



Embracing Techcraft: The Future of Soldiering in the Emerging Technological Battlefield

**NO.24-893
May 2024**

DISCLAIMER: Center for Army Lessons Learned (CALL) presents professional information, but the views expressed herein are those of the authors, not the Department of Defense or its elements. The content does not necessarily reflect the official U.S. Army position and does not change or supersede any information in other official U.S. Army publications. Authors are responsible for the accuracy and source documentation of material they provide.



REQUEST FOR INFORMATION

The Center for Army Lessons Learned (CALL) provides a unique service to the force by providing research and answers on a wide variety of topics.

Authors

MSG Katie Smith, Army Futures Command, Author
Jeff Baker, Center for Army Lessons Learned, MIT-D, Lead Analyst

Introduction

The Army recognizes that rapidly evolving technology must be identified, and units must be prepared to integrate new technologies within varying operational environments and environmental conditions utilized to our tactical advantage. Techcraft, is a new conceptual term introduced by Army Futures Command (AFC) to describe the traits that make Soldiers successful on the technology-infused battlefield.

The purpose of this publication is to introduce techcraft as an operational concept to describe its attributes as well as its importance to the U.S. Army. AFC intends to publish a series of additional articles that explore:

- Effects of advanced technology on our Army's procedures
- Embracing techcraft as an anecdotal reflection on the techcraft experiences of Soldiers participating in the second Human Machine Integration (HMI) Summit
- Examinations of techcraft that will include a review of optimal elements of Army culture for tech integration
- Soldier openness and comfort levels regarding advanced technology such as:
 - Artificial intelligence
 - Leadership paradigm shifts in acceptable risk of tech assets

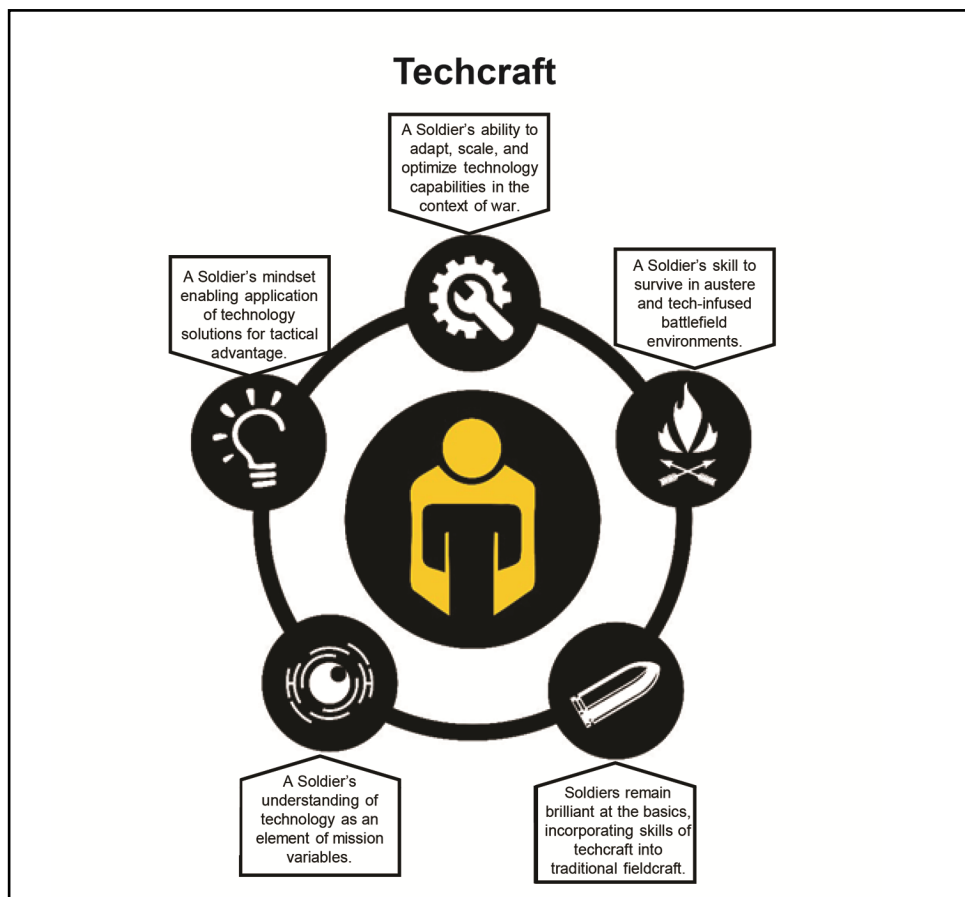


Figure 1. Army Futures Command Techcraft Incorporation into Field Craft
U.S. Army Graphic by Kevin R. Clayton

Fieldcraft versus Techcraft

Past battlefields demanded proficiency in fieldcraft. Today the emergence of new rapidly advancing and disruptive technology calls for Soldiers to master a different set of skills called “techcraft.” Just as fieldcraft encapsulates survival skills, techcraft requires Soldiers to develop tactical and technical capabilities to navigate the complexities of applying modern technology on the battlefield. The Army is already experiencing techcraft innovation across the force, perhaps the clearest example resides with the Fort Moore, GA Experimental Force (EXFOR).

Fort Moore’s Experimental Force

PFC Joseph Marsh, Alpha Company, 1st Battalion, 29th Infantry Regiment, Experimental Force, joined the Army as an Infantry Soldier but never imagined he would end up as a tactical robotic operator. “I mostly envisioned myself as a Soldier, on the front lines, shooting, moving, and taking orders. Then as I received my orders for my first unit of assignment, I saw they were much different than my fellow trainee graduates,” Marsh said.

Marsh was assigned to EXFOR, a lower tactical echelon unit that rigorously tests the synergy of capabilities across many domains to increase combat power and update the development of materiel for the Future Force. Marsh relied on his basic Soldier skills, but he realized he also faced new and different challenges as he was increasingly exposed to integrated experimental technology. “Infantry and our missions seem uniquely suited to tech solutions.

Our mission essential tasks can be simple, but also can be open to creative solutions. The tech really enhances lethality and survivability,” Marsh said.



Figure 2. Army Futures Command and the Maneuver Center of Excellence hosts the Second Human Machine Integration Summit, 17-19 October 2023, at McGinnis-Wickam Hall and Selby Training Area

U.S. Army photo by Denise Mosley, Maneuver Center of Excellence Public Affairs Photographer

The purpose of the Summit is to continue high-level discussions and force planning on how the U.S. Army can leverage advanced machines to divest risk, minimize cognitive load on Soldiers, and integrate humans and robots into formations.

The evolving challenges on today’s battlefield requires Soldiers to master a different set of skills and incorporate a new set of mission variables to maintain land dominance. During the annual Army Expeditionary Warfighter Experiment hosted by the Maneuver Battle Lab, PFC Marsh’s leaders recognized something special about him, his tech-savviness. He was reassigned to the Robotics Platoon. In the eyes of his leaders, Marsh exemplified the exact combination of qualities necessary for success on the modern battlefield, as his basic fieldcraft wove together seamlessly with his talents in techcraft.

Techcraft Proficiencies

EXFOR Commander CPT Timothy Young described how he identifies a Soldier with Techcraft proficiencies. “Leaders should not assume they are the smartest one in the room. When you shift your attitude, allow for some risk, and give free rein to solve problems down to the lowest level, you’ll find those who have the intellect to manipulate technology emergence. Really, you just need to provide them the opportunity to do so,” Young said.



Figure 3. U.S. Army CPT Tim Young, Maneuver Center of Excellence Experimental Force Company Commander, 1st Battalion, 29th Infantry Regiment, 316th Cavalry Brigade, communicates with his Unit as they Employ Integrated Robotics during a Human Machine Integration Summit II Simulated Operation, 17 October 2023, at Fort Moore, GA

U.S. Army photo by Josef Cole

SSG Manuel Stetson, a robotics platoon sergeant, commented on the ingenuity of his platoon in maximizing tech performance. “Our Soldiers manually manipulated the antenna directional pattern for our robotics control transmissions. This pushed the signal strength, extended the range of the robot control, and compensated for terrain signal interference. They understood how the system worked and then adjusted it to get a better performance,” Stetson said.

Techcraft Description

Techcraft is more than just a buzzword. It represents a foundational expansion of technical proficiency for all Soldiers to include competencies in advanced technology, ensuring individuals possess the vocabulary and technical knowledge to adapt to evolving tech-based solutions.

Army leaders developing techcraft doctrine have highlighted that emphasis should not be on the technology, but rather on the adaptability which makes a Soldier successful on the emerging tech battlefield. “At the core of techcraft is the ability to integrate, conceal, maintain, troubleshoot and understand the impact of advanced technology, communication systems and surveillance technology,” said CSM Brian A. Hester, Army Futures Command, who has been spearheading techcraft efforts.

1SG Wang Saechao, also of the EXFOR, describes how his team logistically resupplied during a recent field exercise with hardware instead of humans. “We can remote control the robot to resupply, provide ammunition and medical supplies, and accomplish medical evacuations without compromising additional human lives. The mission application is only limited by our imagination,” Saechao said.



**Figure 4. Soldiers of the Maneuver Center of Excellence Experimental Company, 1st Battalion, 29th Infantry Regiment, 316th Cavalry Brigade, Employ Integrated Robotics during a Simulated Operation in the Human Machine Integration Summit II, 17 October 2023, at Fort Moore, GA
U.S. Army photo by Denise Mosley**

As the Army adapts to the demands of the future battlefield, the introduction of techcraft marks an evolution in Soldiering. “Techcraft is not just a concept, it is the key to ensuring our Army can fight and win while maintaining its position as a dominate land force,” Hester said.

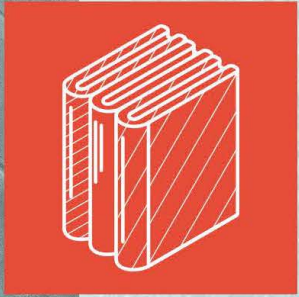
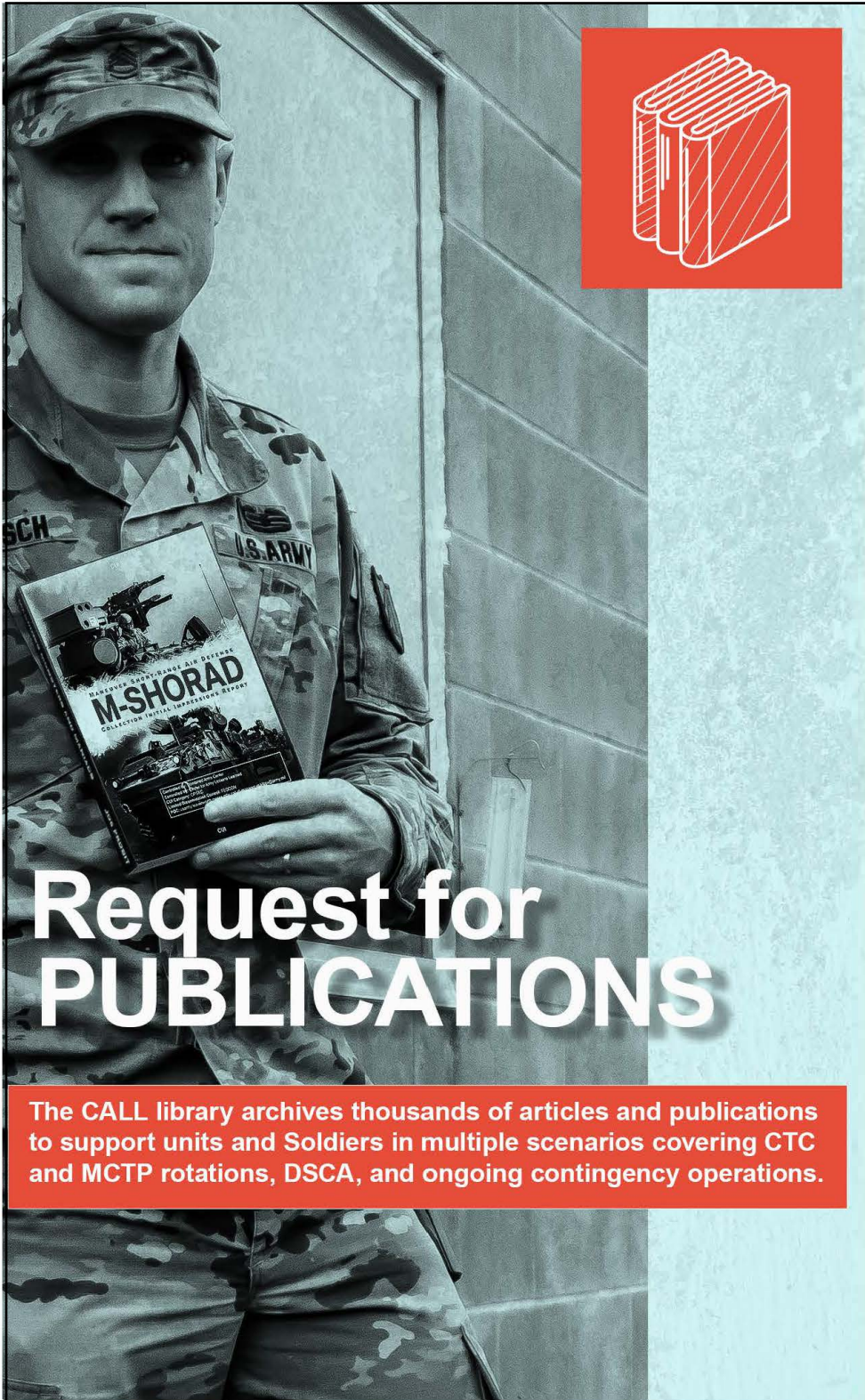
Leaders can deliberately incorporate techcraft into their training plans and Soldier development, including looking for opportunities for human machine integration into daily Soldier activities. Examples include actively engaging in conversations about technology solutions to mission sets, fostering a culture of innovation and integration in your organization. For example, 3rd Battalion, 4th Cavalry Regiment, 3rd Infantry Brigade Combat Team, 25th Infantry Division’s ad-hoc Robotic and Autonomous Systems (RAS) platoon even conducts drone enhanced morning physical readiness training to further Soldier familiarity of small air and ground unmanned capabilities.

Conclusion

Techcraft is not just a standalone new term, but a foundation for the necessary approach that translates to success on the modern battlefield. In practice, it involves leaders that promote education and experimentation to grow Soldiers' baseline hybrid skillset in operating, concealing, maintaining, troubleshooting, and comprehending the impact of next-generation weaponry, communications systems, surveillance technology, vehicles, and other technical responsibilities emerging within all military occupational specialties.

Techcraft proficient individuals have the underlying fundamental vocabulary and foundational technical knowledge to successfully apply or assimilate new solutions to military problems without struggling with basic digital skills or concepts. The Army must establish a techcraft foundation to cultivate the necessary technologically fluent force, capable of rapid adaptation and continued expansion of combat capabilities in the ever-changing landscape of warfare.

MSG Smith is a visual information operation chief and is currently assigned to the Army Futures Command Communications Directorate. Her previous assignments include the 1st Theater Sustainment Command as the Forward Network Operations Noncommissioned Officer; the Defense Information School, Advanced Individual Training (AIT) Instructor; North Atlantic Treaty Organization (NATO) communications and information agency audio visual engineer; 551st Signal Battalion, AIT platoon sergeant and first sergeant; and an action officer for the People First Task Force. She has a background in audio engineering, entertainment business, advocacy, and is a licensed Master of Social Work.



Request for PUBLICATIONS

The CALL library archives thousands of articles and publications to support units and Soldiers in multiple scenarios covering CTC and MCTP rotations, DSCA, and ongoing contingency operations.

