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**CLOSER THAN YOU THINK:
THE IMPLICATIONS OF THE THIRD OFFSET
STRATEGY FOR THE U.S. ARMY**

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"I believe we are on the cusp of a fundamental change in the character of war."

—General Mark Milley,
Chief of Staff of the U.S. Army, October 1, 2016.

The Defense Innovation Initiative (DII), begun in November 2014 by former Secretary of Defense Chuck Hagel, is intended to ensure U.S. military superiority throughout the 21st century. The DII seeks broad-based innovation across the spectrum of concepts, research and development, capabilities, leader development, wargaming, and business practices. An essential component of the DII is the Third Offset Strategy—a plan for overcoming (offsetting) adversary parity or advantage, reduced military force structure, and declining technological superiority in an era of great power competition.

The Third Offset Strategy is in the beginning phases of development. The Department of Defense (DoD) will embark on a multi-year effort to assess the technologies and systems that should undergo research and development. To date, investment has been modest, but will likely increase over the next 4 years. The majority of effort will be grouped into six broad portfolios:

1. Anti-access and area denial;
2. Guided munitions;
3. Undersea warfare;
4. Cyber and electronic warfare;
5. Human-machine teaming; and,
6. Wargaming and concepts development.

The Third Offset Strategy is still being formed—at this point, it is more concept than strategy—but the ends, ways, and means will soon begin to crystalize.

It is important for the Army to study what the Third Offset Strategy means for Landpower and the land domain. Ground warfare has unique operating conditions; the breakthrough capabilities needed for the Army may likely differ from those required by the Navy or Air Force. The Army, therefore, should help shape the Third Offset Strategy to ensure it accommodates the needs of land forces. In particular, it must identify the implications of the breakthrough capabilities on Landpower.

This study explored the implications of innovations and breakthrough capabilities for the operating environment of 2035-2050. It focused less on debating the merits or feasibility of individual technologies and more on understanding the implications – the second and third order effects on the Army that must be

The Research Team

This study was prepared by students and faculty from the U.S. Army War College's (USAWC) Future Seminar—a program loosely based on the Army After Next study project of the 1990s. Since 2014, Future Seminar students and faculty have collaborated to explore the Army of the Future. As with previous years, the seminar focused on the requirements for an Army of the future. They studied, debated, researched, and wrote.

In addition to this report on the Third Offset, a compendium of their other papers will be published to add to the discussion on the question, “What kind of Army does the nation need in 2035 and beyond?”

anticipated ahead of the breakthrough. Four broad implication areas were chosen for study, not because they were exclusive to the Third Offset, but because accounting for them requires a long-term enterprise effort. The four areas are:

1. Implications for Army and Joint Capabilities;
2. Implications for Army Institutions;
3. Implications for Army Leader Development; and,
4. Implications for Moral and Ethical Decision-Making.

A SUMMARY OF THE RESEARCH OBSERVATIONS

The Military Exploitation of Artificial Intelligence (AI) and Autonomous Systems Is Inevitable

Commercial development of highly advanced technologies is already well underway. IBM's Watson, Goggle's Deepmind and Google Brain, and the Facebook AI Research Project are a few of the leaders in the intensely competitive space of machine or deep learning. Even the Commonwealth of Virginia has established an Autonomous Systems Center of Excellence (CoE) in Herndon.

As with past seismic shifts in the commercial space (e.g., industrialization, motorization, the information age) the competition is so severe because these are likely to be what Clayton Christensen terms disruptive innovations – ideas and technologies that disrupt current markets and displace current market leaders.

The potential rewards are staggering and billions (trillions?) are at stake.

These new technologies will follow a logical progression to military applications. There is a natural symbiosis between military and civilian innovation that, in the end, is driven by a need to solve problems and gain advantage. The challenges and realities of big data, complex networks and systems, uncertain environments, ubiquitous technology, and intense peer competition are drivers in both the commercial and military spaces and steer each toward a common set of solutions. The separation between self-driving automobiles and autonomous military air and ground systems is thin – and will grow thinner as deep and machine learning increasingly blur the separation between civilian or military applications. Once advanced AI is achieved, it will quickly spiral into almost every area of the commercial, governmental, and military domains.

Early Adoption of Third Offset Capabilities Is Critical Because Potential Adversaries Will Develop and Field Capabilities without Constraint

The allure of science fiction-like capabilities will be a strong incentive for states and nonstates to pursue Third Offset technologies. These leap-ahead capabilities could be so game changing that the difference between finishing first and finishing next could mean years of decisive advantage in every meaningful area of warfare.

The United States is rightfully concerned about the implications of many of the Third Offset technologies – but current policies and priorities are not reflective of the rapidly evolving technologies or the operational environment. As a result, the United States risks falling dangerously behind potential adversaries who are investing heavily in advanced technologies – and are doing so without self-imposed constraints which limit capabilities and fail to allow full exploitation of these technologies.

The DoD Directive 3000.09, *Autonomy in Weapons Systems*, establishes requirements and parameters for development and use of autonomous weapons systems (AWS). In short, Directive 3000.09 seeks to minimize the risk of unintended lethal engagements by requiring positive human interface for all semi-autonomous and AWS, and prohibiting autonomous lethal force against human targets. While this caution is understandable, the policy is out of step with the evolving battlefield.

Placing a “human in the loop” requirement on the development and employment of future weapons systems may inadvertently induce vulnerability into

the system. Swarm technology has already exceeded the capability for any meaningful human control of individual agents and, as the technologies advance, swarms of tens or hundreds of thousands of individual agents will make human control—or even human understanding—of the actions and behaviors of the swarms impossible. In the future vague and uncertain environment, the decision to engage or not engage—to kill or not kill—may not be best made by a human.

It is important that the U.S. Army deliberately develop and embark on a campaign to develop and exploit Third Offset capabilities. The battlefield of the next 30 years will likely evolve far differently (and much faster) than over the past 30 years. The legacy “big five” combat systems, even with version improvements and upgrades, may well be rendered outmatched and ineffective by AI-enabled unmanned autonomous systems, cyber dominance, and swarms. Continued incremental upgrades to current systems may address current readiness challenges, but could leave the Army ill-prepared to contend on a far different battlefield in the future.

Significant Acquisition, Budget, and Cultural Inertia Exists Which Could Impact the the Army’s Ability to Gain Advantages with Third Offset Technologies

Erosion of U.S. military superiority will continue if the DoD does not think critically and creatively about the modernization challenges faced today and the operational challenges to be confronted in the future. This requires leaders to focus on limiting constraints to innovation and providing a vision of the future force and a path for developing the optimal future force. The Army operating concepts of 2035-2050 must be informed by Third Offset capabilities and not tied to current organizations, doctrine, or weapons systems. Facing tomorrow’s threats with today’s thinking and systems will not be successful.

The Army (and the DoD) currently takes a risk adverse approach to acquisition and requirements—waiting for technologies to mature before prototyping and experimentation. In order for the U.S. Army to become an innovative organization, it must promote an innovative culture, accept risk, and leverage new ideas, while collaborating and partnering on experiments to enhance creativity. The Army must be an early adopter of potentially disruptive technologies and embrace incremental integration of technologies as they mature.

The Army should exercise honest intellectual rigor in envisioning and developing the future force. The Training and Doctrine Command’s (TRADOC) Force 2025 and Beyond maneuvers are a sound roadmap and process, but caution must be given to avoid describing

the future force by solving today’s problems with today’s forces—equipped with tomorrow’s technology. This thinking will lead us to search for a better howitzer or tank, rather than ask the questions, “What is better than a howitzer?” or “Do we still need tanks?”

Leader Development for a Third Offset Environment Must Begin Now

The current Army Leadership Requirements Model addresses leader development focused on human-human relationships, but the future will challenge leaders with more human-machine relationships. The Army should adapt leader and team development strategies, underpinned by mission command philosophy (centered on trust), leadership attributes (character, presence, intellect), and core leadership competencies (leads, develops, achieves), to enable our leaders to aptly trust and lead organizations increasingly comprised of human and AI.

Highlighting agile and adaptive leaders and mission command philosophy only superficially addresses the emerging leadership skills required to lead human-machine collaboration. Deeply embedded attributes need a distinct, deliberate approach beginning with developing a leader’s propensity to trust and methods to influence and train autonomous systems. The Army has an opportunity to increase its competitive advantage over adversaries by acting now to develop leaders who are skilled at maximizing the best of humans and machines.

The Moral Considerations of Third Offset Capabilities Should be Addressed Before the Technology Matures

Moral conflict will always be a part of war because acceptable conduct in war will always conflict with norms accepted in civilian life. This conflict creates a moral dissonance that can overwhelm a soldier’s sense of right and wrong, good and bad, and can cause moral and psychological injury.

Third Offset capabilities increasingly remove the soldier from the conflict—introducing a video game-like effect into ethical decision-making that often leads to moral disengagement. These game ethics override personal or organizational ethics because the technology removes the human-to-human contact necessary to form a proper moral framework. Conflict and the use of force (killing) become dehumanized and, once the soldier has the opportunity for moral reflection, the potential for moral injury is significant.

Widespread military use of AI-enabled decision support and weapons systems is inevitable. The Army must begin to mitigate the potential harmful

impacts of these technologies now. The Army should provide training at all levels that reinforces ethical standards in light of an increasingly virtualized battlefield. Operators of unmanned and semi-autonomous systems must understand how the AI processes moral dilemmas, the potential ethical shortcomings of these decisions, and how to ensure ethical decisions are made. The Army should educate leaders in the responsible employment of unmanned and AI systems, particularly in the method the systems use to integrate ethical principles into the decision-making process.

The Third Offset May Create Unintended Risks by Lowering Risk Thresholds, Subsidizing Foreign Modernization Efforts, and Increasing the Risk of Nuclear War

The Third Offset technologies increase the effectiveness of weapons and, as a byproduct, remove the human warfighters from the battlefield, or limit their exposure to direct action. By distancing the human from conflict, the technology lowers not only the costs and risks associated with war, but the political bar to initiating hostilities as well. As a result, the deterrent quality desired in the Third Offset could actually increase the likelihood that the United States would use force and ultimately decrease global stability.

The DoD is openly soliciting and urging commercial entities to work on technologies that will be used to offset the capabilities of U.S. military competitors. This unconcealed approach, which is markedly different from previous offsets, raises the likelihood that American investments in defense modernization will inadvertently subsidize similar foreign efforts through espionage and foreign exploitation of U.S. technological designs. The openness of the Third Offset could fuel the proliferation of these technologies and provide paths leading to intellectual property loss and corruption of the technology.

Conversely, it would be unwise to assume that a U.S. decision to pursue a third technological offset will necessarily induce all adversaries to pursue in kind. Faced with the near impossible costs of attempting to keep pace in a Third Offset capabilities-race, many actors will have an incentive to pursue a more affordable and credible deterrent to U.S. multi-domain superiority. Coupled with the increasing availability of fissile material, proliferation of nuclear expertise and infrastructure, and modern technologies, it is likely that the next 20 years will bring about an expansion of nuclear powers and global nuclear arsenals. The United States must pursue Third Offset capabilities with the understanding that our actions

will drive and incentivize continued proliferation of nuclear weapons.

CONCLUSION

Posturing the Army to dominate in 2035 and beyond will require broad and innovative thinking. The Army should continue to broaden its thinking about the character of the future force. Simply projecting a variant of the current force into the future and outfitting it with new equipment is not intellectually rigorous enough to fully explore how the future force must operate—nor will it ensure the future force is prepared for the challenges of the future operational environment.

If the traditional notions of superiority and supremacy in the physical domains have changed, then new attributes must be described for the future force because how it operates must change as well. Legacy attributes of the Army such as flexibility, mobility, and expeditionary skills may be replaced by new attributes such as predictive, continuously learning, unknowable, decentralized, and compelling. This new set of attributes will be enabled by Third Offset capabilities.

The implications of the Third Offset for the Army should not be dismissed. These technologies have the potential to change the character of conflict and they require deliberateness. They are coming, and in many cases are already here—it is inevitable. How the Army approaches the Third Offset over the upcoming few years will set the stage for the next 30 years.

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