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Are Gender Inclusive Militaries Better at Integrating Disruptive Technologies?

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Summary

Recent advances in big data and analytics, cyber security, automation, and artificial intelligence can make critical contributions to the demonstration of power on the international stage. New technologies not only offer militaries the ability to conduct operations with greater effectiveness but also reduce the potential human cost of operations. In an increasingly digitized world, organizations that do not adopt and leverage these advances can become inefficient and even fall by the wayside. Yet, despite the immense promise of emerging technologies, many organizations struggle to integrate and utilize them. This is true in both the military and business sectors. For business organizations, a failure to adopt and use novel technologies may threaten profits and even their survival. For militaries, where soldiers' lives are on the line, the consequences can be even more severe. Why is the integration of new technologies often so difficult? This policy brief highlights an important and overlooked reason, namely how gender policy can affect resistance to organizational change. Gender policy reform requires organizations to invest resources in the recruitment and retainment of an inclusive workforce, and therefore demands that organizations be flexible and resilient. Flexibility and resilience are also required to integrate disruptive innovations. Rather than trying to chain a new technology to old systems of ascension and reward, organizations that want to advance technologically must rethink their incentive systems and work hard to restructure entrenched hierarchies.

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Military Technology and the "People Problem"

Russia and China have invested in developing capabilities in space, hypersonic aircraft and rockets, cyber, artificial intelligence, and autonomous weaponry. As a result, the U.S. now faces increasing pressure to reevaluate existing strategies of defense and security in the face of ongoing technological innovation. Recent statements from U.S. defense officials about a new defense strategy of "integrated deterrence" indicate that a forward-facing nuclear posture must incorporate a suite of new military technologies—from the kinetic to non-kinetic capabilities across a range of domains, theaters, and phases of conflict.[1] This approach requires investments in potentially disruptive, cutting-edge technologies and operational concepts that differ from traditional forms of warfighting.[2] However, incorporating such changes is easier said than done.

The U.S. has invested substantial resources in the expansion of cyber capabilities, remote weapons platforms, and artificial intelligence (AI) but struggles to recruit, train, and retain sufficient talent to utilize them.[3] Indeed, recent efforts by the Department of Defense (DoD) to assess its posture and assert leadership in AI have revealed obstacles in cultivating technical talent.[4] The National Security Commission on Artificial Intelligence's *Final Report* stated that "national security agencies need more digital experts now or they will remain unprepared to buy, build, and use AI and its associated technologies." The experts in AI and related fields that the DoD has recruited are not effectively utilized.[5]

Put simply, when it comes to reaping the benefits of new technologies that don't align with old ways of doing business, organizations often run into a "people problem."

These challenges are nothing new. Throughout history, there are countless examples of promising new technologies that militaries have struggled to integrate across their organizations. A robust literature demonstrates that there are many reasons why an organization might resist making changes, however promising they may be. The perception of threat, an absence of "mavericks" willing to take on the "old guard," a lack of financial and organizational capital, and a conservative strategic culture within an organization are just a few of the many potential contributing factors.[6] However, one factor that is often overlooked is the role of gender.

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1 Jim Garamone. "The Concept of Integrated Deterrence Will Be Key to National Defense Strategy, DOD Official Says," December 8, 2021. https://www.defense.gov/News/News-Stories/Article/Article/2866963/concept-of-integrated-deterrence-will-be-key-to-national-defense-strategy-dod-o/

2 Remarks by Secretary of Defense Lloyd J. Austin III at the Reagan National Defense Forum (As Delivered), CA, Ronald Reagan Defense Forum, December 4, 2021. https://www.defense.gov/News/Speeches/Speech/Article/2861931/remarks-by-secretary-of-defense-lloyd-j-austin-iii-at-the-reagan-national-defen/

David Vergun, "DOD in Search of Disruptive Technologies That Will Enable the Warfighter," March 8, 2022. https://www.defense.gov/News/News-Stories/Article/Article/2959378/dod-in-search-of-disruptive-technologies-that-will-enable-the-warfighter/

3 Schneider, Jacquelyn. "Blue Hair in the Green Zone." *War on the Rocks*, January 10, 2018. https://warontherocks.com/2018/01/blue-hair-gray-zone/

4 Diana Gehlhaus, "To Get Better at AI, Get Better at Finding AI Talent," DefenseOne (February 16, 2022). https://www.defenseone.com/ideas/2022/02/get-better-ai-get-better-finding-ai-talent/362059/

5 Diana Gehlhaus, Ron Hodge, Luke Koslosky, Kayla Goode and Jonathan Rotner, "The DOD's Hidden Artificial Intelligence Workforce" (Center for Security and Emerging Technology, September 2021). https://cset.georgetown.edu/publication/the-dods-hidden-artificial-intelligence-workforce/

6 For a summary of the existing explanations for military innovation see Adam Grissom. "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (2006): 905-934; Staurt Griffin. "Military innovation studies: Multidisciplinary or lacking discipline?," *Journal of Strategic Studies* 40, no. 1-2 (2017): 196-224

Marines with Marine Corps Forces Cyberspace Command observe computer screens at a cyber operations center at Fort Meade, Md., Feb. 5, 2020. Photo: US Marine Corps/Staff Sgt. Jacob Osborne

Why Gender Matters

In many ways, the idea that more inclusive organizations will approach innovation integration differently may seem intuitive. Research demonstrates that more diverse organizational settings are more likely to produce innovative ideas.[7] A diverse environment fosters "out of the box" thinking and can better accommodate the needs of a wider spectrum of users. And when there is diverse leadership, it is more likely that compelling ideas will be endorsed and resources deployed to develop them.[8] In my research, however, I argue that the role of gender in organizational change extends beyond the presence of personnel across a range of identities. In other words, it is not just who populates an organization but the qualities that are rewarded and promoted. In military organizations the elevated traits of physical strength and courage in the face of danger are also associated with masculinity.[9] However, the integration of new technologies often requires a new set of skills. The use and development of remote platforms, cyber operations, and autonomous systems, for example, require soldiers with skills in software programming, hacking, database engineering, and the operation of technology from the safety of an air-conditioned trailer. It also requires promotion pathways for such soldiers who are not traditionally masculine "warriors" to rise up the ranks into positions of leadership.

These kinds of changes—such as altering systems of reward and ascension—are more challenging for some military organizations than others. Militaries with rigid and entrenched gender hierarchies will have a harder time integrating innovations that reduce the need for physical strength and exposure to risk. To test whether more inclusive military organizations are better at integrating disruptive innovations, I examined two innovations that challenge the gender status quo by reducing

[7] James Q. Wilson. "Innovation in Organization: Notes Toward a Theory." In *Approaches to Organizational Design*. Edited by Thompson, James D., and Vernon E Buck, 193-218. Pittsburgh, PA: University of Pittsburgh Press, 1966.

[8] Sylvia Ann Hewlett, Melinda Marshall, and Laura Sherbin. "How Diversity Can Drive Innovation." *Harvard Business Review* 91, no. 12 (2013).

[9] See for example, Jean B. Elshtain, *Women and War*. Chicago: University of Chicago Press, 1987; Joshua S. Goldstein. *War and Gender: How Gender Shapes the War System and Vice Versa*. Cambridge: Cambridge University Press, 2001.

exposure to risk and the need for physical strength. The first is the adoption and use of drones by the Israel Air Force and the Israeli Artillery Corps, two separate military organizations with different organizational structures and different degrees of gender inclusion. The second innovation is population-based counterinsurgency (COIN), adopted by the Turkish Armed Forces and the Australian Defense Force, again, two military organizations with different degrees of gender inclusion. Interviews with military personnel and defense experts, and a close analysis of government documents, military journals, news articles, field manuals, and other primary sources reveal that gender matters when it comes to integrating disruptive innovations. In both cases, the military organizations with higher degrees of inclusion (the Israel Air Force and Australian Defense Force) more effectively integrated new innovations than military organizations that were less inclusive (the Israel Artillery Corps and the Turkish Armed Forces).

Policy Recommendations: Gender Inclusion and the Force of the Future

As the Pentagon updates the 2018 National Defense Strategy (NDS), there is increasing pressure for the U.S. to maintain its competitive edge in the face of external challenges such as China's military modernization and the impact of space and cyberspace vulnerability. Moreover, as the world worries about the further escalation between Russia and the West, the potential of intensified cyberattacks highlights the cascading consequences of non-kinetic technological capabilities.[10] So what strategies should the U.S. consider as it moves to integrate disruptive technologies across its military organization?

In large part, this requires a reassessment of what the force of the future will look like and the kind of organizational change required to pave a more inclusive path to leadership. Advances in cyber warfare, automation, and artificial intelligence will require a more flexible understanding of what it means to be a successful soldier and employee within organizations traditionally populated by male personnel and associated with masculinity.

Investing in the force of the future will require significant organization realignments across three areas:

1. Invest in institutional commitments to inclusion:

Creating space and resources for the force of the future to thrive will require an understanding that the most talented person for the job may not look like a traditional combat soldier or defense expert.[11] However, in order to retain personnel with the technical talent required to utilize disruptive innovations, militaries must adjust their organizational cultures and invest in institutional reforms aimed at recruiting and retaining a more inclusive force. Such reforms include the removal of occupational and rank restrictions on the basis of sex, sexual orientation, and gender identity, and the establishment of family leave programs and sexual assault and harassment policies, protocols and procedures. Personnel with the relevant expertise to successfully operate drones, write algorithms, hack networks, and engineer databases may not look like a traditional masculine warrior. And they may not be able to do as many push-ups as one either.[12]

[10] Jason Healey, "Preventing Cyber Escalation in Ukraine and After," War on the Rocks (March 9, 2022). https://warontherocks.com/2022/03/preventing-cyber-escalation-in-ukraine-and-after/

[11] Schneider, "Blue Hair in the Green Zone"

[12] Carol Cohn. "How Can She Claim Equal Rights When She Doesn't Have to Do as Many Push-Ups as I Do?" The Framing of Men's Opposition to Women's Equality in the Military." *Men and Masculinities* 3, no. 2 (2000): 131-151

2. Cultivate and elevate technical skill:

In order to retain and train technical talent, organizations need to set measurable goals, enhance support to personnel to cultivate technical skills, and adjust training protocols across a range of roles—including kinetic operations—so that the needs of the AI or cyber expert, for example, can be met and applied effectively on the battlefield. Literacy in the new capabilities may be needed not just by the talent themselves, but across the organization, especially among those who will work adjacent to such systems. A 2021 study of the DoD's AI workforce found that personnel with the relevant technical expertise lack formal, top-down, guidance from a centralized chain of command within the DoD, with AI communities forming on an ad hoc basis and across services.[13] In order to address the lack of formal coordination, the DoD has invested in organizational changes to streamline AI adoption—such as the aggregation of the Joint Artificial Intelligence Center (JAIC), the office of the Chief Data Officer, the Defense Digital Services (DDS), and the Office of Advancing Analytics (Advana) under the new office of the Chief Digital and AI Officer (CDAO).[14] In order to assert leadership in areas of disruptive technological change, CDAO and the military services will need to define and find ways to measure the appropriate assignment and promotion of personnel. This will also require new ways to determine talent needs and ensure that those needs are met.[15]

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3. Alter existing power structures and hierarchies:

In order to cultivate and leverage technical talent, organizations will need to rethink their systems and structures of ascension and reward. This requires putting AI experts, for example, in positions of leadership that are often reserved for personnel with extensive kinetic experience and expertise. Senior leadership responsible for championing the integration of disruptive technologies and development of the necessary workforce will need to understand and appreciate the technical skills required to do so and the mission awareness of where such technologies are suitable and appropriate for implementation.[16] Leveraging uniformed talent will also involve a shift from operation-centric taxonomies of talent management to skills-based taxonomies. Even in the Marine Corps, which is known for its talent management flexibility, warfighting experience is "not only celebrated, but necessary for promotion."[17] However, the concept of combat and operational readiness is guided by traditional understandings of warfare. For technical talent to be recognized and rewarded, militaries must invest in clear and novel career pathways with promotion potential.

[13] Gehlhaus et al. "The DOD's Hidden Artificial Intelligence Workforce"

[14] Michael C. Horowitz and Lauren Kahn. "Why DoD's New Approach to Data and Artificial Intelligence Should Enhance National Defense," March 11, 2022. Council on Foreign Relations. https://www.cfr.org/blog/why-dods-new-approach-data-and-artificial-intelligence-should-enhance-national-defense

[15] Gehlhaus et al. "The DOD's Hidden Artificial Intelligence Workforce"

[16] Ibid.

[17] Ibid, 36.

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Conclusion

Adopting and integrating new technologies doesn't just require hardware. It also requires people—people who may have different kinds of identities and areas of expertise than those who had been employed earlier. To remain competitive in the 21st century security environment, military organizations must rethink how their technical talent is recruited, trained, rewarded and promoted. These kinds of changes won't be easy for militaries with rigid and entrenched gender hierarchies. The reward and ascension of characteristics such as bravery in the face of grave danger, physical strength, and kinetic combat experience is not only associated with a traditional understanding of masculinity, it also inhibits the ability to integrate innovations that reduce the need for such traits.

Altering such systems will be easier for organizations with the flexibility to recruit and retain a more inclusive fighting force. Put simply, in a world of innovative technological change, a more inclusive military is a more competitive military. The stakes are high. If the U.S. wants to continue to project power on the international stage, leadership is going to have to start taking gender seriously.

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Her research extends from historical case studies of medical innovations, to the experiences of Israeli drone operators, to the counterinsurgency doctrines of the Australian Defense Force and Turkish Armed Forces. She received her Ph.D. in political science at the University of Pennsylvania.

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