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Sustaining Multi-Domain Battle

An Interview With Gen. David Perkins

■ By Arpi Dilanian and Matthew Howard

Gen. David Perkins, commanding general of the Training and Doctrine Command, discusses the tenets of Multi-Domain Battle during a video interview.

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concept, describes
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As commander of the Training and Doctrine Command, Gen. David G. Perkins is spearheading the Army's efforts to develop the Multi-Domain Battle (MDB) concept, which describes how the Army will fight future wars. In his 37 years as a Soldier, Perkins has developed a reputation for breaking new ground.

In 2003, he commanded the 2nd Brigade, 3rd Infantry Division, the first brigade to cross the border during the invasion of Iraq, for which he earned the Silver Star. From 2011 to 2014, as commander of the Combined Arms Center, he led the synchronization of leader development across the Army. In this interview, Perkins offers his perspectives on sustainment for the MDB environment.

Why is it time for MDB?

Since [Operation] Desert Storm, and throughout the fights in Afghanistan and Iraq, most domains were uncontested. The Air Force had air supremacy everywhere, and the Navy had naval supremacy. We really had no enemy that could bring our cyber systems down. The only domain that was contested was the domain that we operate in, and that is land.

When we see what peer and near-peer competitors are doing, and we've seen their capabilities demonstrated around the world from Ukraine to Syria, we see them going after all of the domains. Therefore, we must assume that every domain will be contested in the next large fight that we get into—the air, the maritime, space, cyberspace, and obviously the land.

The Army can no longer constrain our attention to one domain. We've got to operate on land within the context of the other domains. We must contest all of them so that we can leverage that freedom of maneuver and not let the enemy box us out on land because of something they can do in cyberspace.

How do you anticipate force design evolving to support MDB?

We are already beginning to come up with new force design structures, and that is part of the concept that is becoming reality from an organizational point of view. Probably the first big change people are going to see is that we are standing up an MDB task force. It is meant to counter the anti-access/area denial environment that specifically aims to prevent the United States from getting into an area of operations through components of the land, air, and space domains. We are building this task force to have the ability to thwart that.

One of its unique aspects is that there will be a portion of it called the ICEW (intelligence, cyberwarfare, and electronic warfare) detachment. We have never had a unit that has a combination of those capabilities. But we are building a sub-unit within the larger task force because what we're finding is that we've got to converge the capabilities of multiple domains to stop what our enemies are trying to do, which is to take away freedom of maneuver.

Will battlefield sustainment change in an expeditionary environment with new domains?

When we take a look at actually operationalizing MDB, there are really two large challenges: how are we going to sustain our units, and how do we connect them via a network?

The reason sustainment will continue to be a challenge is that when we look at our concepts for MDB, what we have are widely dispersed forces that may not be contiguous. Therefore, we have large areas in between them that we do not necessarily control all the time.

When I was growing up in the Army under AirLand Battle, we would lay out our battlefield framework and have our operations overlay. Every piece of ground, somebody owned; we had one unit butted up



Gen. David Perkins, commanding general of the Training and Doctrine Command, discusses the Army Operating Concept with Soldiers and civilians during a leader professional development session at Fort Leonard Wood, Mo., on Feb. 3, 2015. (Photo by Michael Curtis)

against another. But it was assumed that the rear area was a secure area. A lot of our logistics activity would at least begin in the rear and move forward to the front, but it would be over lines of communication that really were secured all the time. In the future, we won't have that construct because there's really not a rear area that's not contested, and we probably won't have continual lines of communication that are secure all the time.

So now the challenge is how do I come up with a concept of sustainment that can operate in noncontiguous areas, cover vast areas, and provide flexibility as things develop very rapidly on the battlefield? I am seeing a couple of things that will help. One of those is in the realm of autonomous robotic systems. There are ways to move a lot of classes of supply autonomously with unmanned aerial and robotic systems and driverless vehicles.

Obviously that [unmanned delivery] really reduces the risk from a protection point of view. It allows us to operate on a 24/7 schedule because we're not having to manage the large number of people involved in a delivery and how it affects them personally. It could also allow us to deal with changing situations very quickly by programming sustainment systems to change as the battlefield changes. Say we're going to send ammunition here, but that changes at the last minute, and we send it somewhere else instead.

The other thing I think will leverage the network is telemedicine. Our ability to provide medical support to the Soldier on the battlefield is a sacred vow that we make to the Soldiers and the American people. We do that on the battlefield better than anybody in the world. We may not have the ability to immediately evacuate every wounded Soldier within the "golden hour," like we

would prefer to now. We may have to bring medical attention to them via telemedicine. We may have robots doing medical procedures while being controlled by doctors located at a medical center somewhere far away.

Have you found anyone that is skeptical of the MDB concept, and if so, what do you say to them?

Sometimes people think this is old wine in a new bottle. They think this is just like AirLand Battle, that we have only changed the word from AirLand to Multi-Domain, and everything else is the same. I agree that many of the tenets are the same and that it is an evolution, not a revolutionary way of thinking. But there is one very big difference from AirLand Battle.

In AirLand Battle, we looked across a battlefield and by definition primarily focused on the two do-

mains of air and land. Then we said to the air guys, “You come up with some solutions,” and to the land guys, “You come up with some solutions.” And, oh by the way, within land I’m going to have warfighting functions, so there’s a sustainment part, there’s a maneuver part, there’s an intelligence part, and there’s a fires part. We would start solving these subordinate parts in their little stovepipes, but

problem. I say that’s a problem. Inherent in that problem is a sustainment issue; there’s a fires issue; there’s a space issue; there’s a cyberspace issue. We start solving those from the very beginning instead of breaking them out into 20 different working groups. That is going to be one of the biggest impacts—how we define problems and how we come up with converged solutions.

for our Soldiers. Well, there’s been a couple of ways to look at it. We can take an incremental approach to what we have, or we can work with industry where there are some long-term possibilities out there. There are things we can do now that give us a near-term capability but also move us in that direction. The most important thing about having a long-term vision and concept for the future is that it enables us to make the right short-term readiness decisions.

“When I look at a problem, I don’t say that’s a land problem, that’s a fires problem, that’s a sustainment problem. I say that’s a problem.”

—Gen. David Perkins

then to actually execute the mission, we have to bring it all back together.

We would bring all these systems together, and the intelligence system couldn’t connect to the maneuver system, which didn’t work with the sustainment system that didn’t work with the fires system.

The Air Force had different ways of communicating and networking. What we ended up with were a series of federated solutions, which we then had to synchronize. We spent an inordinate amount of time synchronizing systems that were by definition not synchronized. The challenge with that is the rate of activity on today’s battlefield and the rate of innovation change so quickly that if you’re spending all day long synchronizing federated solutions, the enemy is adapting inside your decision cycle.

So the biggest difference is that we’re saying from the very beginning that we must not come up with federated solutions that have to be synchronized, but rather, we must develop a uniquely converged solution that is already integrated.

When I look at a problem, I don’t say that’s a land problem, that’s a fires problem, that’s a sustainment

How are we balancing readiness today with modernization for the future?

Balancing readiness with modernization is a good way to describe it. The chief of staff of the Army’s number one priority is readiness; it has been for two years, and I don’t think that will change. Now, into the second half of his tenure, although he is not coming off readiness, he is applying more energy as we think about the future and modernization. I think we’re seeing that in many ways and having discussions recently about establishing unity of command, unity of effort, how we acquire materiel, and how we modernize the Army.

It’s very helpful to have a long-term vision of how we want to modernize so that when we make an immediate decision about readiness, there may be multiple options. I could take option A, which pushes me in this direction, or option B, which pushes me in that direction. If we know we want to go in one direction long-term, we might make a short-term decision on readiness that actually starts moving us in that direction. So I find it’s not an all or none proposition.

Let me illustrate. We need to upgrade the current rifle that we have

Technology will play a bigger role on the complex, urban battlefields of the future. What innovations do you foresee changing the game for sustaining our units?

One of the biggest demands for our units, especially mechanized units where I’ve spent most of my life, is for energy. We spend a lot of time and resources, from a sustainment point of view, moving energy on the battlefield. A lot of it is fuel. We have large logistics convoys, and we have to secure them, and of course we have to have the roads and all that. So from a technology point of view, one of the things we’re looking at is if there are other ways to move energy around the battlefield and to supply energy.

Right now most of the energy we move is fuel. It takes a lot of space, it’s heavy, we have to have the means of conveyance, and it’s got to be contained in a fuel truck or something like that. We’re looking at electric-drive vehicles. We’re looking at fuel cells and hybrids. Maybe if we could move fuel cells around the battlefield, we would have chunks of energy instead of tanks of energy, and it would be much easier to move. It would lend itself much more to autonomous operations.

If I could pre-position energy in places, drop off a chunk of fuel cells or a chunk of energy that somebody then moves to and uses, it’s a very different way of running a sustainment operation than just miles and miles of fuel tankers going up and

down the roads.

The number one challenge we have is not energy on the battlefield, but moving it. Usually, we have a big pile of it somewhere; there's a big tank full of fuel maybe at the port. Fuel cells would put energy in a form that is much more easily moved around the battlefield.

Is there another example?

Repair parts and maintaining vehicles. If we can design our vehicles so they require much less routine maintenance and their reliability is much higher, we can really reduce demand on mechanics.

If we could 3-D print repair parts, we can just bring raw materials to the battlefield. We don't have to have every different kind of widget for every different kind of system out there. We just have some blank material and then we can 3-D print it to whatever part we need. That really cuts down on the size of the sustainment footprint.

What implications does the MDB concept have on the joint force?

MDB almost by design and definition is inherently a joint construct. We've known that from the beginning, so we've reached out to our partners in the Air Force, Navy, and Marine Corps as well as our coalition partners. A great example of that is our work with the Air Force as they look ahead to replace their JSTARS [Joint Surveillance Target Attack Radar System]. JSTARS is one of their airborne platforms that gives them what we call "moving target indicators," intelligence of things moving in our domain.

As we were talking to them [the Air Force], we said, "You have to take it to the next level. We don't only need intelligence for things that are moving on land, we really have to have multi-domain intelligence preparation of the battlefield. We have to know what's going on in cyberspace and space, and it's not about replac-

ing a platform, it's about developing a capability."

What we find is there are a lot of things on the battlefield that can provide bits and pieces of this picture to create an understanding. So what we really need is a system of systems that we can knit together to provide this full picture, not just one airborne platform.

So we're sitting down with the Air Force and we're saying that part of this may be an unmanned aerial system that can go into very highly contested terrain and airspace that we may not want to send a manned vehicle into. That way, if we lose it, we're not losing a pilot.

There may be systems on the ground that we could plug into this. There's probably systems in space. There may be stand-off reconnaissance systems; they cannot go into contested airspace but they can stand off and look in and then cross-queue with something from space, collecting data from things that are on the ground. We can't have what I call "one-trick ponies." We want to present multiple dilemmas to the enemy. We don't want to have just one system, and if the enemy takes it down, they take our eyes away. We need multi-domain intelligence from all of the domains.

What advice would you give to Soldiers to adapt to the multi-domain environment?

The really good news is that the Soldiers we are bringing into the Army nowadays have grown up in a multi-domain, interconnected world, and they are used to having many options to deal with a problem. My advice to them is to think about how things occur in a non-military environment and really bring that thinking into the battlefield.

When I was growing up, if we wanted to contact somebody, we really had one way to do it: get on the phone and dial them. Now, if I say I have to pass information to somebody or I have to contact them, do I use my cell phone? Do I send them

an email? Do I send them a tweet? Do I text them? Do I go into Facebook? Do I go into LinkedIn? Immediately when they see a problem, they have five or six ways to solve it. They will try one way, and if that's not working, they will quickly move to another one.

What we want folks to think about MDB is that we don't have just a land problem or just an air problem. We have challenges that probably have many different solutions. We want folks to be critical thinkers and think through this and say, "I could try this; if it's not working, I'm going to try my cell phone. Well, I'm not getting coverage there, but I'm right near the computer; I'll get on Facebook and do this."

They inherently do that anyway, and that's really the mindset we want them to bring into the Army. We want to give the commander many different options for delivering as many dilemmas to the enemy as possible, so don't ever limit yourself to just one way of going about the problem. And understand the problem is never defined by a domain; the domain is just something we use to help solve the problem.

As I grew up in the Army, people would say, "Well I own this domain, I own that domain, I own the land." We really have to get away from domain ownership and focus on domain usership. [We need to] think about how we can use a particular domain to our advantage. That would be the intellectual breakthrough Soldiers need to bring with them when they come into the Army.

Arpi Dilanian is a strategic analyst in the Army G-4's Logistics Initiatives Group. She holds a bachelor's degree from American University and a master's degree from Rensselaer Polytechnic Institute.

Matthew Howard is a strategic analyst in the Army G-4's Logistics Initiatives Group. He holds bachelor's and master's degrees from Georgetown University.