Innovation and National Security
Ash Carter's Legacy

By Mark Milley

I had the great privilege of working very closely with Secretary Ash Carter on many occasions over the years. He was a great patriot and a great American. In October 2022 this country, each and every one of us in this country, lost a transformational leader, a friend, and a champion of selfless service. Ash Carter's decisionmaking was always motivated by the care and safety of the men and women in uniform. He was incredibly talented at cutting red tape and speeding up the bureaucracy in order to improve the lives of our soldiers, our sailors, airmen, and marines.

Former Secretary of Defense Robert Gates had a vision for the development of the Mine-Resistant Ambush Protected (MRAP)—the armored vehicles that proved critical to protecting troops in Iraq and Afghanistan. But it was Ash Carter who made that actually happen. The actions of Ash Carter saved American lives on the battlefield, to include my own.

Perhaps Carter's greatest legacy is his sense of urgency for the U.S. military to adopt new technology, to accept risk, and to think of creative solutions to our wicked problems. Secretary Carter was forward thinking. He was talking about generative Artificial Intelligence (AI) while most of us were still trying to figure out our Palm Pilots.

Carter was the rare person who could understand and speak to both the science and the policy of new technology. Most of us need someone to explain what ChatGPT is and how to use it and why it is important. Carter's far-reaching vision and relentless pursuit of innovation reshaped the direction of our military, making us more agile and nimble so we could face down the challenges to come.

We are in the middle of the largest fundamental change in the character of war throughout all of human recorded history. The stakes are enormously high. Today's great challenge is preventing great power war and preserving the rules-based international order that has maintained the great power peace for the last 80 years.

For the past eight decades, this system of rules has helped to prevent great power war. There have been smaller wars to be sure; terrorism, limited wars, and guerrilla wars. But few are alive today in any nation

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on Earth—in or out of uniform—who have lived through a great power war. From the beginning of World War I in 1914 to the end of World War II in 1945, 150 million people were slaughtered in the conduct of great power war.

My parents fought in World War II. My father hit the beach with the 4th Marine Division at Kwajalein and Saipan and Tinian and Iwo Jima. My mother served with the Navy Medical Corps and took care of the wounded coming back to a hospital in Seattle. My uncle was hitting the beach at Normandy when my father was hitting the beach at Saipan in the summer of 1944. It is difficult for us today to imagine the kinds of casualties that come with great power war.

The Meuse-Argonne was the largest battle in American history: 1.2 million American troops, roughly the equivalent of today's total active duty force, fought in that single battle, which began at the end of September 1918 and ended on the last day of the war on 11 November. In this six-week period, 26,000 Americans were killed in action over an area roughly 24 miles. During the battle the Allies advanced all of 10 miles.

Just 37 years later, at Iwo Jima 7,000 Marines were killed and 34,000 wounded in only 19 days. And those are just American casualties. In World War II, the Soviet Union lost 40 million. China 30 million. Germany 15 million. Japan, France, Britain, Italy were all devastated, as well as many other countries. And then there was the institutionalized murder of 6 million Jews and Gypsies and gays and disabled and the elderly and anyone who Nazi Germany determined was of no value. One hundred and fifty million people died in war in the 30 years between 1914 in 1945.

Add in the potential use of nuclear weapons and you quickly realize how devastating a great power war can be. The atomic bombs detonated over Hiroshima and Nagasaki brought the war in the Pacific to an end, but at the cost of 355,000 deaths—in just two days. Ash Carter understood the cost and the consequences of great power war. As a physicist, he also understood the horror of nuclear weapons, and as a scholar he had an understanding of deterrence theories from the Cold War.

At the end of World War II, the United States led the victors in setting up the rules-based order to prevent another great power war. Sadly, the leaders of the Soviet Union decided they did not like those rules and they set up an alternative world order called the Warsaw Pact. That order collapsed between 1989 and 1991.

The rules that the United States helped to establish have been governing the world ever since. But now we can all see that that order is fraying. It is not broken, but it is being stretched. China is looking to revise the international order in its favor. They want to be the regional hegemon in Asia within the next 10 years. And they want to exceed the United States as a military global power by mid-century—by 2049 to be exact. If they follow this course, the People's Republic of China will be on the path to potential confrontation with its neighbors and with the United States.

Today Russia is at a very dangerous turning point. While China is a rising power, a revisionist power, Russia is a declining power or revanchist power. Russia wants to go back to the past—back to when it possessed an empire. A little over a year ago, we all witnessed Russia illegally invading the sovereign nation of Ukraine. An unprovoked act of aggression, it was an invasion that undermined the so-called rules-based order. That war now is entering its 18th month and remains extraordinarily dangerous.

Both China and Russia have the means to threaten our interests and our way of life. But we must keep in mind that war with either is neither imminent nor inevitable. And we must continue to deter great power war, which was the central purpose of Ash Carter's professional life. That is what drove Ash Carter. And we will continue to deter great power war through readiness.

Soldiers from the 112th Field Signal Battalion, 37th Division, Ohio National Guard, waiting to advance near Avocourt, France, Sept. 26, 1918, at what would signal the start of the Meuse-Argonne offensive. U.S. Army Signal Corps photo.

It is readiness for the future, otherwise known as modernization, that Ash Carter advocated. He understood that we are at an inflection point in human history where we are experiencing a fundamental change in the character of war. The nature of war, as Clausewitz tells us, is immutable and is not going to change. It is a political act—a decision by humans to impose their political will on their opponent by the use of organized violence.

War involves friction, it involves fear, and it involves agony. It involves confusion. That is the nature of war. The how, where, when, and with which weapons and technologies wars are fought though—the character of war—changes frequently. However, the character of war only changes fundamentally once in a while. And we are in the midst of one of those fundamental changes.

History has taught us that nations that are able to successfully combine new technologies are able to create potentially decisive military advantages, especially at the beginning of a war. The most recent major change—the most recent fundamental change in the character of war—occurred between World War I and World War II when we saw the introduction of mechanization, of wheeled and tracked vehicles, tanks, airplanes and air power, all tied together with communications that were wireless—the radio. There were other technologies to be sure, but these were the drivers behind that fundamental change in war in the last century.

Every great power had those technologies—the United States, Britain, France, Germany, and Japan. All had those technologies, but the country that initially combined them to the greatest effect unfortunately was Nazi Germany. The Nazis took these technologies and combined them into the "German way of war," a way of war that allowed the Wehrmacht to overrun Europe in 18 months.

Eventually, the combined industrial strength of the United States and the Soviet Union along with our allies overcame Nazi Germany. But during the 18 months they dominated Europe there were horrific consequences. We are in a similar moment today, but we might not have 18 months to ramp

Medium shot of soldiers discussing military strategy with holographic landscape display. Shutterstock ID: 1766246936.

up production and build up the military when the next great power war breaks out. We must be ready now, we must be ready in the future. And that is the challenge; figuring out the best combination of technologies, integrating with the right training, doctrine, and organizational structure.

There are a few critical technology trends emerging today and perhaps for the next 10 to 15 years that Ash Carter highlighted to us several years ago. I would propose that we look at it like this; the first principle of war is to survive—if you are dead you cannot fight. So, in future war you must survive. Today is an age of pervasive surveillance—an age in which we have sensors that can detect anyone, anywhere, at any time, on the Earth's surface, and, most of the time, its subsurface. We have the ubiquitous ability to sense the environment, and that will only increase as we move forward in the years to come. Just think of Fitbits, GPS watches, and iPhones—all of those are sensors. Think of the space-based capability and the electronic signatures that everything leaves. All of those are part of a sensing environment unprecedented in recorded history. Our ability to see and sense that environment today is literally incredible.

What you can see, you can shoot; and today we can shoot at further ranges, with greater accuracy, than ever before in human history—and we can do it with great precision. With the advent of hypersonics, we can do it at greater speed. We can shoot at long range, with great precision, at hypersonic speeds. Add in lasers and other forms of non-kinetics coming onstream and you can see that our enhanced abilities to see and shoot, in and of themselves, constitute a fundamental change in the character of war.

To that mix add the ability to move with a variety of technologies that are now coming onstream. Among the most important critical technology trends emerging today are those related to robotics. Robotics and unmanned aerial vehicles, unmanned ground vehicles, and unmanned maritime vehicles are coming onstream at speeds that are unprecedented. In the next 10 to 15 years we are going to see a pilot-less—or at least partially piloted—Air Force, a sailor-less or partially sailor-less Navy, and a crew-less or partially crew-less tank force on the ground.

And last in a long list of technologies that are emerging rapidly is perhaps the most powerful of all: artificial intelligence, a technology that gives you the benefit of making decisions faster than your enemy can.

Napoleon defeated the British on many occasions even if not at the final battle at Waterloo. In those early victories he prevailed by waking up at two in the morning. An insomniac, he wrote his

orders, gave them out to marshals who were on their horses and already on the attack before the British finished their tea. The ability to go through the OODA loop—observe, orient, decide, and act—faster than your opponent is a significant advantage. The ability to make faster decisions more accurately is a significant advantage in the conduct of war. Artificial intelligence and quantum computing will give that advantage to the country that first masters their military application.

To see, to shoot, to move, to communicate—these fundamentals have all been foundational to the conduct of warfighting for centuries. But now we are moving to a different level of capability. And our military was directed, years ago, by Secretary Ash Carter to develop those technologies that are coming to fruition today.

You see that in the Army with a multi-domain task force and long-range fires. You see that in the Marines with a Littoral Regiment. You see that in the Navy with experiments in the 5th Fleet in the Central Command area of operations with unmanned maritime surface and subsurface vessels. And you see it in the Air Force.

Our challenge is to take these new technologies and merge them into a way of war that gives us a tactical and strategic advantage over the adversary. We will do this not to conquer. We will do this to prevent war. And to achieve this, we must operate seamlessly in our Joint Force as we probably will not have those 18 months. On Day One of the next war, we must be fully integrated and able to maneuver through space and time in a fast-paced, high-tech, rapidly changing environment, remaining invisible and in a constant state of movement.

If we can do that we might prevail. But more importantly, if the enemy knows we can do that they will be deterred. The method by which we are doing that is by initiating the Joint Warfighting Concept (JWC), which is now in its third iteration. The JWC is a description of how we intend to fight in the future. The future warfighter will also need to be skilled in breaking down the silos and working across all the various services to solve key problems. As we look to operationalize the JWC we have to recruit a wide variety of talent that may not come from our traditional sources.

The organizational structure needed to implement this JWC—a joint futures organization conceived by Ash Carter and Senator John McCain—has emerged and become known as the Army Futures Command, and a similar concept is being developed for a Joint Futures Command.

If we want to deter great power war we must remember what Thucydides told us: Remember that wars are fought for fear, pride, and interest and these remind us that to deter war we have to remain strong militarily, economically, and societally. Our opponent must see that and must understand that we have the will to use our strength.

We all must recommit ourselves to the vision of Ash Carter. We must always remember that we take our oath to the Constitution and the idea that is America. The idea that it does not matter if you are male or female, black, white Asian, or Indian. It does not matter what the color of your skin is. It does not matter whether you are rich or poor, famous or common, whether you are a Catholic, Protestant, Muslim, or Jew, or you choose not to believe at all. Ash Carter knew that this military was open to all Americans and that none of those identifying characteristics matters. What matters is your commitment and your talent; what matters is that you are an American. What Ash Carter cared about was your merit, your skills, your knowledge, your attributes.

Ash Carter was committed to that idea of America and was someone that we all should try to emulate. All that he stood for is what we should recommit ourselves to—the idea that is America. That is what Ash Carter had as his North Star and it should be our North Star too. **PRISM**