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# "Technology & the Customer"

As I begin my tour of duty with the Army's proponent for Space and Integrated Missile Defense, I want to share with you my thoughts and philosophy on technology and how the Army uses it.

Newt Gingrich spoke at a course I recently attended. He quoted the chairman of the National Academy of Sciences' working group as saying that "we'll have between four to seven times as much science in the next 25 years as we got in the last 25 years." If it is four times as much, that is like sitting in 1880 and trying to describe what life would be like in 2007. Just imagine trying to describe the future then.

Think about it. Gingrich went on to say, "In 1880 they had just invented the internal combustion engine in Germany. There were no cars built yet anywhere in the world. The telephone was only three to four years old. Very few people had one. The idea that you would drive a car to get into an airplane, which had not been invented, to use your cell phone or your Blackberry while waiting for the door to close when they turn on the movie which had not been invented ... I mean, just think about this scale of change. And yet, if we're right, and there's going to be four times as much science, the change will be about the same as from 1880 to today.

"But let's assume it's seven times as much. Then you're back to Sir Isaac Newton in 1660, inventing calculus."

That is a lot of technology coming on-line in the next 25 years that may have a military application.

I love history and use it to learn lessons and draw inspiration. I look at our Army's flag with its 178 streamers recounting 232 years of the Army serving its Nation, doing what its Nation asked it to do. The Army did it then; it does it today; and it will serve strongly tomorrow. As we think about our Army's legacy from Lexington to Iraq, the challenge I pose to you is to ask Soldiers and commanders what they need today, and what they will need tomorrow to more successfully prosecute their mission. I also challenge you to not discard ideas and concepts because they don't fit in the "box" of current thought.

I'd like to start with a few stories to illustrate my last point. Although all these illustrations are air defense specific, the moral of the stories applies across the board.

When I was in the Officer's Advanced Course, I listened to one of our Air defense Artillery senior leader's state, "GUNS ARE DEAD! We are leaving Vulcans, etc, behind and investing all in Patriot." You may remember that the Vulcan is a towed or self-propelled anti-air defense weapon that fires a Gatling-style cannon with an extremely high rate of fire.

Patriot is a great system, but having served in Iraq, I can tell you that a few Vulcans on the perimeter would be very welcomed. Now, I'm not advocating bringing back the Vulcans, and who could have known what lay ahead when a short-sighted view of "GUNS ARE DEAD!" was adopted?

Several years ago I saw another Air Defense Artillery officer brief some innovative changes to the Avenger which replaced the Vulcan and Chaparral. The Avenger has two Stinger missile launcher pods, each capable of firing up to four fire-and-forget guided missiles in rapid succession. This officer proposed changing one of the pods for a 2.75 MM rocket pod and adding a more robust, Vulcan-like machine gun to the system. This officer was ridiculed and just about laughed out of the room. Just think if we had that system today in Iraq. The ground maneuver commander would have the Avenger systems in every perimeter. Although providing perimeter and convoy defense is not necessarily an air defense mission, an Avenger so outfitted would provide great value to the current fight.

My third little story comes from a few months after the Sept. 11 attack. I was at a conference on the future of divisional Man-Portable Air Defense (MANPAD) systems. Soldiers can carry this system and fire its missile from their shoulders. The theme of the conference planners was “MANPAD is DEAD!” An officer brought up that a MANPAD gunner operating in a city could help defend against a Sept. 11-type attack. The group leader said, “If I can ring the city with longer range systems, I wouldn’t have to have a short-range MANPAD system.” The officer countered that if we could develop a MANPAD that could fire 20-30 kilometers, beyond-visual-range, we could do the same job with just one gunner. Everyone looked at

the officer like he was crazy and the final conclusion of the day continued to be “MANPAD IS DEAD!”

In those three instances, the decisions seemed to be already made so the officers asking the “what if” questions or proposing different solutions were discounted. So the questions are: who is looking at the “what ifs?” and where are the visionaries of “what could be?”

Every organization has them, but many times they are dismissed or marginalized by the bureaucracy of our acquisition process, by the lack of money, or because we’re protecting our turf. Most of us — the Services and industry — aren’t willing to take much risk on a “could be” program or system. Let me tell you about a success of one who asked, “what if?” and found an innovative way to use what the military already had.

Earlier in Operation Iraqi Freedom, a lot of U.S. military deaths were coming from rocket, artillery and mortar attacks. In 2004, the Multinational Corps-Iraq asked for help to solve that problem. They needed something that could engage those weapon systems and they needed it right then. So someone asked, “what if — what if we use a weapon we already have?” So they tried several systems, held a shoot-off and chose the Phalanx, an existing Navy anti-ship missile defense system. Out of

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that warfighter request and someone asking, “what if,” the Army deployed the Counter Rocket, Artillery, and Mortar (C-RAM) system in less than a year. Charlie Battery, 5-5 Air Defense Artillery from Fort Lewis, Wash., was the first unit deployed to Iraq for a C-RAM mission. Today, the system and the Soldiers manning it are destroying the threat and saving lives.

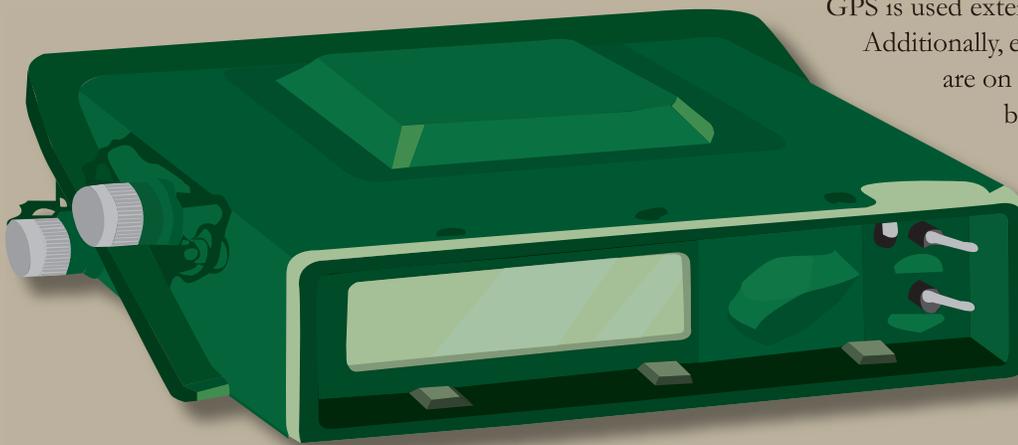
Presently, the 1st Space Brigade has two Army Space Support Teams in Iraq. Those teams are another example of someone asking “what if?” and being a visionary and advocate of what could be.

The teams currently deployed, some Army Reserve, some National Guard as well as Active Component, have been on continuous rotation in and out of Iraq since 2003. They bring Space-based capabilities and products to the warfighter and help the staff integrate those capabilities into their planning process. Some future thinker realized that the teams, regardless of component, needed the same equipment and training and it is paying off.

Army Space Support Teams started in 1990 as training teams that deployed in the build-up to Desert Storm to train units that were receiving Small, Lightweight Ground Receivers (SLGRs) or “sluggers.” Those were hand-held devices that could receive Global Positioning System (GPS) signals. The SLGR began as a demonstration program — a “what if” — in 1988 with the Army Space Institute. In August 1990, only 800 devices existed in the Department of Defense inventory, but they had proven their worth in demonstrations around the Army. As a result, when the build-up to Desert Storm started, the Space Institute began getting calls from everyone everywhere for the device. The Army gave the Deputy Commander, XVIII Airborne Corps, the job of deciding what units would get the SLGR, and the Army placed an emergency procurement order for more. You all know how important they turned out to be as VII Corps did its “left hook” through the desert.

Since then, the demand for Space-smart Soldiers and Space-based capabilities has continued to grow. Today, GPS is used extensively throughout the battlefield.

Additionally, enough Army Space Support Teams are on the Army’s books that they have a battalion headquarters looking after them, and the Army is assigning other Space-smart officers and noncommissioned



**SLGR ILLUSTRATION**  
Small lightweight ground receiver  
ILLUSTRATED BY MICHAEL KAHL

# It started with a "what if?" and a "let's try this."

officers to armies, corps, divisions and joint organizations.

It started with a "what if?" and a "let's try this." My next question is "who are we supporting?" Your answer should be, "We support warfighters." But who are those warfighters?

People brief me and say, "We want you to give us the warfighter perspective." I am not the warfighter. The sergeants, lieutenants, majors, up to brigade commanders are the warfighters, not some general, old colonel or senior civilian sitting in a stateside headquarters somewhere.

For example, the Soldiers and officers in the 49th Missile Defense Battalion in Alaska and the 100th Missile Defense Brigade in Colorado are warfighters. Their missile defense elements are pulling round-the-clock duty, day in and day out, to protect the Nation from enemy missiles. A military police unit with the 49th is guarding the missile fields. And some of the missiles at their disposal are in California. What do those warfighters need to perform their mission better? Is there some software that would better integrate the sensor data and make it more useable both in Alaska and California? What tactic, technique or procedure can enable them to better protect the missile field? If you asked those warfighters, I'm sure they'd have a suggestion or two. Now, I'm not saying that any of this is broken or the mission is at risk. I'm simply saying, you

and I don't know, and won't know what is needed, unless we ask the warfighter.

The elements of SMDC/ARSTRAT are just a few of the warfighters who make up our customer base. Over 136,000 troopers are in Iraq; 18,000 in Afghanistan; almost 1000 in the Horn of Africa; over 263,000 Soldiers deployed or forward stationed in nearly 80 countries overseas. They are the warfighters.

Who listens to their capability needs? Who asks the platoon sergeant, platoon leader, the company, battalion or brigade commander coming out of theater what they need? Do you?

Who asks them what they need from Space-based capabilities and missile defense?

I challenge you to think about the individual Soldier, Sailor, Airman and Marine on the battlefield, and the Coast Guardsman along our shores. What can we do collectively to best support them? What do they need? How can technology and Space-based systems serve them?

Assuming we've asked them and assuming we've analyzed the need, let's use the moral of three little stories I recounted earlier to give those who offer a contrary view or a "what if" a fair hearing. Who knows? That view may be