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The Next Arms Race

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Throughout history there have been a number of arms races initiated by a state interested in changing the political status-quo. These build-ups historically disrupt the balance of power and are usually quelled in a political settlement between rivals or in a decision by one side to moderate its buildup. The last arms race precipitated from the Cold War (circa 1947-1991) between the United States (U.S.) and the former Union of Soviet Socialist Republics led to an amassed amount of nuclear weapons. The concept of mutual assured destruction balanced actions between the states precluding a nuclear war.



(Photo Credit: U.S. Army illustration):
https://www.army.mil/article/187213/work_dod_embracing_innovation_to_fuel_military_over_match_against_adversaries

Within the next 10-20 years technological advancements will be the catalyst for the next arms race. Unlike the nuclear build-up of the Cold War, the next arms race will centrally focus on two lines of efforts: autonomous systems using artificial intelligence (AI) with humans-out-of-the loop¹, and anti-satellite (ASAT) weapon systems.

China and Russia are investing heavily in the research and development across these two lines of effort. Initially, the next arms race will be a pay-to-play event and not everyone will achieve technological superiority...immediately. As technology advances, the associated cost diminishes making it feasible for near-peer competitors and non-state actors to acquire. But as Abdul Qadeer (A.Q.) Khan proliferated nuclear weapons technology to Iran, Libya, and North Korea, we can assume technology will be promulgated to similar countries. The challenge for these countries much like nuclear weapons is the incorporation and packaging of information into a platform that yields untethered autonomous systems.

The challenge for the military is that data will fuel modern AI. Thus, exploiting AI for military advantage requires the Army to treat data as a strategic asset. The way to realize the value of data is through a fundamental cultural shift and commitment through our ranks to become a data-

¹ Del Re, Amanda, "Lethal Autonomous Weapons: Take the Human Out of the Loop." Naval War College, June 16, 2017

centric organization. To achieve this new way of operating, the Army should draw from its strengths: e.g. a strong culture of managed weapons systems, with unrivaled processes and

Russian President Vladimir Putin has stated “AI is the future, not only for Russia, but for all humankind.” “It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world.”⁵

methodologies in areas such as quality assurance; in the years since 9/11 we have adopted the cultural norm of sharing information among people; Army personnel excel at rapidly integrating new information into decision-making. These strengths can be adapted to define new approaches and norms for managing, sharing, and integrating data for military advantage. Over time, the Army’s proprietary data sets will be prime assets of the nation – on par with our most important weapons systems.²

AI will be integrated across all domains to include space. Space systems were first seen on the battlefield during Desert Shield and Desert Storm changing warfare forever. Since that time the continued growth of government, academic, commercial, and foreign space activities adds a layer of complexity to joint space operations. The mounting orbital clutter complicates the forensics and attribution of unusual spacecraft activity.³ Similar to the recently discovered Russian satellite conducting abnormal behavior beyond other Russian inspection-satellite activities. U.S. State Department stated “Russian intentions with respect to this satellite are unclear and are obviously a very troubling development – particularly when considered in concert with statements by Russia’s Space Force commander, who highlighted that ‘assimilate[ing] new prototypes of weapons [into] Space Forces’ military units’ is a ‘main task facing the Aerospace Forces space troops.’”⁴

To counter these and other threats from space the Pentagon on August 9, 2018 announced the creation of an independent unified combatant command, U.S. Space Command, and a Space Development Agency focused on all matters off-world, from procuring military satellites to defending U.S. spacecraft in orbit from attacks. Prior to the stand-up of these organizations the U.S. and China have demonstrated their resolve for the employment of ASAT weapons. In January 2007, China destroyed a Chinese weather satellite with a kinetic kill vehicle (KKV). Thirteen months later, in February 2008, the U.S. conducted operation BURNT FROST destroying a non-functioning U.S. National Reconnaissance Office satellite (USA-193). Consequence management of the satellite’s fuel (hydrazine) was a concern and justification for employing KKV’s.

Warfare by its very character is constantly changing and the application of military systems will usher in a new format of warfare. Whether we realize it or not, the U.S. is at the doorstep of another arms race and like the Cold War we cannot afford to lose.

² Freedberg, Sydney J., “Kim Jong-un Has Much to Teach Pentagon About Speed: Gen. Hyten.” Breaking Defense, August 8, 2017

³ Joint Publication 3-14, Space Operations, April 10, 2018

⁴ Wall, Mike, “Space Weapon” US Calls Out Russian Satellite’s ‘Very Abnormal Behavior.’” Space.com, August 15, 2018

⁵ Gigova, Radina, “Who Vladimir Putin thinks will rule the world.” CNN, September 2, 2017.