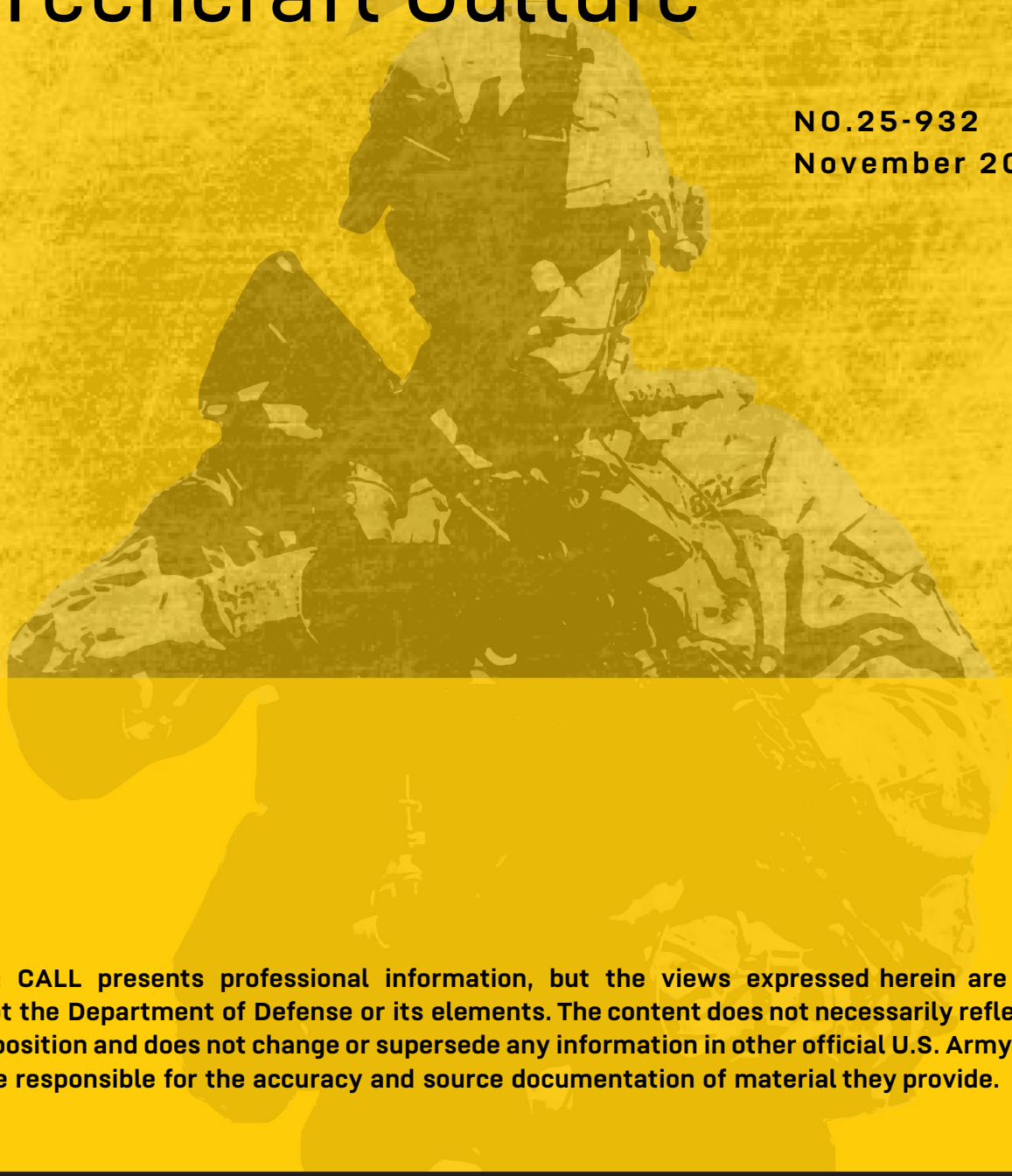
Embracing Techcraft: Optimal Elements of Army Techcraft Culture



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Introduction

In a rapidly evolving operational environment, Army units must adapt to emerging threats and leverage advanced technology to maintain a competitive edge. However, success in Army transformation involves more than just acquiring new devices; it requires a fundamental shift in organizational culture and a techcraft mindset. Techcraft includes the skills, techniques, and knowledge Soldiers require to effectively integrate, use, understand, and maintain modern technological equipment and systems in a military context. This article explores some of the key elements and strategies Army leaders identified to foster a techcraft culture that will enable success in continuous transformation.

This article focuses on how the 3rd Infantry Brigade Combat Team (IBCT), 25th Infantry Division (ID), has extracted valuable insights on essential cultural components conducive to tech-savvy units, drawing from firsthand experiences within an organization that rapidly embraces techcraft.

Future techcraft articles will examine Army Soldiers' openness and comfort levels regarding advanced technology, such as artificial intelligence and machine learning, and a deep dive into leadership paradigm shifts in acceptable risk of tech assets.

Encourage Risk-Taking and Creativity

At the heart of shaping a culture where innovation thrives and technological integration is executed with ease, lies a set of norms and values that prioritize creativity, experimentation, and continuous improvement. Embracing risk-taking is an essential first step. Tolerance for risk comes in many forms, but the essence is the tolerance for failure; this is a difficult mentality for the Army. A unit taking chances does not necessarily translate to it frequently breaking its equipment. Moreso, risk-tolerant units allow Soldiers of all ranks to try new tactics and strategies, even if they deviate from traditional approaches or unit leaders think they might not work. Techcraft can only thrive in a culture where ideas are supported, and in channels where Soldiers feel empowered to provide lessons learned from their creative trials. This shift from by-the-numbers task execution to a more fluid environment of learning and adaptation is crucial for staying ahead in today's dynamic operational environment.

CSM Shaun D. Curry, 3rd IBCT, 25th ID, punctuates this point. "Bronco Brigade is a learning organization…allowed to fail, but just the one time." He emphasizes the significance of incremental gains and growth from lessons born from successes and failures. His philosophy is to allow room for failure but set a standard to not repeat mistakes.

To promote this cultural trait, leaders can conduct "red team" activities where Soldiers are encouraged to propose unconventional tactics and evaluate their feasibility through simulated scenarios. Organizations can host innovation challenges where small teams of Soldiers are given the resources and freedom to develop new solutions to specific battlefield challenges. Leaders should applaud those who demonstrate techcraft and take risks, whether they achieve their exercise objectives or not, and highlight what is learned in the effort. Finally, leaders could conduct more realistic training exercises with dynamic scenarios that require smaller teams to quickly adapt their tactics and strategies to changing conditions.

Battalions in the 25th ID are operationalizing techcraft by ensuring their training areas comply with all safety and legal requirements, which enable free testing in physical spaces conducive to

growing the innovation mindset. For example, they completed all safety and regulatory range requirements and airworthy guideline paperwork to have drone-friendly lanes. They have approval to fly drones in a limited space while Soldiers go through lanes for realistic and hands-on experience in human machine integration. Soldiers can display and test their fieldcraft and techcraft acumen during these exercises. See figure 1.

Ongoing 25th ID efforts to experiment with robotics and drone technology showcased the potential for these tools to enhance Soldier safety and effectiveness on the battlefield and has a direct impact on organizational attitudes toward risk. Proactive experimentation in techcraft, achieved through a broadened risk tolerance, directly results in developing and refining new tactics and procedures, which leverage emerging technologies. Ultimately, deploying technology further reduces expenses every leader tries to prevent, which is the loss of Soldiers' lives. When they have the authority, leaders must underwrite risk that allows for techcraft and innovation to flourish on installations and in training.

Figure 1. U.S. Army Soldiers assigned to 2nd Battalion, 27th Infantry Regiment, 3rd Infantry Brigade Combat Team, 25th Infantry Division, alongside Philippine Army's 7th Infantry Division soldiers, conduct a live-fire exercise during Salaknib 24, 13 May 2024. (U.S. Army photo by SPC Benjamin Anderson)

Communicate and Collaborate

Effective communication and collaboration are essential pillars in fostering an environment where a techcraft mindset can grow. It involves creating avenues for sharing ideas, information, and expertise across different units and commands; within the organization and externally; and with other Army units, joint organizations, and industry partners. Pitfalls and failures in communication or collaboration often coincide with a degree of closed-mindedness. Collaboration at this stage hinges on leadership involvement, up and out, and down and in. Organizational cultures that feature open communication also feature cohesive teams. Knowing your Soldiers and establishing rapport is at the heart of keeping those lines open. Leaders must also be active participants in lateral, enterprise, academic, and industry communities, which share best practices and provide unique opportunities in shaping unit culture.

The most successful technological innovation flourishes in an environment in which caring for each other on a human-to-human level is a top priority. Soldiers that feel valued and see evidence their input is not just heard, but acted on, will continue to push technological boundaries and drive forward the next pioneering techcraft idea. Leaders must ensure there is a pathway for sharing ideas, and then aggressively promote them.

At an organizational level, leaders could establish small cross-functional activities, or "tiger teams," comprising members from different specialty areas, aimed at solving a specified problem set. These cross-cutting teams can collaborate on projects related to technology adoption or innovation in tactics, pooling together diverse perspectives and expertise to drive meaningful progress. Additionally, these types of groups safeguard against "group think" by encouraging Soldiers from diverse backgrounds to share their unique perspectives during mission planning sessions or after action reviews. This ensures decisions are informed by a variety of viewpoints, leading to more robust and effective solutions.

When it comes to enterprise-level communication, panels such as the warsfighter forums, provide a space for units from various locations to convene and discuss emerging technologies and innovative tactics. Additionally, Army Futures Command (AFC) has developed an Army innovation forum that meets once per quarter. The intent is to leverage this forum in several ways: 1) share good ideas; 2) discuss innovation efforts; 3) connect those units to share lessons learned; and 4) elevate awareness among Army leadership. These platforms accommodate the exchange of ideas and facilitate collaboration between units, enabling them to learn from each other's experiences and initiatives, decreasing instances of duplicated efforts. The Center for Army Lessons Learned (CALL) maintains a repository of lessons from the force. Leaders should continue to submit lessons to CALL to enable shared understanding of techcraft successes and failures.

Real-world feedback plays a vital role in the evaluation of new technologies for academic and industry partners. 25th ID realizes the importance of testing new technologies, like drones, in real-world scenarios rather than solely in controlled environments. See figure 2. Approaching industry and academic partners with the assistance of AFC Soldier touchpoints has led to organizational growth in training, and the ability to produce mission-critical products and enhance Soldier techcraft. Soldier touchpoints, along with tactical innovation, accommodates a more accurate assessment of effectiveness, informs future development, and sparks technological creativity in Soldiers while enhancing techcraft across units and headquarters.

Figure 2. Soldiers assigned to 3rd Infantry Brigade Combat Team, 25th Infantry Division participate in modernization efforts through new equipment fielding on Schofield Barracks, HI. Some of the equipment fielded included a new vision goggle system, pistol aiming laser, and a very small unmanned aerial vehicle. (U.S. Army photo by SSG Alan Brutus)

Effective communication and collaboration are elements in inspiring a culture of innovation and adaptation. Leaders creating channels for sharing ideas, encouraging diverse perspectives, and leveraging real-world feedback can set unit culture and norms into an optimal state to enhance readiness and effectiveness in an evolving landscape of warfare.

Update Policy and Structure

Rethinking our oversight requirements and organizational structures may be necessary to adopt new advancements effectively and rapidly. If Soldiers are to exercise their techcraft and integrate new technologies into military operations, institutional norms or practices imposing additional legal and logistical hurdles must be modified or eliminated at the appropriate levels of authority.

One constraint in this endeavor is navigating intellectual property issues while keeping pace with technology advancement. For instance, we can minimize costs associated with drone maintenance by providing Soldiers the ability to manufacture and 3D (dimensionally) print replacement parts and employ train-the-trainer activities to certify operators. This approach could reduce costs of expensive equipment and certifications, but also underscores the need for Soldiers to have the latitude to apply immediate solutions as new equipment becomes increasingly prevalent in their formations.

A key component of future-proofing initiatives within the 25th ID is known as the lightning labs innovation cell. This entity serves as a conduit for cultivating techcraft with new equipment and concepts and deploying them to 25th ID units for Soldiers' feedback and growing techcraft development. This approach ensures initiatives do not rely on individual leaders, but rather an enduring organization that is skilled in techcraft and staffed, trained, and equipped to fulfill requirements, which facilitate the continuous transformation process without disruption.

Army leaders should evaluate their units' structure and organizational processes to ensure they support, rather than hinder, transformation. Structural obstacles can impede modernization efforts and lead to a culture that suppresses innovation. To counter this, leaders must challenge existing norms and structures, empower Soldiers by providing them greater access and resources, and foster a culture of agility and flexibility.

Overcoming Resistance

To successfully develop a techcraft-minded culture within our ranks, overcoming resistance to change is critical. An openness to new ideas and a willingness to adapt without preconceived notions are factors that contribute to a unit's ability to embrace transformation and stay ahead of emerging challenges. To incrementally progress toward units' acceptance of technological change, several strategies can be employed.

Convincing resistant members of a military unit to embrace technological change requires a strategic and empathetic approach. Leaders must listen to concerns, address risks, and provide evidence-based explanations and mitigation strategies to alleviate challenges and uncertainties about technology's reliability, security, or impact on traditional military roles and responsibilities.

Unit commanders can, and should, assess their unit's sociological readiness for technological integration through various means, including technology proficiency surveys, training and certification records, equipment maintenance and usage rates, performance in simulated exercises, feedback from Soldiers, and comparison with established industry standards or benchmarks. By measuring levels of techcraft resistance or cultural readiness for transformation, leaders can identify points of friction within an organization and tailor an approach accordingly.

Introducing new technologies gradually, through small-scale activities or limited techcraft-enhancing training, accommodates performance assessment and can assist in addressing potential readiness challenges. Although comprehension of the advantages of technological integration may vary among Soldiers, efforts to promote education, training, and communication can help increase awareness and readiness across the Army enterprise. Providing Soldiers with the knowledge and skills to effectively employ and leverage advanced technology maximizes confidence in Soldiers and their equipment.

Understanding resistance within an organization is important, but CSM Curry approaches the measure of opposition differently in the 3rd IBCT, 25th ID. He, instead, emphasizes focusing on positive indicators of cultural change rather than dwelling on negatives. He appraises efforts by the large numbers that get involved in creative technological applications and enroll in hosted-innovation competitions. Establishing techcraft-focused competitions within units has motivated Soldiers to adopt new practices and technologies. Peer pressure also plays a role in driving cultural change, as no one wants to be left out of the 3rd IBCT's innovative, and frankly fun, human and machine-integrated challenges.

Overcoming resistance to technological change requires a multifaceted approach that includes communication, education, and leadership. By addressing concerns, fostering a culture of experimentation, and gradually introducing new technologies, military units can successfully navigate the challenges of transformation, encourage techcraft, and enhance operational effectiveness.

Conclusion

In the quest to cultivate a techcraft culture within the Army, success hinges on embracing a holistic approach that spans organizational norms, communication practices, and structural adaptations; and overcomes resistance to change. Insights from the 3rd IBCT, 25th ID illuminate the path toward cultivating an environment where innovation thrives and technological integration becomes second nature.

Eliminating the fear of failure emerges as a foundational principle, where risk-taking is not only tolerated but encouraged within reasonable boundaries. The 25th ID's proactive experimentation with drones and robotics exemplifies how a culture that embraces failure as a stepping-stone to success can drive meaningful progress.

Communication and collaboration are indispensable, facilitating the exchange of ideas and sharing of knowledge within and across military units. Warfighter forums serve as a testament to the power of collaborative platforms to sustain the community knowledge and growth mindset required to continue techcraft.

Rethinking organizational structures and policies becomes imperative to navigate the complexities of technological integration effectively. Lightning labs, with the focus on techcraft and emerging technologies, and the division's involvement in Soldier touchpoints, stand as a beacon of progress in this regard, demonstrating the importance of forward-thinking initiatives in sustaining military capabilities and efforts for Army transformation.

Overcoming resistance to change is an ever-present necessity in the Army's journey toward a tech-savvy military culture. By addressing concerns, promoting education, and fostering a spirit of competitive experimentation, military units can overcome the obstacles that often accompany transformational initiatives.

Overall, achieving a techcraft culture within the Army requires a concerted effort at every level of the enterprise. By embracing a mindset that prioritizes innovation and organizational norms of collaboration, and, by adapting structures and limiting resistance, units can, not only stay ahead of emerging threats, but enhance their operational effectiveness for future war-winning readiness.

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