The evolution of warfare technologies driven by artificial intelligence demands a shift in NCOs' leadership approaches. This change means developing the ability to lead teams that integrate human Soldiers and autonomous systems. (U.S. Army photo by Spc. Samarion Hicks)

Artificial Intelligence and Future Warfare

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Introduction

Artificial intelligence (AI) is reshaping every aspect of modern life. Its rapid evolution affects everything from how we work to how nations prepare for conflict. Some experts predict AI could eventually surpass human intelligence, while others argue this may never happen.

Unlike the human brain, AI systems process enormous amounts of data at remarkable speeds, executing commands precisely. Its applications span industries like health care, finance, manufacturing, and transportation.

Now, integrating AI into warfare is a reality, promising significant changes to the battlefield and challenging traditional leadership roles (Hoadley & Lucas, 2018). That's especially true for the NCO corps.

This article explores these advancements and their implications for military leaders, focusing on how NCOs must adapt to lead and train in this increasingly automated and technologically advanced environment.

AI's Impact on the NCO Corps: Developing Future Leaders

The evolution of AI-driven technologies in warfare demands a shift in NCOs' leadership approaches. This change means developing the ability to lead teams that integrate human Soldiers and autonomous systems.

For example, managing a unit equipped with AI-powered drones and robotic support vehicles requires tactical expertise and the ability to oversee and troubleshoot complex systems in real time. Leaders must adapt by fostering collaboration between humans and machines while maintaining ethical standards.

Training Soldiers for AI Integration

Advanced equipment such as the Integrated Visual Augmentation System, exoskeletons, and autonomous robots demands a mix of technical skills and situational awareness.

For example, robotic dogs equipped with AI for reconnaissance offer new capabilities, but the Army must train Soldiers to interpret and act on the data they provide. NCOs are critical in bridging the gap between emerging technology and practical battlefield application, ensuring units remain cohesive and effective (Department of the Army [DA], 2020).

Balancing Technology with Ethical Leadership

While AI systems enhance precision and efficiency, they also present ethical challenges. Leaders must carefully manage decisions involving autonomous weapons or surveillance systems to ensure compliance with international laws and ethical standards. As ethical leaders, NCOs must guide their Soldiers in understanding the limits of AI technologies, ensuring human judgment remains central to critical decisions.

As artificial intelligence continues to grow, so will fear or support for the technology. Many believe robots will reach a superior intelligence and overthrow or destroy humans, as portrayed in science-fiction films such as *The Terminator* and *I, Robot*.

The idea of a technological "singularity" (wherein robots become superhuman and change civilization) and concerns about transhumanism (the idea that humans will transform through widely available technologies that enhance the brain and body) reflect public fears. While these movies made a cultural impact, the Army's focus must remain on responsible, ethical integration of AI into operations.

AI can offer security and allow us to do many daily tasks efficiently. It can perform routine functions and

As ethical leaders, NCOs must guide their Soldiers in understanding the limits of AI technologies, ensuring human judgment remains central to critical decisions. (U.S. Army photo by Chris Estrada)

process data flawlessly. Even so, AI can't make judgment-based decisions. It's a powerful tool that may shift how people live in the future. Still, only the top percentage of people will control it.

AI's controversies are complex, and its regulation will be burdensome. However, it will be the most valuable and productive machine shaping the future.

Making AI Technology Accessible

Modern warfare is using information technology, advancing technology, and combining them with new tactics. It's the national industry's mass politics, productive capacity, and managerial style.

What that means is that a modern war focuses on preserving military forces to continue the fight, using national resources to destroy the enemy and target civilian infrastructure to affect a country's ability to fight and operate in air, land, and sea.

Another way to define a modern war is as a "total war." This phrase denotes a war in which a belligerent engages in the complete mobilization of all available resources and population. AI and autonomy will be the most significant changes to emerge.

Some of the most advanced AI technologies today, such as the Phalanx, Iron Dome, and C-RAM systems, can seem overwhelmingly complex. However, their strategic implications are far more important than their technical details. For example, the Phalanx system automatically detects and neutralizes missile threats faster than human reaction times, and the Iron Dome intercepts incoming rockets with remarkable precision.

Modern warfare is using information technology, advancing technology, and combining them with new tactics.. (U.S. Army Photo by Sgt. Devyn Adams)

For NCOs, understanding how to incorporate these tools into operations — rather than mastering their inner workings — is key to successful integration.

Focusing on Operational Impact

Simplifying the conversation around AI technologies helps leaders focus on their practical impact. Autonomous logistics robots, for instance, can reduce Soldiers' physical burden, allowing them to concentrate on higher-order responsibilities (Hoadley & Lucas, 2018). By framing these technologies on mission readiness and Soldier welfare, NCOs can better understand and advocate for their use.

The Irreplaceable Role of Human Leadership

Despite AI's potential, the human element of warfare remains critical. Machines cannot replicate critical thinking, adaptability, and empathy. NCOs are the backbone of unit cohesion, morale, and discipline — qualities no AI system can replace. Leaders must ensure technology enhances their Soldiers' capabilities without diminishing the human spirit that defines military service (DA, 2019).

These changes demand a fundamental shift in the NCO corps' leadership philosophy. The ability to lead in a multidomain environment where human Soldiers and autonomous systems work together seamlessly will be critical. NCOs must master the tactical integration of these technologies and the ethical implications they bring to the battlefield.

Maintaining Soldier Welfare

AI systems can reduce physical risks for Soldiers, but they also introduce new challenges, such as the psychological effects of working alongside autonomous systems. NCOs must address these issues proactively, fostering open communication and providing mentorship to help Soldiers navigate this new era of warfare.

As the backbone of the Army, NCOs are uniquely positioned to bridge the gap between advanced technology and the Soldiers who rely on it. They must ensure AI complements human efforts rather than replaces them and continue to prioritize Soldier welfare and cohesion (Hoadley & Lucas, 2018).

Preparing NCOs to Use AI Responsibly

As AI becomes more accessible, teaching NCOs how to use it effectively and ethically is no longer optional. Whether on the battlefield or in academic settings such as the Sergeants Major Academy, NCOs already encounter AI tools without clear guidance.

For example, some schools authorize their students to use AI for research and brainstorming but not for generating assessments, and many are learning how to navigate these boundaries after policies are in place. This information gap mirrors what's happening across Army formations. At times, NCOs are expected to lead in a rapidly evolving environment without necessary training or proficiency.

The Army should enhance technical education for NCOs, incorporating AI and robotics training into development programs to prepare leaders for the challenges of integrating these technologies into their units. (U.S. Army photo by Spc. Adeline Witherspoon)

The Army must invest in AI literacy through professional military education, functional training, and digital leader development programs to close this gap. More importantly, NCOs must seek opportunities for self-education, whether through Army-approved courses, partnerships with civilian institutions, or informal peer-to-peer learning (DA, 2020).

Recommendations for the Future

1. **Focus on Training for Dull, Dirty, and Dangerous Tasks:** AI should be deployed to handle tasks that are tedious, hazardous, or logistically demanding, allowing Soldiers to focus on higher-order responsibilities (Hoadley & Lucas, 2018).
2. **Revise Rules of Engagement for Autonomous Systems:** International agreements must ensure that autonomous systems operate within clear ethical and legal boundaries, with humans retaining control over lethal decisions (Altmann et al., 2013).
3. **Enhance Technical Education for NCOs:** Incorporate AI and robotics training into NCO development programs to prepare leaders for the challenges of integrating these technologies into their units (DA, 2020).
4. **Strengthen Human-Machine Collaboration:** Promote a leadership culture that values teamwork between Soldiers and AI systems, emphasizing trust, accountability, and adaptability.

Conclusion

The rise of AI and autonomous systems undeniably transforms modern warfare, offering unprecedented opportunities and significant challenges for the military. These advancements promise enhanced operational efficiency, improved precision, and reduced risk to human life. However, they also raise ethical concerns, technical hurdles, and potential risks to leadership and decision-making processes (Altmann et al., 2013).

Despite AI's capabilities, the human element of warfare remains indispensable. Critical thinking, adaptability, and moral judgment will continue to define effective military operations.

The Army's future depends on leaders who embrace innovation without losing sight of the values and principles that define military service. By adapting to these advancements and preparing their units for a tech-driven battlefield, NCOs can ensure the Army remains practical, ethical, and ready to face the challenges of tomorrow. AI may change the tools of war, but the human spirit will ultimately determine its outcome. ■

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