



Lessons From Baghdad

The military has much to teach CEOs about supply chains and RFID.

BY PETER GALUSZKA

Large plasma screens line a wall at the Joint Intelligence Operations Center (JIOC) at the U.S. Central Command headquarters in Tampa, Fla., which oversees military activities in Iraq and Afghanistan. Unmanned spy drones, firefights in progress or shipping containers on their way to remote spots can all be monitored in this hush-hush nerve center. But when a visitor enters, a crew-cut Marine colonel anxiously waves his hand. Screens showing top secret maps of Baghdad flip to CNN.

A room like this might be the dream of any information-obsessed CEO. In fact, top exec-

utives have plenty to learn both from the U.S. military's successes and failures in seizing Afghanistan and Iraq, occupying them and hunting for the elusive Osama bin Laden and other terrorist operatives.

Besides fighting the war and chasing terrorists, Centcom generals must also be supply chain experts; they must ship enough food, fuel and ammunition to sustain 300,000 troops in 27 nations halfway around the world in climates ranging from hot deserts to frigid mountains. Supplying water "can be a huge challenge when it's 135 degrees outside," says Maj. Gen. William Mortensen, Centcom's logistics chief.

Centcom generals must come up with speedy solutions to poor planning decisions, such as one bad call to limit supplies of protective armor at the outset of the Iraqi invasion. Besides dealing with Defense Secretary Donald H. Rumsfeld's controversial and fast-changing military doctrines, they have to be diplomats and handle attachés from 65 coalition and other nations who occupy rows of mobile home-like structures next to the beige headquarters building in a concertina wire-enclosed part of Tampa's MacDill Air Force Base.

Inside Centcom's HQ, the buzzwords of the hour are "sense and respond" and "oodalooop," which means constantly reassessing tactics. Lessons learned include basics such as stating mission visions clearly and giving bright young officers room to make decisions on their own. The military is engaging in the first combat tests of radio frequency identification, or RFID, systems that, in the civilian world, are starting to replace ubiquitous bar coding and revolutionizing supply chains for companies such as Wal-Mart.

Thronged with intense troops armed with automatic pistols, Centcom doesn't seem like the headquarters of a multinational corporation. But it might as well be. Top commanders constantly jet back and forth to the forward HQ in the Persian Gulf nation of Qatar, to various Iraqi and Afghan cities, and to the Pentagon and Capitol Hill. While Centcom doesn't have its own combat force, it coordinates efforts of the other armed services assigned to it. Centcom officers don't get down to the tactical level managing battles, but they stay in regular, personal touch with the troops, trying to anticipate nasty surprises.

And there have been plenty of nasty surprises. Officers and troops have had to react quickly to unanticipated challenges with body armor shortages and the skill with which Iraqi, Syrian and other insurgents have deployed lethal "IEDs," or improvised electronic devices, also known in layman's

terms as bombs. When the invasion of Iraq was launched in March 2003, logistical snafus and shortages made ammunition scarce, forcing troops to resort to using captured Iraqi lubricants and explosives. "Theater stocks of food barely met demand," according to a report last year by the Center for Army Lessons Learned, a military think tank at Fort Leavenworth, Kan.

Such problems beg a Centcom buzzphrase. "If you cannot be an early adopter,

"If you cannot be an early adopter, then be a rapid adapter."

—BRIG. GEN. MARK KIMMITT

then be a rapid adapter," says Brig. Gen. Mark Kimmitt, Centcom's planning chief. A 1984 Harvard Business School graduate, the tightly wired West Pointer appreciates how managerial issues resonate for both the business and military worlds. He also knows the differences between them. When CEOs err, they lose money. Generals can lose lives.

The body armor issue is a case in point. During the first Gulf War in the early 1990s, the Department of Defense amassed mountains of supplies in Saudi Arabia, Bahrain and Qatar before starting operations to kick Saddam Hussein out of Kuwait. Critics later complained that many supplies were never used. In any event, there never seemed to be shortages of body armor.

When the second Iraq War loomed in early 2003, Pentagon planners, following Rumsfeld's more fluid, faster-moving approach, decided that body armor would be distributed mostly to assault troops. But insurgents attacked others. Vehicles, especially Hummers and larger trucks used for supplies, were short of armor as well. The

problem was compounded because some of the armor sets include ceramic plates that can be put in front and back vest pockets for added protection. When the war started, however, "there was a decision that only certain sets of our military would have that because of the combat role they'd be playing. [Then] we found that the counter-insurgency caused that decision to change," says logistics czar Mortensen.

The solution? The Pentagon got suppliers to ramp up production from about 1,200 armor sets a month to over 25,000 per month. Plating vehicles with armor protection likewise has gone up. Only a few hundred vehicles were armored, but now about 7,000 Hummers have plates. "It's not an issue of logistics," insists Mortensen. "It's, what is the requirement? But I think our system has responded marvelously, [if] not as fast as some would like."

Centcom had other issues on its learning curve. Before Iraq was invaded, the military had high hopes to deploy logistics systems that relied on RFID and could offer much greater accuracy and speed in resupplying troops in the field. The military had a sense of ownership with RFID since it began with military-related experiments with radar in the 1930s. The logistics arm of the Pentagon has spent about \$100 million so far to implement it. Starting this year, all 46,000 Pentagon vendors must use RFID.

As it undertook the massive ramp-up to RFID, the military consulted with major civilian users such as Wal-Mart, UPS and Federal Express, Mortensen says. The military also has contracted with SAP and other firms to help with systems architecture, software and hardware. Unisys provides field service engineer support for current RFID in Iraq. Most of the RFID gear comes from SAVI Technology of Sunnyvale, Calif. Soldiers use handheld interrogators made by Symbol Technologies of Holtsville, Ky.

When the invasion of Iraq came, how-

RFID Lessons Learned

IN ITS FIRST real combat test of the technology, the U.S. Department of Defense made wide use of radio frequency identification in supplying troops in Iraq and Afghanistan. In the process, the Pentagon, which is now requiring all of its vendors to use RFID, learned some key lessons. Among them:

1 Have your system ramped up fully before you use it. In Iraq, troops literally had to shoot their way into areas before they could set up RFID sensors to track supplies, leading to glitches.

2 Confirm compatibility. Make sure that sensors, software and network architecture can talk to each other.

3 Don't sweat the small stuff. There's no point checking the location of routine shipments every five minutes.

4 Minimize the amount of data you have to absorb. It's easy to generate so much information that your systems will be deluged.

5 Have backup plans ready. When the military couldn't track critical supplies via land-based sensors, they used satellites.

ever, glitches popped up. Units outran their supply "tails." When they tried to get their RFID systems to work, they found there were software bugs, or they had not been supplied with enough satellite dishes to tap into the system. Older, legacy computers couldn't interconnect. As troops fought their way to Baghdad, they literally had to build networks able to read RFID signals broadcast from shipment pallets along supply routes.

There were tense moments as troops combined fighting with getting the RFID system up. Surpassing their objectives faster than expected, some U.S. units used up their ammunition and had to "borrow" more from sister units, according to last year's report by The Center for Army Lessons Learned.

Mortensen says that RFID use has been smoothed out. All standard shipping containers must have RF tags to reveal in considerable detail what's inside. All air pallets flown in by either military or civilian carriers likewise must have an RF tag. The tags allow Centcom to "ping in" to the system that can use satellites to see where the containers are within a six- to 12-hour lag time. That way, Centcom can keep track of shipments by sea, air or even by rail from Europe, across Russia and Central Asia to Afghanistan.

The war also has shown the importance of how RF scanners, or interrogators, are placed so they can read signals as the containers pass by. Many supplies move by truck from Kuwait north to Baghdad and the military can't afford to guard each sensor along the way. Currently, the military has more than 120 sites in Iraq where it collects data from passing shipments. To fill in gaps, Mortensen says Centcom relies on satellite coverage.

The lesson for CEOs: Don't worry so much about where your shipments are, but take care where you place RFID interrogators. A more important lesson is to have the RFID system fully ramped up before you try to use it. Meanwhile, Mortensen says, don't sweat the small stuff. Executives shouldn't worry every minute while the shipment is in transit. "How many points along the continuum do I really need to know where

it is?" he asks. There are exceptions, of course, notably with precision munitions, which are tracked constantly by satellite.

"[In general], I have to know what it is that I'm moving," says Mortensen, "and I have to be able to ascribe in detail how much data I really need. In some cases, there's more data out there than you may need. So the smaller amount of data in that environment, the less cost or the less effort you spend because you don't have to filter out the nonrequired data."

Another lesson from the Iraq War is for CEOs to try to take "just-in-time" supply chain management to the next level, which the military calls "sense and respond." That means basically doing the same thing as just-in-time techniques do, but doing it faster, more intuitively and under much more dangerous conditions.

Mortensen likens the concept to having only a couple of hundred dollars in your checkbook but you can't wait for the next deposit. "Sense and respond" is like getting a fast loan nearly automatically. In theory, it also allows troops to leave things behind and thus move faster on a mission. "Logistically, I think we're adept enough now and agile enough in our military systems we don't have to carry everything with us," he says. Centcom now can get just about any supply once it is requested to the "customer" in 12 days, and sometimes within 24 hours depending on its importance, Mortensen says. That's not as fast as some civilian companies can respond in the U.S., but it's remarkably speedy in view of difficult conditions in which the military is operating.

Of course, General Motors and Target don't have C-17 cargo jets to parachute needed supplies on a moment's notice. But "sense and respond" can teach civilian firms about how to come up with shorter wait times. What's needed is an extensive and sophisticated system that can be understood easily and is more flexible than ever.

Another Centcom buzzword with civilian applications is "oodalooop." The term originated with jet fighter pilots who try to predict their opponent's intentions in the middle of aerial dog-fights. "You're trying to think quicker than he is and react quicker than he can," says Kimmitt.

"You want to get inside his decision loop so before you know it, you're behind him and you're firing a missile up his pipes."

The current application in Iraq uses "oodaloo" to outthink insurgents. Lacking the technology and hardware to take on the U.S. directly, the insurgents instead hit soft targets, such as truck convoys. In response, U.S. commanders interrupt usual delivery patterns by airlifting some of the cargo to surprise locations and then trucking it in.

Kimmitt says there are applications in the civilian sector, too. "It's the same thing in a business model," says Kimmitt, one eye glued to a Fox News broadcast on political developments in Syria. "It's about who can observe a change in the environment or in the technology, decide to do something about it, act on it and then be the first one to the market."

If you can't be first, try to switch gears quickly, which Kimmitt describes as being "an earlier adopter or a rapid adapter." One example is cell phones. Kimmitt says when he was on peacekeeping duty in Kosovo, he noted that the Europeans were late developing appropriate architecture. But they caught up fast. "I could get three bars in Belgrade on my cell phone," he says.

Developing human capital is just as important in the military these days as it is in companies. The key is educating junior executives, and a lot has changed since the Vietnam War. Back then, the hierarchy was very much top down, with ground commanders constantly being second-guessed. One famous scene has President Lyndon B. Johnson padding around in his pajamas choosing North Vietnamese bombing targets.

But the enemy in Iraq is not the one the Army expected to fight, and it keeps morphing into new shapes. That means lieutenants and captains in the field have to assume much more decision-making responsibility, even though the communications capabilities are light years ahead of LBJ's day. Communications bandwidth

has gone up 80 times what it was in the first Gulf War, says Brig. Gen. Jeffrey W. F. Foley, head of communications for Centcom.

To get young commanders to think on their feet, the Army has a formal mentoring process where senior officers, typically in their posts a few years, try to make sig-

Troops had to erect systems to read RFID signals as they fought their way into Baghdad.



nificant, positive leadership impressions on their juniors. In this case, says Kimmitt, the Army turned to Corporate America for guidance. "The key about Jack Welch," says Kimmitt, "was not what he did for GE.

It's the subordinates he created who thought like him, looked like him, talked like him. Welch believed that the organizational paradigm he used to teach could be used anywhere."

In this regard, compared to the Vietnam era, the military is an entirely new world, Centcom commanders say. The basic reason is the quality of men and women, says Lt. Gen. Lance L. Smith, Centcom's deputy commander who was an Air Force pilot in Vietnam. Today's young soldiers are more used to taking initiative. "You come up with a product," he says, "and they'll figure out 10 ways to use it that you never even envisioned. That's important for us to know and for CEOs to know."

What's next on Centcom's list, among other items, are improvements with RFID technology and communications. Up until now, the military has relied on "active" RFID transmitters that emit signals that can be read by interrogators up to 300 feet away. That distance can be critical in combat, but the civilian industry uses much cheaper "passive" tags that send signals that can be picked up only 10 feet away.

The big plus for the civilian sector is that passive tags are much cheaper than active ones, costing about a dollar apiece. Active transmitters run a whopping \$70 per tag. Now, however, to get more in sync with its civilian suppliers, the Pentagon is pushing the use of passive tags as well.

Communications is another area headed for change. Gen. Foley says the next war will demand additions on the order of 20 times what it is now.

The fight against highly secretive and sophisticated Al-Qaeda and other fanatics—plus any potential new threats, perhaps from Iran or North Korea—will only put more stress on communications systems. If the troops move in, there will be a new evolution of supply chain issues. "How do we prepare for it?" asks Foley. For the Pentagon and the civilian business world alike, Centcom's lessons learned are a place to start. ▲