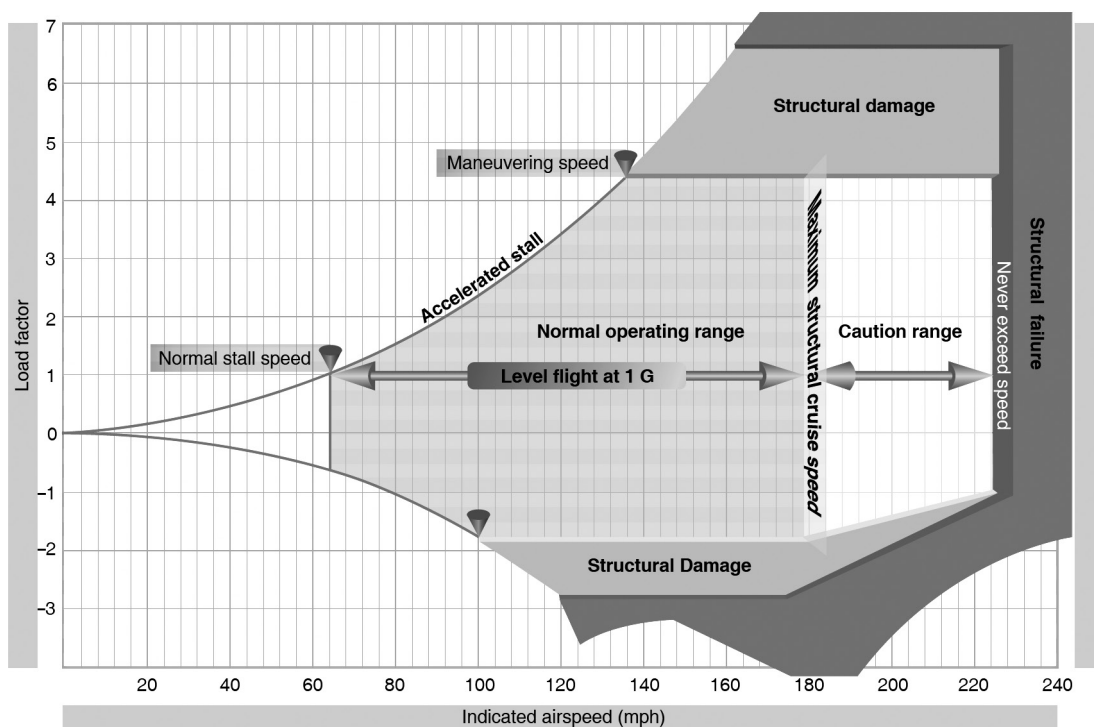

Figure 1. The Vg Diagram represents the velocity vs G Load for an aircraft. Each aircraft has its own Vg diagram that is valid at a certain weight and altitude. The envelope of flight is in the center, labeled 'Normal operating range.' Pushing the envelope involves pushing the limits of the boundaries of this box in terms of acceleration, maneuvering speed, load airspeed, etc.[5]

Our recent past has brought us to this point, but not all our histories are successes. Hence, leaders at every level must direct a sharp eye to everything we do and strive to be the best. Our near and distant future is where we build tomorrow's capabilities and weapons. Moreover, across whole of government, academia, industry, partners, and particularly from our adversaries, there are lessons to be learned. Be curious about the world outside your lane. See what others are doing, how they are competing for tomorrow's high ground in cyberspace, synthesize it with what you know, and, whenever appropriate, share with your teammates in forums like this journal.

Our margin for error is often paper thin, and our teammates in other domains count on us to get it right and get it right faster than any adversary. In ancient times, warriors with sword and shield were limited by muscle power in their ability to impact the battlefield. Thousands of years later, dozens of warfighters in several tanks, or a squadron of aircraft, or a submarine, could leverage technology and defeat thousands of combatants. Eighty years ago, a small number of cryptologists broke codes and ciphers and changed the course of history. Tomorrow, several warfighters on keyboard may disrupt, defeat and maybe even destroy nation-states as we know them today. The future is there to be seized by those who constantly hone the skill and the will to execute. We must be hard on ourselves, as we burn the midnight oil and strive to master our professions, to be the best we can be at what we do. We can, and must, both deter and, whenever necessary, defeat those future adversaries that are training, experimenting, learning, and competing to defeat us. We build strength through demonstrated capability that gives our competitors and adversaries pause. For our leaders, that competition is already here.

Leaders lead change. Change and innovation can be top down but the best new ideas often come from those in the fight who can see problems first-hand, what succeeds and fails, and possible solutions that work. The cyber and electronic warfare community in particular needs a free exchange of ideas across the force to be more agile than our adversaries. I call on our force, especially our leaders at all levels, to embrace change and make our community better. Write and publish: in this journal, in our schoolhouses, and at the edge where our warfighters are in contact with our adversaries every day. Leadership matters.⬦

DISCLAIMER

The views expressed here are those of the author and do not reflect the official policy or position of the U.S. Military Academy, U.S. Army, U.S. Department of Defense, or U.S. Government.

NOTES

1. General Paul Nakasone, Commander, U.S. Cyber Command, (December 8, 2023). Remarks, Intelligence and National Security Alliance Leadership Breakfast.

2. Harding Project, https://mwi.westpoint.edu/introducing-the-harding-project-renewing-professional-military-writing/

3. Michael E. Porter, *The Competitive Advantage of Nations.* (New York: The Free Press, 1999).

4. The term "flight envelope" comes for the Journal of the Royal Aeronautical Society in 1944. It was used to cover all probable conditions of flying and maneuvering an aircraft. In 1978, *Aviation Week & Space Technology* used the term "push the envelope" to describe the way NASA pilots would test the boundaries of altitude for aircrafts. In 1979, Tom Wolfe used the term in his book *The Right Stuff* and it became common language for getting out of your comfort zone. https://www.phrases.org.uk/meanings/push-the-envelope.html.

5. Federal Aviation Administration, "Aerodynamics of Flight" in *Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25C.* (November 3, 2023). https://www.faa.gov/sites/faa.gov/files/07_phak_ch5_0.pdf, p. 5-38.