

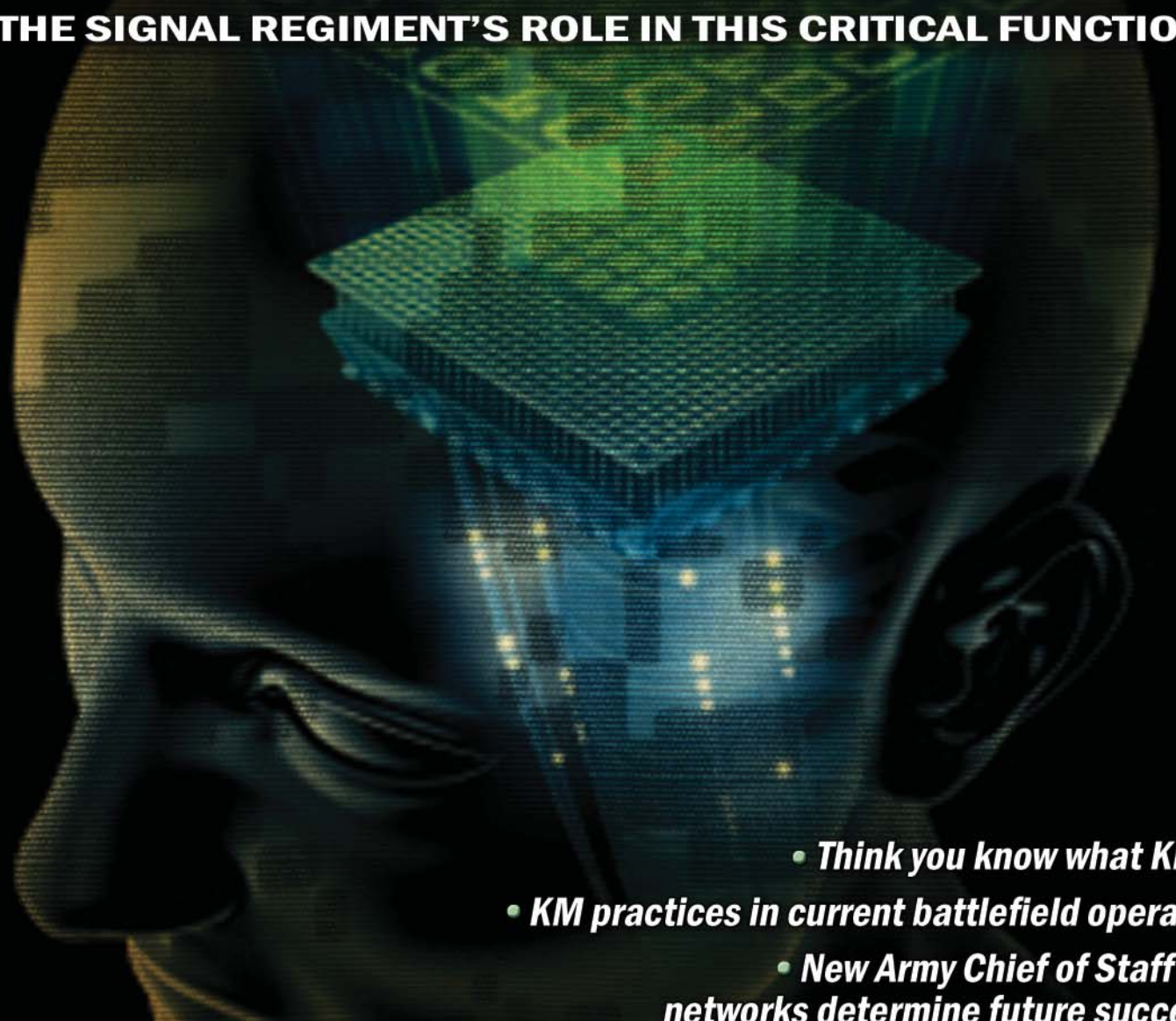
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ARMY COMMUNICATOR

Voice of the Signal Regiment PB 11-6-2 2011 Vol. 36 No. 2

KNOWLEDGE MANAGEMENT **KM**

THE SIGNAL REGIMENT'S ROLE IN THIS CRITICAL FUNCTION

- 
- *Think you know what KM is?*
 - *KM practices in current battlefield operations*
 - *New Army Chief of Staff says networks determine future successes*

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Thinking outside that proverbial box

Signaleers,

I am very excited about this edition of *Army Communicator*. Knowledge management is one of the most important, and controversial subjects in the Signal Regiment in 2011. I told my team that I wanted this issue to capture the full-range of the Regiment's ongoing discussion of KM, and I think they did a great job. This issue is full of strong, diverse, professional opinions on KM.

One often hears about the importance of "Thinking Outside the Box." The origin of that particular phrase is thought to come from a puzzle introduced around 1969. The puzzle asks people to connect nine dots by drawing four straight continuous lines. We all know the only way to solve this nine dot puzzle is to draw lines outside the confines of the square area defined by the dots themselves. The puzzle only seems difficult when we imagine a boundary around the edge of the array (see the solution on the inside back cover).

In this edition you will find no fewer than five different definitions of KM. Clearly, the Regiment's discussion of KM is not bounded by anything as mundane as the definition of KM, or by a failure of imagination. An unbounded discussion of KM is exactly what we need right now and it is exactly what we are publishing. All of these opposing opinions on KM are rooted in honest dissent, and a strong commitment to our customers and to our profession. We will get KM right, and take care of our customers, because we are exploring the full, unbounded range of KM.

President Theodore Roosevelt once said, "In any moment of decision the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing." We will make some very important decisions about KM in 2011 and 2012. I encourage each one of you to participate in the KM discussion. This issue of *Army Communicator* will tell where those discussions are taking place, and how to get involved.

We are continuing to make sweeping changes to our Regiment and we are taking input from the field every day. Just this week we decided that we needed to create a new military occupation specialty for an Information Assurance/Computer Network Defense noncommissioned officer. Personnel will be accessed into this new MOS at the staff sergeant level. This new network defender and cyber expert will receive a world-class education, and have tremendous promotion potential.

Please enjoy this edition and keep in touch!

Pro Patria Vigilans!



Join the Discussion

<https://signallink.army.mil>



"Here in America we are descended in blood and in spirit from revolutionists and rebels - men and women who dare to dissent from accepted doctrine ... As their heirs, may we never confuse honest dissent with disloyal subversion."

- President Dwight D. Eisenhower

Nine Dot Puzzle



Without lifting the pencil, draw no more than four straight continuous lines to connect all of the dots.



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Cover: This edition explores knowledge management as an important discipline encompassing many functions performed by Signal Soldiers.



Cover by Billy Cheney

REGIMENTAL CSM

Ronald S. Pflieger

New command sergeant major assumes responsibility

Welcome to the new command sergeant major of the Signal Regiment.

of assignments including division, corps, EAC and NATO.

On 20 April 2011 at the FORSCOM C4I Conference in Atlanta, MG Alan Lynn, Chief of Signal, announced the selection of CSM Ronald S. Pflieger as the 22nd Regimental Command Sergeant Major. MG Lynn stated that CSM Pflieger was exactly the right CSM to assist in taking the Signal Regiment to where it needs to go.

CSM Pflieger is currently serving as the Joint Communications Support Element command sergeant major at MacDill Air Force Base in Tampa, Florida.

CSM Pflieger entered the Army in 1982, as a multi-channel equipment operator - maintainer. He has served in every leadership position from team chief to brigade command sergeant major in a variety



CSM Pflieger has completed several deployments including Operation Desert Shield/Storm, Operation Uphold Democracy, Hurricane Andrew Relief, and two tours in support of Operation Iraqi Freedom.

Before assuming his position as the command sergeant major for JCS, he was the brigade CSM for the 15th Regimental Signal Brigade at Fort Gordon. The 15th RSB is the largest Advanced Individual Training Brigade in the U.S. Army Training and Doctrine Command, with more than 7,000 permanent party Soldiers, Department of the Army civilians, and trainees.

CSM Pflieger is scheduled to assume his duties as the Regimental command sergeant major in July of this year.

Join the Discussion

<https://signallink.army.mil>



Throughout this knowledge management edition of the *Army Communicator* you will see articles that end with the graphic shown above and the accompanying Web link where you can easily comment on-line. Your opinions and experiences can have an impact. We are serious about hearing from the Signaleer civilians and Soldiers on the ground in the field who can sound off with the certainty that your voice will be heard. Notice there is even an icon for your response to the Chief of Signal's comments on the inside front cover.

Signal Regiment stepping up to the plate

Signaleers,

I was so pleased to see the last edition of the **Army Communicator** come off the press. It was not only the first ever warrant officer edition, but it was also the first ever edition with articles posted on the Army Professional Forums that allowed comments. Along with several comments in the forums, I have also received more than a dozen e-mails from Signaleers who have read through these articles. I continue to welcome your comments and thoughts as we continue making the necessary transitions to better posture our warrant officer cohort to support the force.

Now you have in your hands another first; an edition predominantly focused on content management and its close partner, knowledge management. Since I already tipped my hand on my thoughts and feeling on CM and KM (see the article entitled Cyberspace Content Management Technician (MOS 255A) in the last edition) I will not use this note as an opportunity to belabor those points. Instead, I will applaud the

efforts and concerns of those who even have an opposing opinion. That might sound strange, but what I see from those who I believe may be going a little too far is a deep concern for and commitment to the customer, and a desire to holistically provide a capability.

I am going to upset some by saying this but we need to get over it and move on. During the mobile subscriber equipment age, the Signal Regiment was in danger of losing relevance by focusing only on transport – MSE became “Maybe Someone Else.” When the G4 looked for someone to automate

the maintenance and supply processes, what did they hear from the G6? Maybe Someone Else – MSE. Now we have a disparate STAMIS and VSAT

network. When the G2 looked for someone to push higher classifications lower into the tactical formations, what did they hear from the G6--Maybe Someone Else? By the way, who helped MI engineer Trojan Spirit? A retired Signal warrant officer, CW4-R Jack Wilson! (See page 7 of the Winter 2010 **Army Communicator**).

I am proud to be a part of a Regiment that is now taking a stand and saying “We own communications! We are the Army’s Information Technology capability providers. And oh, by the way, we engineer, install, operate, maintain, administer, and defend a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including telecommunications networks, computer systems, and embedded processors and controllers!” The Signal Regiment owns and influences a substantial portion of cyberspace, and we are stepping up to the plate to meet the warfighters’ operational requirements. I am proud to be a part of this team!

Thank you again for your dedication and service in being ever watchful for our country.

Pro Patria Vigilans!



New Army Chief of Staff says networks determine future war successes

By Rob McIlvaine

In meeting the demands of conflict, GEN Martin E. Dempsey, Army chief of staff, knows the American Soldiers' ability to adapt and learn will overcome the enemy.

GEN Dempsey became the 37th Army chief of staff April 11, 2011. Although he is nearly 60, he says he understands the new generation of Soldier.

"I read recently that a young man or woman is likely to have had four jobs between the time they graduate high school or college until they turn 34. I think this generation thinks differently about what longevity is and what continuity is. I think they embrace adaptation far more easily than my generation does."

"America's enemies are commanding and controlling their forces using smartphones, we can't let them become more adaptable than we are."



Photo by Rob McIlvaine

GEN Martin E. Dempsey, chief of staff of the Army, speaks at his swearing-in ceremony at Joint Base Myer-Henderson Hall, Va., 11 April 2011.

GEN Dempsey knows, based on his own children's lives, that the new generation wants to sit in the middle of an open field with a smart phone, be by themselves, but be connected to the world.

"I'm an advocate of social media," Dempsey said, who just opened his own Chief of Staff Facebook page.

Referring to LTG Mark Hertling, the former commanding general of initial military training at U. S. Army Training and Doctrine Command, GEN Dempsey applauded his efforts to connect Soldiers to digital applications so they can pull information off the net and begin learning on their own.

"It's having remarkable

results. But there are two issues I have to figure out. One is the security protocols. This is more difficult than the bandwidth issue, though the bandwidth issue for the deployed force is a bigger issue. But we have to be secured, because the information makes us vulnerable," GEN Dempsey said.

"America's enemies are commanding and controlling their forces using smartphones, GEN Dempsey said, adding "we can't let them become more adaptable than we are."

Adaptability is not just about technology, though. The new chief of staff believes it's also about organizational design.

"I think the Army should think of itself as an organization that will adapt about every five to seven years and organizational design ought to be part of that," GEN Dempsey said. "It's not just about equipment.

"Let's say that in 2020 our assessment is that we might need fewer heavy brigades and more engineering brigades or more infantry brigades. But our projection for some future chief of

staff in 2025 or 2030, we might need to recapture the design of a heavier force and we ought to be adaptable enough to do that and I think we can be," GEN Dempsey said.

Over the past 10 years, he said, the Army has learned that the force is distributed on the battlefield in a way that junior leaders have quite a bit of responsibility. He said a sense of confidence and trust needs to be developed at the junior leader level all the way up to the top.

"It's not about pushing things down now, it's actually about pulling things up. You give a Soldier a mission, you give a leader a mission and they've got to have tools, and they've got to have your trust and confidence to execute and they've got to provide you the context for you to understand what's going on -- a completely different paradigm than when I was growing up. That's why we need the network," he said.

To accomplish this task, he said, the Army has to figure out how the smartphone and similar items can come into play. This will empower a junior leader to let commanders know what's happening on the ground.

"When I was a captain, I completely relied on the colonels to provide me what I needed in terms of information intelligence. I mean, I knew I had an obligation to develop the situation myself, but my expectation was that all the really good intel was going to come from the top down. Not now. Now the really good intel comes from the bottom up and we have got to build the network to deliver," GEN Dempsey said.

With talk of the budget being slashed,

"You give a Soldier a mission, you give a leader a mission and they've got to have tools, and they've got to have your trust and confidence to execute and they've got to provide you the context for you to understand what's going on -- a completely different paradigm than when I was growing up. That's why we need the network."

though, can the network become part of the new Army?

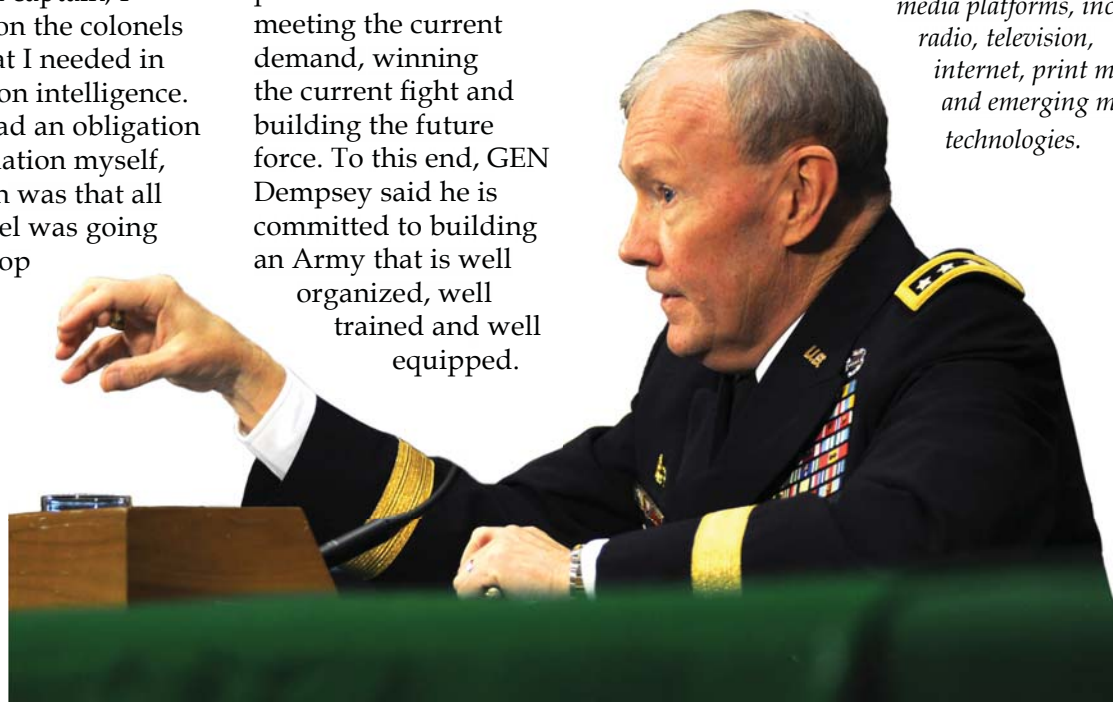
"I think the answer is yes," GEN Dempsey said. "But it's about less long-term exquisite and expensive programs and more about commercial and government off-the-shelf, because here's the other reality of networks."

"By 2017, as an example, your contact lens could be your iPad. So we have to learn faster and understand better than our enemies, and we have to leverage the technologies that exist, instead of trying to find that exquisite answer," he said.

The biggest challenge, he said, is reconciling the very different pressures that exist between meeting the current demand, winning the current fight and building the future force. To this end, GEN Dempsey said he is committed to building an Army that is well organized, well trained and well equipped.

"The armed forces of the United States, and that's not just the Army, have to provide the capability that the nation requests, requires and demands," GEN Dempsey said.

Rob McIlvaine is a writer-editor for Defense Media Activities. He previously served as senior information specialist, Public Affairs at U.S. Army Family Morale Welfare and Recreation Command, a writer/editor at the U.S. Department of Agriculture, Wildlife Services and executive producer of video at the National Museum of the American Indian. DMA is the Department of Defense's direct line of communication for news and information to U.S. forces worldwide. The agency presents news, information and entertainment on a variety of media platforms, including radio, television, internet, print media and emerging media technologies.



It takes a network

By Stanley A. McChrystal

*Reprinted with permission from
Foreign Policy Magazine*

From the outset of my command in Afghanistan, two or three times each week, accompanied by a few aides and often my Afghan counterparts, I would leave the International Security Assistance Force head-



GEN (R) Stanley A. McChrystal commanded U.S. Army forces in Iraq and Afghanistan during his career.

quarters in Kabul and travel across Afghanistan -- from critical cities like Kandahar to the most remote outposts in violent border regions. Ideally, we left early, traveling light and small, normally using a combination of helicopters and fixed-wing aircraft, to meet with Afghans and their leaders and to connect with our troops on the ground.

But I was not alone. There were other combatants circling the battlefield. Mirroring our movements, competing with us, were insurgent leaders. Connected to, and often directly dispatched by the Taliban's leadership in Pakistan, they moved through the same areas of Afghanistan. They made shows of public support for Taliban shadow governors, motivated tattered ranks, recruited new troops, distributed funds, reviewed tactics, and updated strategy. And when the sky above became too thick with our drones, their leaders used cell phones and the Internet to issue orders and rally their fighters. They aimed to keep dispersed insurgent cells motivated, strategically wired, and continually informed, all without a rigid -- or targetable -- chain of command.

While a deeply flawed insurgent force in many ways, the Taliban is a uniquely 21st-century threat.

Enjoying the traditional insurgent advantage of living amid a population closely tied to them by history and culture, they also leverage sophisticated technology that connects remote valleys and severe mountains instantaneously -- and allows them to project their message worldwide, unhindered by time or filters. They are both deeply

embedded in Afghanistan's complex society and impressively agile. And just like their allies in al Qaeda, this new Taliban is more network than army, more a community of interest than a corporate structure.

For the U.S. military that I spent my life in, this was not an easy insight to come by. It was only over the course of years, and with considerable frustrations, that we came to understand how the emerging networks of Islamist insurgents and terrorists are fundamentally different from any enemy the United States has previously known or faced.

In bitter, bloody fights in both Afghanistan and Iraq, it became clear to me and to many others that to defeat a networked enemy we had to become a network ourselves. We had to figure out a way to retain our traditional capabilities of professionalism, technology, and, when needed, overwhelming force, while achieving levels of knowledge, speed, precision, and unity of effort that only a network could provide. We needed to orchestrate a nuanced, population-centric campaign that comprised the ability to almost instantaneously swing a devastating hammer blow against an infiltrating insurgent force or wield a deft scalpel to capture or kill an enemy leader.

When I first went to Iraq in October 2003 to command a U.S. Joint Special Operations Task Force that had been tailored down to a relatively small size in the months following the initial invasion, we found a growing threat from multiple sources -- but particularly from al Qaeda in Iraq. We began a review of our enemy, and of ourselves. Nei-

ther was easy to understand.

Like all too many military forces in history, we initially saw our enemy as we viewed ourselves. In a small base outside Baghdad, we started to diagram AQI on white dry-erase boards. Composed largely of foreign mujahideen and with an overall allegiance to Osama bin Laden but controlled inside Iraq by the Jordanian Abu Musab al-Zarqawi, AQI was responsible for an extremely violent campaign of attacks on coalition forces, the Iraqi government, and Iraqi Shiites. Its stated aim was to splinter the new Iraq and ultimately establish an Islamic caliphate. By habit, we started mapping the organization in a traditional military structure, with tiers and rows. At the top was Zarqawi, below him a cascade of lieutenants and foot Soldiers.

But the closer we looked, the more the model didn't hold. Al Qaeda in Iraq's lieutenants did not wait for memos from their superiors, much less orders from bin Laden. Decisions were not centralized, but were made quickly and communicated laterally across the organization. Zarqawi's fighters were adapted to the areas they haunted, like Fallujah and Qaim in Iraq's western Anbar province, and yet through modern technology were closely linked to the rest of the province and country. Money, propaganda, and information flowed at alarming rates, allowing for powerful, nimble coordination. We would watch their tactics change (from rocket attacks to suicide bombings, for example) nearly simultaneously in disparate cities. It was a deadly choreography achieved with a constantly changing, often unrecognizable structure.

Over time, it became increasingly clear -- often from intercepted communications or the accounts of insurgents we had captured -- that our enemy was a constellation of fighters organized not by rank but on the basis of relationships and acquaintances, reputation and fame. Who became radicalized in the prisons of Egypt? Who trained together in the pre-9/11 camps in Afghanistan? Who is married to whose sister? Who is making a name for himself, and in doing so burnishing the al Qaeda brand?

All this allowed for flexibility and an impressive ability to grow and to sustain losses.

The enemy does not convene promotion boards; the network is self-forming. We would watch a young Iraqi set up in a neighborhood and rise swiftly in importance: After achieving some tactical success, he would market himself, make connections, gain followers, and suddenly a new node of the network would be created and absorbed. The network's energy grew.

In warfare, you make decisions based on indicators. When facing the enemy, you estimate its tactical strength and intuit its planned strategy. This is much simpler when the enemy is a column advancing toward you in plain sight. Our problem in both the Iraq of 2003 and the Afghanistan of today is that indicators popped

"In bitter, bloody fights in both Afghanistan and Iraq, it became clear to me and to many others that to defeat a networked enemy we had to become a network ourselves."

up everywhere, unevenly and unexpectedly, and often disappeared as quickly as they emerged, flickering in view for only a moment.

We realized we had to have the rapid ability to detect nuanced changes, whether the emergence of new personalities and alliances or sudden changes in tactics. And we had to process that new information in real time -- so we could act on it. A stream of hot cinders was falling everywhere around us, and we had to see them, catch those we could, and react instantly to those we had missed that were starting to set the ground on fire.

Shortly after taking command of the JSOTF, I visited one of our teams in Mosul, the largest city in northern Iraq, which was at that time under the able command of then-MG David Petraeus and the troops of the 101st Airborne Division. Although Mosul was still less violent than some other areas of the country, it was clear that al Qaeda was organizing to aggressively contest control of the city -- and, from there, all of northern Iraq.

Our special operations force there was small: about 15 men, supported by a single intelligence analyst. They were set up in a corner of a larger base, operating quietly from a modest white trailer. Although they coordinated with the military forces and civilian (particularly intelligence) agencies on the base, operational security procedures and cultural habits limited the true synergy of their effort against AQI and the fight for the city that lay outside the base's gates.

Moreover, the few antennas that adorned the trailer's roof were unable to pump enough classified information between them and our task force headquarters (or other teams in Iraq) with any timeliness. It wasn't a marooned outpost, thanks to the remarkable team that manned the effort. But it felt like one.

That night, on the plane back to Baghdad, I drew an hourglass on a yellow legal pad. The top half of the hourglass represented the team in Mosul. The other represented our task force HQ. They met at just one nar-

(Continued on page 8)

(Continued from page 7)

row point. At the top, our team in Mosul was accumulating knowledge and experience, yet lacked both the bandwidth and intelligence manpower to transmit, receive, or digest enough information either to effectively inform, or benefit from, its more robust task force headquarters. All across the country -- in Tikrit, Ramadi, Fallujah, Diyala -- we were waging similarly compartmentalized campaigns. It made our hard fight excruciatingly difficult, and potentially doomed.

The sketch from that evening -- early in a war against an enemy that would only grow more complex, capable, and vicious -- was the first step in what became one of the central missions in our effort: building the network.

What was hazy then soon became our mantra: It takes a network to defeat a network.

But fashioning ourselves to counter our enemy's network was easier said than done, especially because it took time to learn what, exactly, made a network different. As we studied, experimented, and adjusted, it became apparent that an effective network involves much more than relaying data. A true network starts with robust communications connectivity, but also leverages physical and cultural proximity, shared purpose, established decision-making processes, personal relationships, and trust. Ultimately, a network is defined by how well it allows its members to see, decide, and effectively act. But transforming a traditional military structure into a truly flexible, empowered network is a difficult process.

Our first attempt at a network was to physically create one. We convinced the agencies partnered with the JSOTF to join us in a big tent at one of our bases so that we could share and process the intelligence in one location. Operators and analysts from multiple units and agencies sat side by side as we sought to fuse our intelligence and opera-

tions efforts -- and our cultures -- into a unified effort. This may seem obvious, but at the time it wasn't. Too often, intelligence would travel up the chain in organizational silos -- and return too slowly for those in the fight to take critical action.

It was clear, though, that in this fusion process we had created only a partial network: Each agency or operation had a representative in the tent, but that was not enough. The network needed to expand to include everyone relevant who was operating within the battle space. Incomplete or unconnected networks can give the illusion of effectiveness, but are like finely crafted gears whose movement drives no other gears.

This insight allowed us to move closer to building a true network by connecting everyone who had a role -- no matter how small, geographically dispersed, or organizationally diverse they might have been -- in a successful counterterrorism operation. We called it, in our shorthand, F3EA: find, fix, finish, exploit, and analyze. The idea was to combine analysts who found the enemy (through intelligence, surveillance, and reconnaissance); drone operators who fixed the target; combat teams who finished the target by capturing or killing him; specialists who exploited the intelligence the raid yielded, such as cell phones, maps, and detainees; and the intelligence analysts who turned this raw information into usable knowledge. By doing this, we speeded up the cycle for a counterterrorism operation, gleaning valuable insights in hours, not days.

But it took a while to get there. The process started as a linear, relatively inefficient chain. Out of habit (and ignorance), each element gave

GEN (R) Stanley A. McChrystal outlined his view of the knowledge management situation for the Joint Special Operations Task Force on a single sheet of paper.

the next group the minimum amount of information needed for it to be able to complete its task. Lacking sufficient shared purpose or situational awareness, each component contributed far less to the outcome than it could or should have.

This made us, in retrospect, painfully slow and uninformed. The linear process created what we called “blinks” -- time delays and missed junctures where information was lost or slowed when filtered down the line. In the early days of the effort, we had multiple experiences where information we captured could not be exploited, analyzed, or reacted to quickly enough -- giving enemy targets time to flee. A blink often meant a missed opportunity in an unforgiving fight.

The key was to reduce the blinks, and we did so by attempting to create a shared consciousness between each level of the counterterrorism teams. We started by sharing information: Video streamed by the drones was sent to all the participants -- not just the reconnaissance and surveillance analysts controlling them. When an operation was set in motion, information was continuously communicated to and from the combat team, so that intelligence specialists miles away could alert the team on the ground about what they could expect to find of value at the scene and where it might be. Intelligence recovered on the spot was instantly pushed digitally from the target to analysts who could translate it into actionable data while the operators would still be clearing rooms and returning fire.

This knowledge was immediately cycled back through the loop to our intelligence and surveillance forces following the results of the raid in real time.

The intelligence recovered on one target in, say, Mosul, might allow for another target to be found, fixed upon, and finished in Baghdad, or even Afghanistan. Sometimes, finding just one initial target could lead to remarkable results: The network sometimes completed this cycle three times in a single night in locations hundreds of miles apart -- all from the results of the first operation. As our operations in Iraq and Afghanistan intensified, the number of operations conducted each day increased tenfold, and both our precision and success rate also rose dramatically.

Although we got our message out differently than did our enemies, both organizations increasingly shared basic attributes that define an effective network. Decisions were decentralized and cut laterally across the

organization. Traditional institutional boundaries fell away and diverse cultures meshed. The network expanded to include more groups, including unconventional actors. It valued competency above all else -- including rank. It sought a clear and evolving definition of the problem and constantly self-analyzed, revisiting its structure, aims, and processes, as well as those of the enemy. Most importantly, the network continually grew the capacity to inform itself.

From its birth in Iraq, both the actual network -- and the hard-earned appreciation for that organizational model -- increasingly expanded to Afghanistan, especially as our nation’s focus turned toward that theater. When I became the commander there, we set about building a robust communications architecture and worked to establish relationships with key actors, moving frequently around the country to instill the shared consciousness and purpose necessary for a networked modern army. But that was only the first part of the task. As we learned to build an effective network, we also learned that leading that network -- a diverse collection of organizations, personalities, and cultures -- is a daunting challenge in itself. That struggle remains a vital, untold chapter of the history of a global conflict that is still under way.

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ACRONYM QuickScan

AQI - al Aqeda in Iraq

JSOTF - U.S. Joint Special Operations Task Force

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The Army's true knowledge managers

By LTC Alprentice Smith

Let me introduce you to the Army's true knowledge managers.

Although the Functional Area 57 officers (modeling and simulations) market themselves as the lead for Army KM, in many cases the FA57 officers do not possess the right knowledge, skills, abilities, and experiences to adequately determine the right information, the right location and time for delivery, and the right format to meet commanders' critical information requirements.

In the end, it is Signal Regiment personnel, more specifically, the FA53 officer (information systems manager), 251A/254A warrants (information systems technician/Signal support technician), and associated 25Bs noncommissioned officers (information technology specialists), who truly understand how to integrate people, processes, and technologies in order to

provide KM products. Thus, practitioners of these specialties have become the Army's true knowledge managers.

Knowledge management facilitates the transfer of knowledge derived from experience and skill to staffs and finally to commanders. KM does this by effectively providing commanders with relevant information and knowledge for making informed, timely decisions. KM additionally enables effective collaboration by linking the various organizations and Soldiers requiring knowledge. As a result, KM reduces the uncertainties of operations and increases flexibility to rapidly react to any situation.

As stated in Field Manual 6-01.1 (Knowledge Management Section), KM is the art of creating, organizing, applying, and transferring knowledge to facilitate situational understanding and decision-making. Knowledge is information analyzed to provide

meaning and value or evaluated as to implications for the operation. Additionally, knowledge is the comprehension gained through study, experience, practice, and human interaction that provides the basis for expertise and skilled judgment. Knowledge consists of two types – explicit (documented) and tacit (in the mind).

Like most capabilities, Figure 1 depicts how KM relies on the integration of people, processes, and technologies in order to meet requirements. KM people are those inside and outside an organization that create, organize, apply, and transfer knowledge, as well as the leaders who act on that knowledge. KM processes are those methods of creating, organizing, applying, and transferring knowledge. Lastly, KM technologies are those information systems and tools used to put knowledge products and services into organized frameworks.

At the Army, corps, and division levels, commanders have access to a KM section. At BCT-level, commanders possess a single KM Soldier. Table 1 depicts the organizational structure at the operational and tactical levels:

Army leaders designed the KM section to support the commander and staff in achieving situational understanding and making informed, knowledgeable, and timely decisions. Section personnel accomplish this by managing the before mentioned people, processes, and technologies that furnish commanders and staffs with increasingly enhanced knowledge

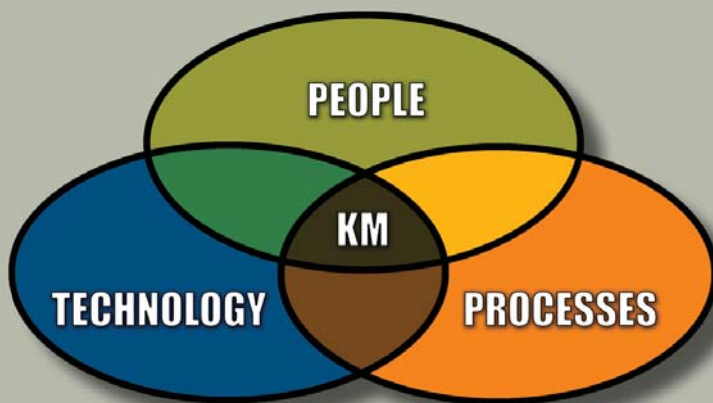


Figure 1--KM Components

and relevant information. Within the section exist four key positions: KM officer (O2A), assistant KM officer (FA53/FA57), KM NCO (25B), and content management specialist (11B/13B).

As described in FM 6-01.1, the KM officer should ensure all within the unit understand KM processes and procedures. Additionally, he or she must demonstrate how these processes and procedures can improve efficiency and common understanding. The assistant KM officer ensures section members understand KM processes and technology. Furthermore, the assistant KM officer assists the G-3/S-3 and G-6/S-6 with mapping the processes and information systems that produce the common operational picture. The KM NCO advises the KM officer on improving knowledge creation and transfer within the staff. Lastly, the Content Management Specialists serve as the unit's experts on content management and retrieval. They ensure knowledge is available to Soldiers when they need it. These are required to help the G-6/S-6 manage digital content with tools that exchange explicit knowledge, collaborate, and connect with subject matter experts across the organization.

To achieve success for the commander, as the SMEs for KM, those in the KM section must integrally understand each KM component. They must understand people are the most vital component; and therefore, it is critical to develop and implement knowledge transfer techniques that connect people and build social networks. They must understand the critical processes of analyzing the unit's knowledge requirements, designing KM products that provide critical information, and then developing those products based on the assessment – with the end goal of testing and implementing the products and integrating them into operations. Lastly, individuals must understand the applicable technologies that automate the processes in order to get the right information, to the right location, at the right time, and in the right format. Those technologies consist of information systems, along with tools for collaboration, data mining, and information search/discovery. Moreover, these technologies comprise the overall network (LandWarNet) and the ability to display the common operational picture.

In reviewing the keys to success, and mapping those to authorized personnel in the KM section, one has to question the inclusion of the O2A, FA57, 11B, and 13B. KM skills, like any other unique capability, are perishable. For an individual to be a KM SME, he or

she needs to receive the right training and gain experience through repetitive assignments. For combat arms officers filling the O2A position for the first time, a two and a half day KM Officer Course will not suffice. Likewise, for the 11B/13B, a two and a half day Content Management Course cannot possibly make them the unit's experts on content management. Even the FA57, with KM Officer as one of its roles and responsibilities, is not postured for success after attending a KM qualification course that is only four weeks long. All this doesn't even factor the reality that most combat arms officers, FA57s, 11Bs, and 13Bs filling these positions will not fill another KM position during the remainder of their career.

Although probably blasphemous to state, KM is nothing more than information management repackaged. Army Regulation 25-1 (Army Knowledge Management and Information Technology), which falls under the IM series of regulations by the way, states IM consists of the planning, budgeting, manipulating, and controlling of information throughout its life cycle. Moreover, AR 25-1 discusses how individuals perform IM activities to organize, direct, train, promote, control, and manage activities associated with the collection, creation, maintenance, utilization, dissemination, and disposition of information. Ultimately, IM is no different from the management of explicit knowledge as discussed in FM 6-01.1. Subsequently, the only real distinction between IM and KM is the idea of managing "tacit (in the mind)" knowledge. Yet, the inherent cognitive aspect of tacit knowledge creates a challenge for any so-called KM person to manage it (how do you manage knowledge in someone's mind?).

The similarities between IM and KM have been a driving force behind the reason why commanders continually look to their FA53s, 251A/254A warrants, and 25Bs to lead the unit's execution of KM. Names like COL Howard Lim (FA53 XVIII AB Corps KM Officer) and CW4 (R) Wes Postal (254A 2BCT/4ID) are just a few within the Signal Regiment that set the KM bar. Much of this has to do with the fact FA53s, 251A/254A warrants, and 25B NCOs receive weeks of classroom instruction on how to map processes and

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technologies to meet commanders' information requirements (on average 20 weeks of training or more). Additionally, these Signal Regiment personnel continually fill positions in which they integrate technology to facilitate individuals' performance of KM-like processes. Both training and experience posture FA53s, 251As/254As, and 25B NCOs for success in achieving KM requirements; and thus, these specialties are in essence the Army's true knowledge managers.

The Signal Regiment plans to do even more in the future in order to take its rightful place in leading KM for the Army. A recent FA53 tiger team identified the need to develop a separate area of concentration specifically for KM. The Army will access those FA53As into the new AOC who have a desire to specialize in KM and who have proven themselves in more general information systems management positions. Additionally, the U.S. Army Signal Center of Excellence Office Chief of Signal has worked diligently to fill the O2A position with highly qualified FA53s to ensure commanders' have the right individual with the right skill sets. Moreover, the Signal Regiment realigned its warrant officer specialties in order to create an expert in information services (255A – information services technician). The 255A will possess even more skills than the 251A/254A warrants related to KM people, processes, and technologies. Furthermore, the SigCoE conducted analysis to realign Signal enlisted MOSs, one recommendation being the creation of an enlisted specialty focused specifically on content management

tasks. To support the development of these new specialties, the Signal Regiment will leverage its existing partnerships with academia and industry, as well as utilize existing courses (e.g. the Digital Master Gunner Course). All this should compel the Army to go back and review the KM section structure and change the O2A position (and FA57 position in the BCT) to an FA53A (future FA53B), the FA57 position (except for the one in the BCT) to a 255A, and the 11B/13B positions to 25B (possible future new Signal MOS).

KM through the integration of people, processes, and technologies provides commanders with relevant information and knowledge for making informed, timely decisions. To achieve this objective, Army, corps, division, and BCT commanders possess KM sections/positions filled with various combat arms and technical specialties. However, does the application of an O2A, FA57, 11B, and 13B in the sections provide the commander with the right people possessing the right skill sets? The answer is a resounding “no,” because training and experience are so critical to developing the right knowledge, skills, and abilities.

Army leaders did the right thing by including an FA53 at the ASCC, corps, and division levels, as well as a 25B NCO in the corps. The FA53 and 25B NCO are postured well to give the commander the KM capabilities he requires – not to mention the skills possessed by 251A/254A warrants. Based on the current and future effort of the Signal Regiment, these specialties will only become more skilled in achieving KM for the Army. The Army needs to

ASCC 5.3	MCP	
	1x05 02A	Ch, KM Off
	1x04 57A	Battle Cmd Sys Off
	1x04 53A	Battle Cmd Sys Off
	1xE7 13B40	Content Mgmt Spec
	CCP	
	1x04 57A	Battle Cmd Sys Off
Corps 4.0	MA IN CP	
	1x05 02A	Corps KM Off
	1x04 57A	Battle Cmd Sys Off
	1x04 53A	Battle Cmd Sys Off
	1xE8 25B50	Sr Battle Cmd NCO
	1xE7 11B40	Content Mgmt Spec
Div 9.0	MA IN CP	
	1x05 02A	Ch, KM/Battle Cmd Off
	1x04 57A	Battle Cmd Sys Off
BCT Holistic Review	1x03 57A	Battle Cmd Sys Off

Figure 2--KM Personnel

take notice of all this and make the appropriate organizational structure changes, for if KM is important to Army leaders, organizations must possess the Army's true knowledge managers.

LTC Alprentice Smith joined the Signal Regiment as a Functional Area 53 information systems manager after serving 10 years in the Field Artillery. He has served in various leadership and staff assignments including: product director (acting), Army Knowledge Online; director of operations and director of security, Army Knowledge Online, senior Signal program manager, FA53 proponent manager, Army-level fire support officer, and battery commander. He currently serves as the chief of staff, PM Network Enterprise Services.

ACRONYM QuickScan

AOC – Area of Concentration
 ASCC – Army Service Component Command
 BCT – Brigade Combat Team
 FA – Functional Area
 KM – Knowledge Management
 MOS – Military Occupational Specialty
 NCO – Noncommissioned Officer
 SigCoE – Signal Center of Excellence
 SME – Subject Matter Expert

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WHY KM MATTERS

Look at the French Revolution, the Holy Roman Emperor Francis II, and the Ulm Campaign of 1805

By COL Kristin A. Ellis

Why knowledge management is vitally important is revealed through the French Revolution, the Holy Roman Emperor Francis II, and the Ulm Campaign of 1805.

Many Signal Soldiers will argue that the “why” behind KM is so intuitive that it doesn’t merit serious consideration. The apparent answer is that in this information age technology has so dramatically increased the volume, fidelity, and velocity of information available to commanders, that we are at the point where a new discipline and new functions are required.

However this answer completely misses the mark for why we must have vigorous knowledge management.

Everything we do in the Army is intended to produce an effect. Using the Signal Corps’ approach to KM, the effect we seek with KM would seem to be, “dominant knowledge.”

However, in this essay, I intend to show that the Army is absolutely not chasing “knowledge” with KM, and that the main effects we intend to produce with KM are not internal (inside our collective brain housing group) but almost entirely external.

Once we better understand the effects the Army seeks with KM, we can better shape the Signal Regiment’s role in supporting the effort. Knowledge is defined by the Oxford English Dictionary as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject; (ii) what is known in a particular field or in total; facts and information; or (iii) be absolutely certain or sure about something. By any of its definitions, knowledge would appear to be a very powerful commodity in war. Unfortunately, military leaders throughout history have admonished that the pursuit of knowledge in warfare is almost pointless.

Commanders have long struggled with the dichotomy of knowledge in war which offers too much information and no information at all. As far back as the Battle of Salamis (480 BC), commanders

have wrestled with being completely blind to the current situation, and being completely overwhelmed by information. Clausewitz speaks in depth about this dichotomy in Chapter VI, Book I, of “On War” (a chapter entitled “Information in War”). So does Robert S. McNamara in the documentary “The Fog of War: Eleven Lessons from the Life of Robert S. McNamara.” John Keegan’s “Intelligence in War: Knowledge of the Enemy from Napoleon to Al-Qaeda” describes how dozens of commanders have struggled with knowledge in war.

For the past 2,500 years, commanders have lamented their problems with the volume, quality, and velocity of information.

There is nothing new or revolutionary about KM hurdles. Information overload is the immutable, natural state of war. So is an absolute lack of information.

The title of TRADOC Pamphlet 525-3-0, The Army Capstone Concept, is “Operational Adaptability: Operating under Conditions of Uncertainty and Complexity in an Era of Persistent Conflict, 2016-2028.” BG H. R. McMaster was one of the main authors of the ACC, and knowing a little about BG McMaster helps put the ACC and knowledge/certainty in war into greater context. In November 2003, then COL McMaster published a paper entitled “Cracks in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War” which he had written while he was at the Army War College. The paper was a scathing indictment of (then) Defense Secretary Donald Rumsfeld’s model for defense transformation. The fact that COL McMaster authored a paper directly challenging the intellectual underpinnings of Secretary Rumsfeld’s vision of defense transformation while the secretary was at the pinnacle of his political power is a testimony to the strength of BG McMaster’s convictions regarding “knowledge” and warfare.

The ACC is a natural continuation of the

(Continued on page 14)

positions that COL McMaster outlines so strongly in "Cracks in the Foundation." By way of example, while the word "knowledge" appears 10 times in the ACC, the word "uncertainty" appears 41 times. The ACC does not make an underlying assumption of dominant knowledge in future war – quite the opposite – it assumes uncertainty in future war. So, if the Army has officially embraced "uncertainty" over "knowledge" with the ACC, why all this talk of KM in 2011? Shouldn't we be talking of UM--uncertainty management instead? And why, after 2,500+ years of frustration, would KM suddenly be raising its head as a new discipline?

I think the answer to "Why KM" is much deeper than knowledge. In fact, I think the "K" in knowledge management has little to do with "knowledge" as most of us understand the word.

As I sit here typing this essay in February 2011, I am watching events unfold in Egypt and Libya. During the last few years, I have also seen Howard Dean's 2004 campaign for the Democratic presidential nomination use the Internet to revolutionize political fundraising. I watched the birth of Wiki Leaks. I saw "Google" and "Friend" become verbs. I witnessed the power of eBay and its customer-driven ratings system. I watched smart during the 2005 civil unrest in France. I witnessed the rise of electronic civil disobedience. I saw international flash mobs like Worldwide Pillow Fight Day in 2008. I watched as celebrity dimwits, political visionaries, party hacks, struggling freelance writers, loud-mouthed pundits, and just plain folks have become as influential to molding public opinion as academics, professional columnists, elected officials, and policy experts.

I watched Secretary of Defense Donald Rumsfeld express frustrations about confronting al Qaeda (with an annual operating budget in the low seven-figures) with a multi-trillion dollar organization (the Department of Defense). I saw Encarta, an encyclopedia funded by one of the richest and most technologically savvy companies on earth (the Microsoft Corporation), with paid contributors and world-class editors, being crushed by a free, volunteer, collaborative encyclopedia (Wikipedia). I watched as third-generation militaries stood by completely unable to provide utility during the Orange Revolution, the Bulldozer Revolution, the Cedar Revolution, the Tulip Revolution, and the Velvet Revolution.

There are powerful and revolutionary social and political forces at work in the world.

In fact, I think the "K" in knowledge management has little to do with "knowledge" as most of us understand the word.

From Mohandas Karamchand Gandhi's use of satyagraha (total nonviolence) to defeat the British Empire (and the British Army) in the 1940s, to Jody Williams' pioneering use of "People Power" (massively distributed collaboration) to drive trans-national political action in the 1990s, these forces are redefining our understanding of social and political power, and military utility.

Our senior military leaders are watching. The French Revolution was a period of radical social and political upheaval in French and European history. The absolute monarchy that had ruled France for centuries collapsed in three short years. French society underwent an epic transformation as feudal, aristocratic and religious privileges evaporated. Old ideas about hierarchy and tradition succumbed to new Age of Enlightenment principles of citizenship and inalienable rights.

The Holy Roman Emperor Francis II watched closely from Vienna as events unfolded in Paris, but he failed to understand. He misunderstood the social and political forces at work in The French Revolution, and he completely missed the military utility that was being created. When the Grande Armée took the field against the Austrian army in September of 1805, the Austrians saw an untrained, undisciplined, poorly led rabble, without an adequate supply system and with little administrative structure. Less than a month later, the Grande Armée had crushed the Austrians at the Battle of Ulm. In November, the French captured Vienna. On December 2, the decisive French victory at Austerlitz removed Austria from the war.

Napoleon Bonaparte understood the forces that were unleashed during the French Revolution, and he exploited the intrinsic benefits of the revolution to create a new form of military utility. The French Revolution produced a highly motivated and ultra-patriotic citizenry, and this enabled Napoleon to create the first, true, "nation in arm." The French armies were able to successfully break rules because French politicians could disregard

all the normal political and economic restraints imposed on the European armies. For manpower, the French politicians depended not on highly trained and expensive regular troops but on patriotic volunteers and conscripts (in almost unlimited quantities) whose services were virtually free. These hordes of self-sacrificing infantry were the terrible instrument with which Napoleon conquered Europe. They were only available to a government that was prepared to put out men and money without stint, supported by a people who identified themselves with its objectives and who submitted uncomplainingly to the sacrifices it demanded.

Furthermore, the mass exodus of nobility during the revolution purged the army's leadership (which the Austrians saw as a flaw), and opened the officer corps to "natural born" commanders. Napoleon's comment that a marshal's baton could be found inside the knapsack of every soldier adequately described the real possibility of promotion based on talent in the Grande Armée.

Napoleon found military strength in the proper utilization of the social and political forces that drove the French Revolution.

Karl Mack von Leibrich lost the Battle of Ulm in 1805, but the Holy Roman Emperor Francis II lost the war almost a decade before that. Francis II failed to understand the radical social and political forces at work in France in the 1790s. He failed to recognize that these very same forces would revolutionize warfare.

None of our senior leaders want to be Karl Mack or the Holy Roman Emperor Francis II. Senior Army leaders recognize that transformational social and political forces are at work in the world in 2011. And just as Clausewitz puzzled over the performance of the French revolutionary armies, our generals are puzzling over the U.S. Army's performance in Iraq and Afghanistan. Military leaders around the world know that many of the old rules no longer apply, but they are struggling to understand the new rules.

One of the ways Army leaders are grappling with these new rules is with the term "Knowledge Management." (Think it's not a struggle? Then why can't we even agree on the definition of the term?)

KM isn't about information usage patterns, information access points, taxonomy, or information flow. It isn't about connecting those who know with those who need to know. KM isn't about the art (or science) of creating, organizing, applying, and transferring knowledge to facilitate situational understanding and decision making. KM isn't about an integrated approach to identifying, retrieving, evaluating, and sharing an enterprise's tacit and explicit knowledge assets to meet mission objectives.

KM isn't about knowledge at all – not in the traditional sense of the word. Instead, KM is about the Holy Roman Emperor Francis II, Jody Williams, satyagraha, smart mobs, the death of Encarta, and the 2011 revolution in Egypt. KM is about social and political

forces that we don't yet fully understand, can't name, and have little or no idea how to harness.

KM is about accurately predicting why, where, when, and how these same forces will act next. KM is about senior military leaders knowing that they are becoming bystanders to history, and not liking it. Creating a brilliantly integrated approach to identifying, retrieving, evaluating, and sharing an enterprise's tacit and explicit knowledge assets will be successful if and only if that approach leads to the U.S. Army harnessing transformational social and political forces to achieve mission objectives. That is "Why KM." And once we understand that, it may take us down some very different paths than KM for the sake of mere knowledge management. Beware the cool rationality of our traditional approach to KM.

COL Kris Ellis is Director, Strategic Communications at the U.S. Army Signal Center of Excellence and Fort Gordon. He has served as an Infantry battalion battle captain, brigade battle captain, joint operations center shift director for Combined Joint Task Force 82/ Regional Command - East during Operation Enduring Freedom X, and a watch officer in the U.S. European Command Joint Operations Center.

ACRONYM QuickScan

ACC – Army Capstone Concept
KM – Knowledge Management

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Content and knowledge management support full spectrum operations

By COL Howard Lim

Introduction

This article shares observations I gleaned as an FA53 information systems manager during two tours performing the role of the knowledge management officer in support of Operations Iraqi Freedom at the Multi-National Corps-Iraq Headquarters during 2005-2006 and 2008-2009.

These observations reveal how we approached some of the KM challenges in an information rich environment and conclude with some suggestions on how content management strategies are critical for effective organizational knowledge management.

I would be remiss to not acknowledge the significant contributions to the KM effort by the numerous Soldiers, Sailors, Airmen, Marines, and contractors that I had the privilege to work with during these deployments. We face a knowledge management challenge. We are predominately a knowledge based organization and use tools and techniques to manage content as a supporting element to knowledge capture and dissemination processes.

The nature of modern warfare has been influenced by today's rapid technological advances in computing power and the use of information systems. The availability of information is continuously growing and strategies to manage this growth are important and an operational imperative.

Definition of Knowledge Management

Defining knowledge management can easily get bogged down into an academic discussion. I found it useful to simply describe it as a process to connect people to people with the right information to make optimal decisions. To accomplish this, my role as a KM officer at the operational level headquarters required me to align our KM strategy to support the operational fight. My primary focus and challenge during my tenures as an operation focused knowledge manager was trying to understand the key cognitive processes and determine how to array our information systems to support the corps operational fight. To this end, I was a regular participant in some of the working groups established to support the

commander's decision cycle. This was a necessary and time-consuming effort to be fully cognizant of the staff synchronization processes that supported the corps fight in the battlespace.

KM as an Operational Process

Operations focused KM must enable the Warfighter to act within the enemy's decision cycle and requires increasing the speed, flexibility, and integration (to include evaluation) of systems providing actionable information. The key operational KM objectives for the MNC-I HQ were to:

- Enhance situational awareness and understanding
- Support decision making
- Facilitate effective knowledge sharing
- Enhance collaboration among command and staff
- Capture and store knowledge with rapid delivery to the point of the spear

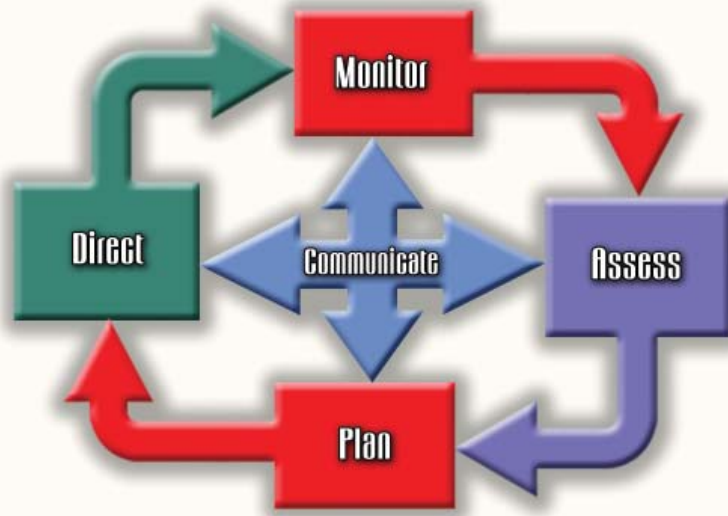
I will review MNC-I's KM efforts as it relates to the Commander's Decision Cycle (Figure 1) and how it supports the four elements of this decision cycle: Monitor-Assess- Plan-Direct.

Monitor Joint Operations Center

Monitoring current operations for situational awareness occurred in the Joint Operations Center. The JOC must take incomplete, compartmentalized information that comes from various sources throughout the staff and MSC and present a complete well-synchronized product that gives the command group and battle staff the information required to make decisions and issue guidance.

Even though there were multiple programs of record applications for battle tracking and SA (CPOF, MCS-Light, C2PC, ADOCS, FalconView, GCCS, etc), none were able to generate rapid solutions for emerging information needs and create customized views based on user-determined requirements. In a dynamic information rich environment, the ability to produce solutions is paramount to supporting the JOC's information requirement. The Combined Information Data Network Exchange, a custom database developed in theater, was utilized to capture emerging information requirement and allowed access to significant activity data for staff SA and also facilitated integration into the Corps'

Commander's Decision Cycle



CIDNE SIGACT database. Content staging techniques were implemented in order to automatically display CCIRs as they occur in the Iraq theater of operations. This visual display allowed significant event information to populate the portal in an automated fashion. The content staging techniques involved both technical implementation of meta-tagging SIGACT reports for appropriate retrieval and display and manual tactics, techniques, and procedures were utilized in the JOC for quality control of the information.

Assess

KM works best if linked to organizational strategy. The operational assessment process was conducted with a Corps Assessment Board. Based on the assessment of the operational objectives within the Campaign Plan Lines of Operations, the Commander issued guidance and directives that drove

the staff MDM through this process. Continual assessment of key outputs also informed the staff planning process. These assessments required a tremendous amount of analytical data. To streamline and automate this, we implemented commercial business intelligence (BI) tools to improve the ability for the analysts and staff to automate some of their “number crunching” processes. The results of this effort were near real time trend charts for some of the operational data. BI efforts included additional

“non-kinetic” data and rendered this data into automated trend charts. The BI objective was to produce “dash boards” displaying operational data and metrics in near real time to aid the staff in decision-making and staff analysis. The BI web page (figure 2) was designed to allow customizable views based on the user’s interest and populated with “dashboard” indicators for their areas of interest. These dashboards had the capability to drill down

Figure 1

web portal for further information dissemination and collaborative capabilities. Timeliness, ease of use for data mining, and ability to satisfy emerging data requirements made CIDNE a key information system in the JOC.

For staging content, the Corps Portal was utilized to provide an integrated platform for visualization of operational data derived from the

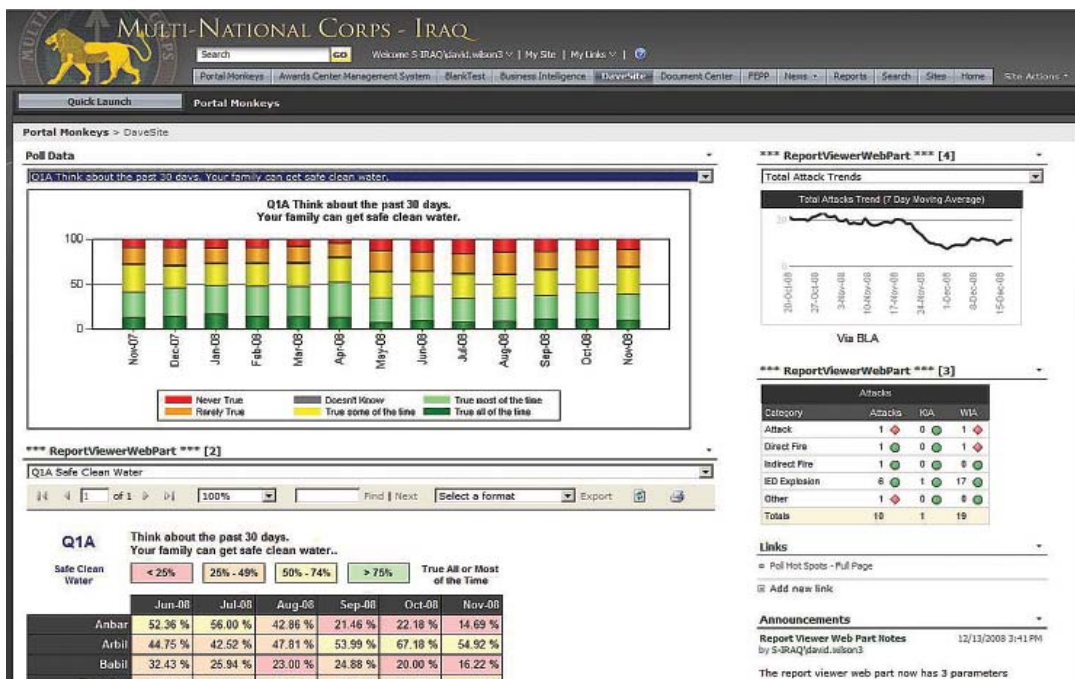


Figure 2

(Continued from page 17)

to specific details for the data in near real time.

This “engine” to the BI effort was engineered with a data warehousing technique commonly used in industry. The CIDNE SIGACTS database was a key source to develop an Online Analytical Processed database and is structured into a “cube.” The main advantage of an OLAP cube is that data is pre-aggregated for all the defined dimensions. This provides a significant increase in speed performance, especially when trying to track trends across very large data sets. With this OLAP Cube capability, trend data is available in near real time on the Corps Portal.

Analysts can spend less time “crunching” data and more time conducting analysis and the staff will have meaningful trend data for collaborative analysis and ultimately for better decision making and knowledge generation. We also encouraged dialog between the analysts and staff in discussion forums linked to these dashboards and enabled alerts if the trends triggered a predefined metric. With the

right BI tools processing the vast amount of data, we can take some of the processing load off the staff and present information in a useable format that would improve analysis and collaboration.

Plan and Direct

The Web Portal was crucial for MNC-I for information management that supported planning and directing efforts. The portal’s decentralized content management design facilitated the important task of document management for the staff sections. We implemented a CM capability in SharePoint called Content types, essentially document meta-tagging, for Orders and Fragos. By defining content types for specific kinds of documents or information products, it enabled us to organize, manage, and handle content in a consistent way. These content type rules made these documents more discoverable in searches and were easily staged in custom views based on their meta-tag characteristics. Additionally, the Corps Portal allowed staff collaboration to occur on these orders and fragos. Automated workflows

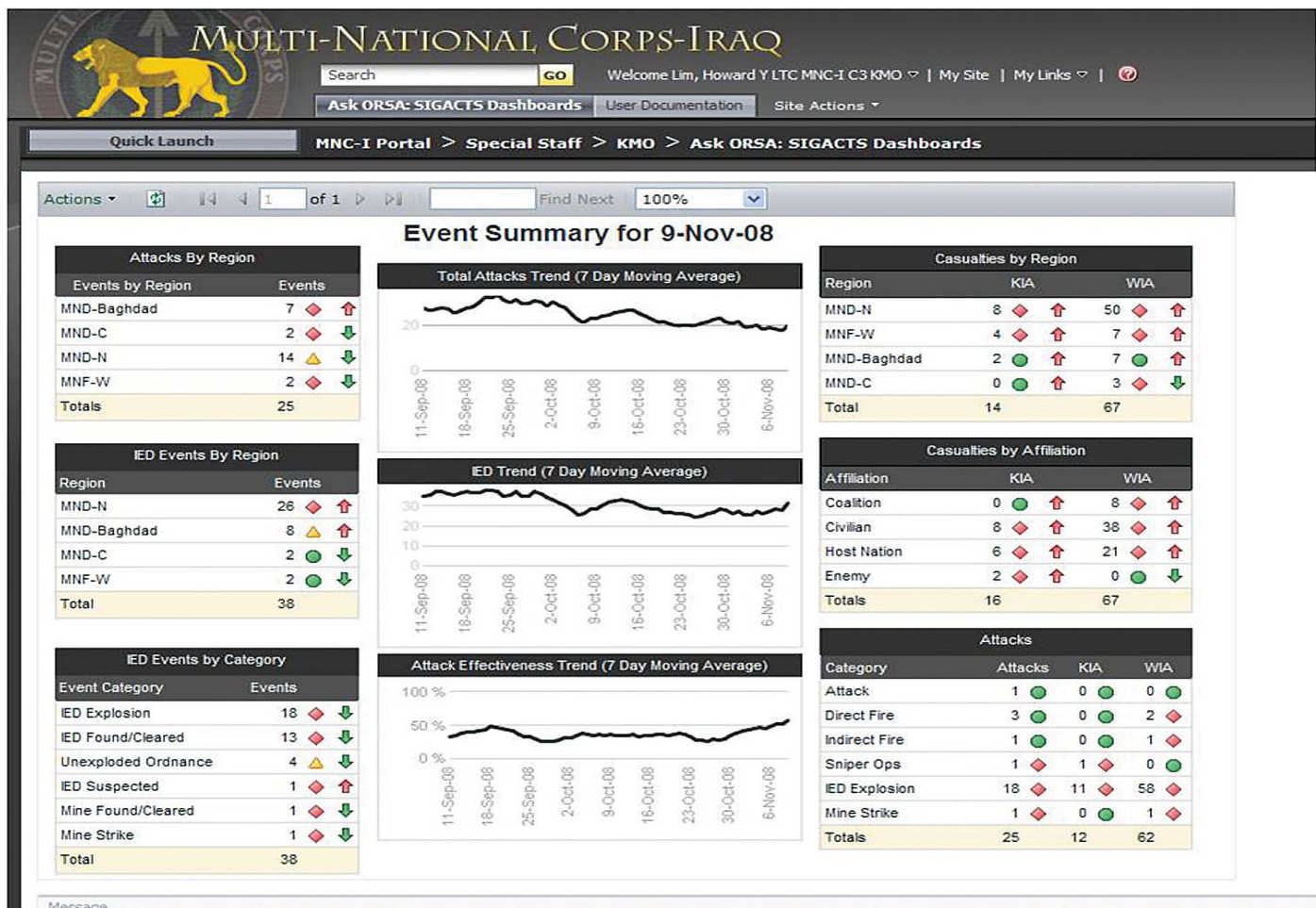


Figure 3

associated with the staffing processes were integrated into the portal and created a seamless process for document production and collaboration.

Other operational KM challenges

Continuity of operations

Personnel rotation is a significant drain in institutional knowledge. MNC-I implemented digital continuity books in the portal that captured "Q&A" in discussion threads. This was designed to preserve important "conversations" between incoming and outgoing personnel that typically would be captured and eventually lost in email threads. Over time, this digital continuity book would preserve historical information relevant to the job and provide a means to quickly get the incoming staff officer up to speed. Leveraging the portals to maintain continuity files (digital continuity books) helped mitigate knowledge loss in support of left seat/right seat transitions.

Interoperability

Lack of Interoperability is a key challenge in a joint and coalition environment. A significant body of data and information is being collected but minimal interoperability is in place to exploit this data. Some efforts are underway to get some of this data into DCGS-A and CIDNE. System interoperability and information framework for the ITO is still a piece-meal effort to attain information and data interoperability in a joint environment. The Marines have their own systems and some of this data is manually inputted into CIDNE. Interoperability between CIDNE, TIGR, and CPoF is still a mixture of manual processes and one-way data feeds. Due to

an increasing availability of data and information from the tactical level, the need for interoperability is a growing concern. Counter-insurgency based Web Services, if established, would allow improved sharing of key COIN based data and information across multiple platforms and services. Preliminary efforts during my tour were underway with SIGACT web services that allow data sharing between CIDNE and TIGR. There is no shortage of data and information in theater. A significant challenge is improving interoperability in order for knowledge discovery or data mining to efficiently occur which ultimately would help the KM practitioners to present this mountain of data in some useful manner.

Cross-domain Challenges

The information environment in a coalition of international partners is a significant challenge for knowledge management. MNC-I had over 20 coalition partners during the early years of OIF and required constant movement of information between NIPR, CENTRIX, and SIPR. This was a time consuming task for the staff officers and the use of cross-domain-guards was generally not suitable for unstructured data (majority of the files that required multiple domains were orders and briefings). While we dealt with this challenge thru TTPs involving the use of foreign disclosure officers and manual work flows for approval to post in the appropriate classification domain, some efforts were successful in automating the movement of structured operational data with cross-domain guards. This is an area that could use significant improvement in technology that would enable seamless movement of information for a coalition environment.

Other Communities Requiring Support

During my tours, my KM team also assisted in developing solutions for information challenges from non-operational communities. This effort included improving Joint Awards processing, Personnel accounting, and Logistic "Virtual Warehouse" database. These tools were developed for our portal environment and were useful in improving the information management processes for these sections. These efforts indirectly supported operations by improving the efficiencies and visibility of information relevant to these communities. I outlined some of the KM challenges I faced in an operational context. Now, I would like to discuss some supporting content management strategies that support KM processes.

CM Principles that Support KM

The primary objective of KM is to develop supporting processes to capture, share, and generate new knowledge. To support this, KM efforts are just beginning to leverage technology to stage information and target users to help filter the most critical or relevant data or information. Utilizing tools for visualizing a variety of information and establishing a framework to display relevant data is crucial to stay ahead of the massive flow of data in this environment. We need to find tools to reduce the staff load that is the result of this information rich environment so they can engage in the more important KM tasks of collaborating and understanding. To foster collaboration processes, organizations need new ways of

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producing, authoring, capturing, disseminating, and assessing knowledge.

Following are some ideas relating to how content management could enable effective use of the network's ability to deliver information to the right users at the right time and foster a more collaborative environment.

Knowledge is dynamic and has a shelf life. So today's mission-critical knowledge needs to be captured, reviewed and published quickly, as well as updated and culled frequently. The absence of discrete pieces of unstructured information – essentially snippets of knowledge – is often what stops us from completing the task at hand. The kind of how-to information varies based on the user's role or type of job. For example, a new battle major may ask, "What did we do when this event last occurred?" A software administrator may ask, "What is the sequence of patches to apply in delivering this workaround?" A staff officer may ask, "How do I set alerts on this web page?" These pieces of information are not likely to be found in product or training manuals, assuming someone would actually even take the trouble to dig through the documentation in the first place.

CM must consider how to capture the most relevant information that supports the day-to-day operational needs. Organizations should also offer proactive and reactive methods for finding information. Options could include alerts and subscriptions or integrated search and retrieval mechanisms. Additionally, tracking contributions of authors and the value of those contributions for rewards and recognition is critical so that authors have an incentive to divulge the tacit knowledge in their heads and take the time and effort to document it. This also helps discourage information hoarding since, in the old model, information was power.

Organizations should also consider analyzing their information needs and determine a taxonomy that would be used to meta-tag key information assets for ease of discovery.

Social Networks--the true power of the network

An emerging trend to consider is user generated content in a social network. Social media is a new opportunity to generate content that makes today's blogs and wikis so effective. UGC in a social network eliminates many of the barriers (geography, time zones, lack of immediacy, and loss of knowledge artifacts) that plague traditional means of communication.

The challenge is to model the interaction of social media but provide appropriate control measures to protect sensitive information. This capability also requires the ability to find and connect the right people with common interest and to create incentives to encourage their participation. A directory of personnel with biographical data is necessary to enable this concept and an incentive structure must be established to leverage a social network. Tactical Integrated Ground Reporting is an excellent example of a current battlefield information management tool that allow users to generate content (operational and intelligence reports) and making it immediately available on the local TIGR network. This tactical UGC capability with immediate dissemination allows troops to share time sensitive information horizontally without unnecessary delays.

Accessibility and Discoverability--Finding useful information with CM

Tacit knowledge (what people know but is not codified) should not be restricted to a few in-house subject matter experts. In fact, to extract tacit knowledge, it makes more sense to involve more people than less. It is important to understand the implications of these new demands on recognized workflow processes. Instead of the more static create/manage/publish flow that embodies most CM tools, organizations need to embrace a more fluid capture/route/convert workflow and be able to cohesively measure the entire process.

The capture of this information can only succeed if it is easy to create content as part of one's work process and cleanly integrated with existing systems. CM must capture the diversity of thoughts to support KM. Search related to CM has typically focused on records, with some capability to include limited unstructured data sources. With the disaggregation of information spanning structured and unstructured data, the traditional approach is no longer sufficient. The ability to federate across different locations, content stores and data types has become a fundamental requirement. To facilitate efficiencies in CM, organizations must:

1. Establish control over the ever-growing volume of records and documents to mitigate task duplication and minimize time spent searching for information.
2. Automate business processes to replace manual paper processing, thereby increasing productivity and enabling collaboration.
3. Streamline the authoring and publishing of information to knowledge workers.
4. Meet regulatory compliance obligations, including document retention policies for unstructured

information such as blogs and wikis.

CM requires a cohesive, enterprise-level taxonomy structure by which all knowledge workers can abide. Organizations must carefully design a CM topology aligned with their specific processes and unit structure and establish systematic metadata tagging rules to facilitate search and navigation of enterprise content. End-users must also have the confidence that all content and data in a CM system, and the CM system itself, is fully protected against accidental deletion or corruption.

Conclusion

As we enter the second decade of war, we are faced with the likelihood of persistent conflict. The adversary's use of decentralized irregular tactics will continue to place demands on our

information systems capability to collect and disseminate actionable information. Enabling the Warfighter to act within the enemy's decision cycle requires increasing the speed, flexibility, and integration of systems providing actionable information. Today's information technology offers useful capabilities to support organizational knowledge management requirements with useful content management capabilities that provide relevant information useful to the warfighters.

As we continue to refine our CM techniques, we must consider technology that allow users to access relevant content from numerous information sources without getting bogged down with ineffective searches. To realize the potential and power of the network to support KM processes, organizational content

must be discoverable and people are connected to the right people to have effective collaboration. Technology aside, Knowledge management is ultimately about people and about supporting their cognitive processes.

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ACRONYM QuickScan

BI - Business Intelligence
C2PC - Command and Control Personal Computer
CCIR - Commander's Critical Information Requirements
CENTRIX - Combined Enterprise Regional Information Exchange
CIDNE - Combined Information Data Network Exchange
CM - Content Management
CPOF - Command Post of the Future
DCGS-A - Distributed Common Ground System - Army
GCCS - Global Command and Control System
ITO - Iraq Theater of Operations
JOC - Joint Operations Center

KM - Knowledge Management
MCS - Maneuver Control System
MDMP - Military Decision Making Process
MNC-I - Multi-National Corps-Iraq
NIPR - Non-classified Internet Protocol Router Network
OIF - Operation Iraqi Freedom
OLAP - Online Analytical Processing
PERSTAT - Personnel Status
Q&A - Question and Answer
SA - Situational Awareness
SIGACT - Significant Activity
SIPR - Secret Internet Protocol Router Network
TIGR - Tactical Integrated Ground Reporting
TTPs - Tactics, Techniques, and Procedures

Content management serves as a vital cyberspace operations enabler

By Russell Fenton

The importance of cyberspace, as part of the nation's critical infrastructure, arose from the President's signing of the National Strategy to Secure Cyberspace in February of 2003. Since then, many important national strategies, policies, and decisions have been created and signed. Consequently, the Department of Defense created the National Military Strategy for Cyberspace Operations in December 2006, and subsequent NMS-CO Implementation Plan in October 2007.

Although cyberspace has been defined in many different ways within private and public communities over the years, on 12 May 08, the Under Secretary of Defense, Gordon England, signed a document officially establishing the DoD definition:

Cyberspace is a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.

Along with the cyberspace definition, the chairman of the Joint Chiefs of Staff approved the definition of Cyberspace Operations in August 2009: [Cyberspace Operations are] the employment of cyberspace capabilities where the primary purpose is to achieve objectives in or through cyberspace. Such operations include computer network operations and activities to operate and defend the Global Information Grid.

For decades, the Army has used its portion of cyberspace

(the LandWarNet) and cyberspace operations to enable a continuing strategic, operational, and tactical information advantage over adversaries of the U.S.; yet the advent of the official cyberspace definition, as well as recent national defense strategies, elevates cyberspace to the same level as land, sea, air, and space. Ultimately, this creates a paradigm shift because we must now think of the network as a virtual area of operations where the information modified, stored, and exchanged within it is more than just integrated data with a higher meaning. Information has now transitioned to a tool that can create non-kinetic effects in and through cyberspace. So the question must be asked, "Are content management capabilities (with the goal of getting the right information to the right place, at the right time, and in the right format) a vital enabler to cyberspace operations?" While some will undoubtedly argue the point, as the rest of this article will attempt to explain, the answer is "yes."

Recognizing and fully understanding the cyberspace domain is the first step in appreciating how content management enables cyberspace operations. Cyberspace has characteristics that differ significantly from the land, air, sea, and space domains. Figure 1 depicts cyberspace as consisting of three layers (physical, logical, and social) made up of five components (geographic, physical network, logical network, cyber persona, and persona).

The physical layer includes the geographic component and the physical network component. The geographic component is the

physical location of elements of the network. While you can easily cross geographical boundaries in cyberspace at a rate approaching the speed of light, there is still a physical aspect tied to the other domains. The physical network component includes all of the hardware and infrastructure (wired, wireless, and optical) that supports the network and the physical connectors (wires, cables, radio frequency, routers, servers, and computers).

The logical layer contains the logical network component, which is technical in nature and consists of the logical connections that exist between network nodes. Nodes are any devices connected to a computer network. Nodes can be computers, personal digital assistants, cell phones, or various other network appliances. On an Internet protocol network, a node is any device with an IP address.

The social layer comprises the human and cognitive aspects and includes the persona component and the cyber persona component. The cyber persona component includes a person's identification or persona on the network (e-mail address, computer IP address, cell phone number, and others). The persona component consists of the people actually on the network. An individual can have multiple cyber personas (for example, different e-mail accounts on different computers) and a single cyber persona can have multiple users (for example, multiple users accessing a single Facebook account). The social layer is primarily application based, and it is concerned with how users and information systems present, store, and modify information. Meaningful interaction and function

through cyberspace occurs when all three layers are integrated and operating correctly.

Another step in appreciating how CM is an enabler to cyberspace operations is understanding how information has become a force in its own right. As stated in FM 3-0, "Information is a powerful tool in the operational environment. In modern conflict, information has become as important as lethal action in determining the outcome of operations." In the physical realm, every engagement, battle, and major operation requires complementary information to both inform and influence audiences within the operational area. It is an element of combat power against enemy command and control and it is a means to affect enemy morale. It is both destructive and constructive.

Given the transitioning view of cyberspace as a domain, one must consider that information within the virtual realm can be fired from a weapons platform in order to create desired effects. If information is part of a weapon, and the aim of the information weapon is to achieve objectives in cyberspace, then what is the target? The answer varies depending on whom you ask. Some will say information itself is a lucrative target. Others say the focal point is on the cognitive level and how information can influence the adversary or win the hearts and minds of the people. Still others say utilize information to deny, disrupt, or degrade adversary command and control systems (e.g. denial of service attack).

In the end, the network is a weapon platform. The information on the network is analogous to munitions

or forces on the battlefield, and the non-kinetic effects created can be just as powerful as any kinetic weapon in our arsenal.

This all begs the question, "How does CM act as a vital enabler to operations in the cyberspace domain?" FM 6-02.71 (Network Operations) explains how CM utilizes technologies, techniques, processes, policies, and procedures necessary to assure the delivery of information. CM relies on the physical and logical layers of cyberspace in order to move and maneuver information within the virtual area of operations to ensure information time on target in the social layer of cyberspace. This process is the equivalent of forces maneuvering to gain positions of advantage in the traditional land domain. As stated before, cyberspace operations involve the employment of cyberspace capabilities where the primary purpose is to achieve objectives in or through the domain. For CM, the objective in and through cyberspace is to deliver the right information to the right place, at the right time, and in the right format to create the necessary effects.

To move and maneuver content as part of cyberspace operations, several functions must be performed.

First, information must be assembled and held for onward movement. These assembly areas in cyberspace consist of technologies such as network access storage and temporary caching.

Second, resources must be allocated based on the

(Continued on page 24)

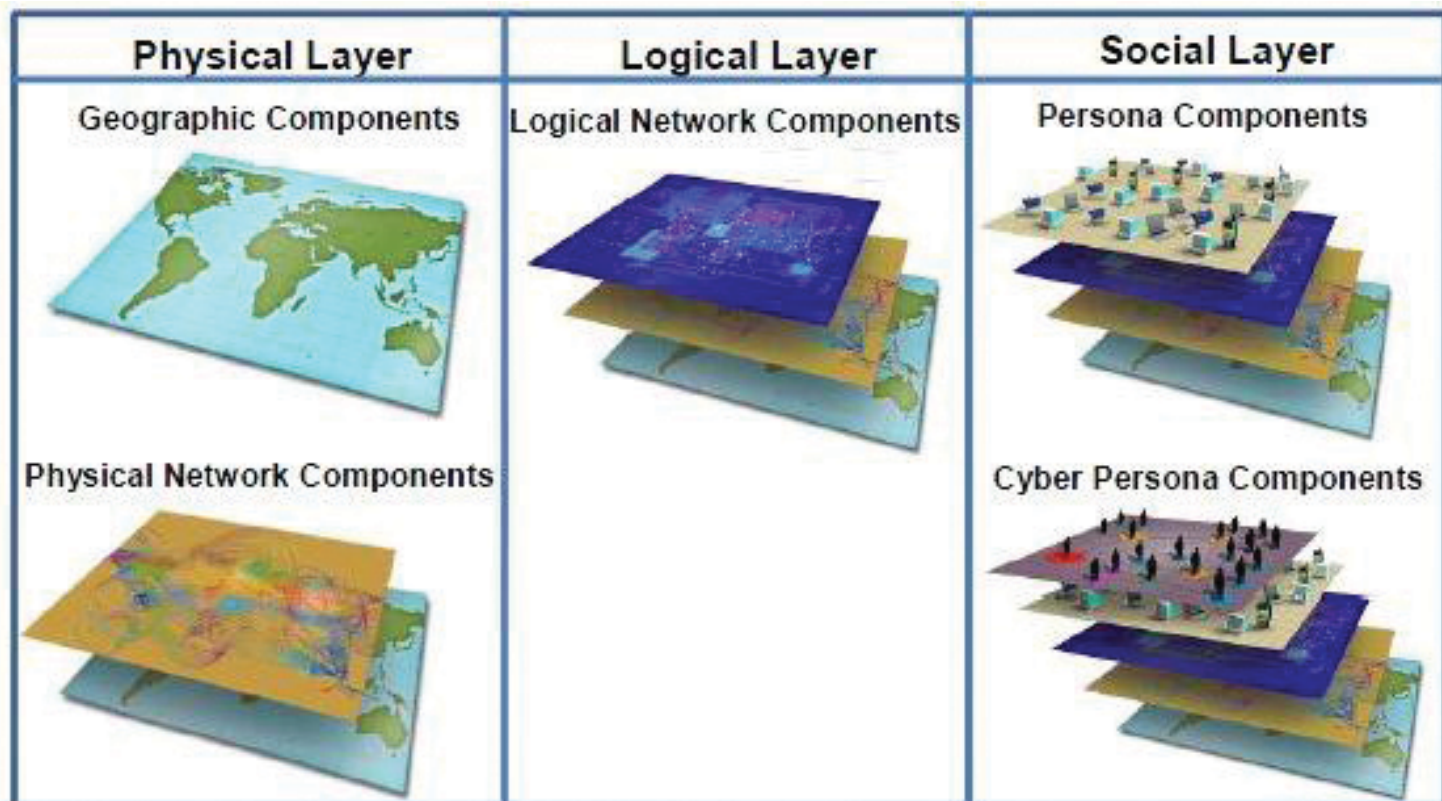


Figure 1

(Continued from page 23)

commander's priorities and to balance requirements against capabilities. Individuals need to plan for the known and posture anticipatory measures for the unknown. In certain events, rapid response is required to meet emergencies and support unexpected opportunities. Frequent movement of information using transport and staging capabilities normally committed to other tasks makes maintaining continuity of operations support a challenge.

Third, network operators will manage and direct information movement on main routes and alternate network routes, and maneuver information around areas of degradation or disruption.

Fourth, network operators must coordinate with warfighters in order to match requirements with methods based on priorities, the principles of movement control, and the capabilities selection guidelines.

Lastly, information movement and maneuver must be tracked (in-transit visibility) from origin to destination. ITV provides situational awareness of information flow within the virtual area of operations.

The U.S. Army Training and Doctrine Command has recognized the importance of determining capabilities that commanders must bring bear to enable Army Cyberspace Operations. In February 2010, TRADOC published TRADOC Pamphlet 525-7-8 (Army Cyberspace Operations Concept Capability Plan). This publication describes how the Army will fight and win the cyber/electromagnetic contest, focusing on the timeframe of 2016 – 2028. In order for the Army to prevail, it must gain the advantage, protect this advantage, and place the adversary at a disadvantage in cyberspace. Per the CCP, the components of Army Cyberspace Operations consist of Cyberspace Situational Awareness, Cyberspace Warfare, Cyberspace Support, and Network Operations. CM is the function within NetOps that enables commanders to gain an information advantage over the adversary.

At some point, all CM activities conducted in cyberspace must facilitate land operations. Remember, it is the social layer of cyberspace that integrates with the cognitive aspects of the information environment. The information that exists at this layer is meaningful to humans or connected devices and ultimately informs, influences, or facilitates understanding and decision-making.

As part of land operations, both knowledge management and inform and influence activities rely on the management of content in cyberspace. KM is the art of creating, organizing, applying, and transferring knowledge to facilitate situational understanding and decision-making; while, IIA are conducted to inform domestic audiences and influence foreign friendly,

neutral, adversary, and enemy audiences. Field Manual (FM) 6-01.1 (Knowledge Management Section) and Change 1 of FM 3-0 (Operations) highlight CM's role in supporting KM and IIA respectively.

For decades the Army has used its portion of cyberspace (the LandWarNet) and cyberspace operations to enable a continuing strategic, operational, and tactical information advantage over adversaries. Yet, the emergence of cyberspace as a domain and the thought of conducting operations in it versus just through it that has forced a paradigm shift in which the network has become a weapons platform and the information within it acts as munitions that can be fired or forces that can be moved and maneuvered on the virtual battlefield.

CM leverages the physical and logical layers of cyberspace for the purposes of staging information, allocating cyberspace assets, routing, and in-transit visibility, with the end objective of delivering the right information to the right place, at the right time, and in the right format within the social layer. Undoubtedly, CM is a vital enabler to cyberspace operations that supports operations in the land domain and sets the conditions for the Army to prevail in the cyber/electromagnetic contest.

***Russell Fenton** is a retired Signal (25A) and information systems management officer (FA53A) with over 17 years network operations experiences at all echelons. Mr. Fenton currently works as the Chief of the Cyberspace Cell, Network Assurance Section, TRADOC Capabilities Management Office Global Network Enterprise, U.S. Army Signal Center of Excellence. He has spent the last three years working as part of the Army integrated capabilities development team developing the capstone concept and identifying network operations solutions in support of cyberspace operations.*

ACRONYM QuickScan

CCP - Concept Capability Plan

CM - Content Management

DoD - Department of Defense

IIA - Inform Influence Activities

IP - Internet Protocol

IT - Information Technology

ITV - In Transit Visibility

KM - Knowledge Management

NetOPS - Network Operations

NMS-CO - National Military Strategy Cyberspace Operations

TRADOC - U.S. Army Training and Doctrine Command

NETCOM embraces crucial KM role

By Todd J. Daugherty

MG Jennifer L. Napper and the command group at Network Enterprise Technology Command/9th Signal Command (Army), Fort Huachuca, Ariz., embrace knowledge management as crucial in NETCOM's mission to operate, maintain and defend the global network enterprise.

"Timely access to information and sources of knowledge play a critical role in mission success at all levels of command; and through

knowledge management, we can all help ensure information is available to those who need it the most when they need it," said MG Napper, NETCOM/9th SC(A) commanding general. "Our ability to create and store information and knowledge has evolved exponentially, now we must also evolve the way we share, manage, and retrieve it. Knowledge management is everyone's duty."

Information technology is a rapidly evolving field, with a shifting knowledge base distributed across a four-generation workforce.

Therefore, NETCOM/9th SC(A) is focused on codifying and sharing knowledge in a timely fashion, and toward achieving efficiencies and cost avoidance, which are pillars of the Secretary of Defense's cost-cutting measures. When knowledge is codified, it becomes more easily discoverable by those who need it. In turn, when knowledge is discoverable, sharing is facilitated. Not only must knowledge be relevant and discoverable, it must be timely.

"Providing 'just-in-time' information or knowledge to the people or organization that needs it, is what KM is all about," said Matthew Viel, NETCOM's knowledge management officer.

Constant IT evolution quickly makes today's knowledge passé, said Viel. Effective content management practices and governance are essential to provide up-to-date knowledge to NETCOM's staff.

NETCOM/9th SC(A) leadership defines knowledge management as: "a systematic and integral approach that delivers information and decision superiority to all levels and individuals in the organization by enabling the effective and efficient use of people, processes, and technology in a defined, repeatable and continuously improving manner in order to meet current and future mission requirements."

NETCOM/9th SC(A) content managers are vigilant because they are key enablers of an efficient and effective knowledge based organization, said Viel. CMs work closely with content creators and subject matter experts to ensure those who know can connect with those who need to know (why, what,

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Photo by Eric Hortin

An ardent supporter of Army Knowledge Management, MG Jennifer L. Napper, NETCOM/9th SC (A) commanding general, speaks during her promotion ceremony 4 Feb. 2011 at the NETCOM headquarters, Fort Huachuca, Ariz.

who, when, and how) by leveraging knowledge transfers from one to many. Content is created and vetted by SMEs who make this relevant knowledge available to anyone who needs it via the NETCOM/9th SC(A) SharePoint® portal. CMs also assist content creators and SMEs in learning how to tag an information item with relevant metadata – commonly thought of as “data about data” – that enables easy discoverability. The CM is aware of the value of up-to-date knowledge as well as the liability of dated knowledge, and works to provide staff with valuable knowledge resources.

NETCOM/9th SC(A) leadership recognizes that integration of people, processes, and technology within a KM framework equates to a more effective, efficient and modern work environment. The command has the technology and processes needed to enable a robust KM program, said Viel. Command efforts can fail, however, when a stagnated culture – where knowledge is hoarded – prevails over a sharing culture, where every interaction is an opportunity to acquire and share knowledge. NETCOM leadership, recognizing the value of innovation, leverages a workforce with varied skills, experiences, perspectives, and approaches to problem solving.

“We need to transform our workforce from manual workers to knowledge workers where task-oriented employees are not just doing what they are instructed to do, but they are making independent choices and decisions,” said COL Michelle Fraley, NETCOM chief of staff and chief knowledge officer.

Fraley, as the command’s CKO, models KM culture to encourage staff to adopt smarter business practices. Further, because much of KM is IT enabled, the command’s KMO and his staff work under NETCOM’s assistant chief of staff, G-6, although the KMO is under operational control of the CKO.

“KM is already something we are doing and have done for thousands of years,” Viel said. “But in this second wave of the technological age, we are at a critical juncture where it is imperative to mission success that we leverage technology – such as Web 2.0/3.0 tools – to learn and share experiential knowledge with a wider audience, effectively enabling our people and processes.”

In order to assure that NETCOM HQ’s staff understands KM, MG Napper initiated a program to embed KM training into the developmental programs of all staff, said Viel. Training is tiered for general staff, and for KM professionals and NETCOM/9th SC(A) leadership.

NETCOM/9th SC(A) is harnessing distributed KM education offered on Skillport, DCO, and the Civilian Education System, as well as paid on-site training provided by industry and Army Knowledge Management programs offered through the Center for Army Lessons Learned. “The command also has begun a bi-weekly brown bag workshop series where representatives of NETCOM’s divisions can learn about KM processes, technologies, culture, and techniques, and take those lessons learned back to their staffs,” Viel said.

“The NETCOM/9th SC(A) Knowledge Management Office mission is to ensure an always-

improving KM program,” said Viel.

Through a still-emerging set of quantitative and qualitative surveys, the KM office strives to continually improve processes. An initial knowledge assessment will be conducted in the spring timeframe as a means to provide a baseline of quality for the command’s KM program; a full assessment will take place in 2011, and future assessments will be conducted to ensure the KM program continues to be central to the success of the command.

Todd J. Daugherty graduated from the Army Knowledge Leader intern program in Feb. 2011. He served rotations with CIO/G-6 Strategic Communications, DoD-CIO/ASD(NII), and in the Knowledge Management Directorates at the U.S. Army Signal Center of Excellence, Fort Gordon, Ga; and with the assistant chief of staff G-6, Fort Huachuca, Ariz. He holds a bachelor’s degree from Penn State University and a master’s degree in Library and Information Science from Clarion University of Pennsylvania. His first permanent position with the Army is at CIO/G-6 Chief Integration Office.

ACRONYM QuickScan

CALL – Center for Army Lessons Learned
CIO – Chief Information Office
CKO – Chief Knowledge Officer
CM – Content Managers
DCO – Defense Connect Online
IT – Information Technology
KM – Knowledge Management
KMO – Knowledge Management Officer
NETCOM – Network Enterprise Technology Command
SME – Subject Matter Expert



What the
commander
needs to
know now

Wading through mounds of data to extract useful, timely knowledge is a continuous process for operational units.

Signaleers share front line experiences

Operational knowledge management

By LTC Roberta Samuels

You've successfully finished Signal Company Command, BCT S6, or maybe even corps or division

staff duty, but you have another year before your PCS, and the XO says, you've done such a great job for us, the commander recommended for you to be the division KMO. You've heard

"knowledge management" thrown around at NTC or JRTC, and usually from your previous perspective it involved sharing files, or maybe 'The Portal' and technology. It's no big deal, right? Servers, routers, ABCS, laptops --you've been dealing with it all of your Signal career...and then your first task is to review the battle rhythm...what does that have to do with technology?

You check the division's MTOE and find out the authorizations are for an 02A, Branch Immaterial O-5/LTC as the KMO and a FA 57A Battle Command Systems Operator O-4/MAJ as the deputy KMO. Then you start to research the field of KM and find FM 6-01.1 Knowledge



LTC Roberta Samuels, knowledge management officer for Regional Command (East)/Combined Joint Task Force 101 in Bagram, Afghanistan, shares information with a staff member.

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Management Section, MilSuite's Army Knowledge Management Forum, and CALL's KMNet. You sign up for an account on KMNet, look around the site, and find a lot of information, including a paper by MAJ Michael McCarthy, "So you're going to be a KMO?" Plus you find several books on KM when doing a search on Amazon. But where do you start and what do you need to know?

FM 6-01.1 defines Knowledge Management as the art of creating, organizing, applying and transferring knowledge to facilitate situational understanding and decision making. Signal officers provide communications support to the right people, at the right time, to support the mission. KM is comparable, in that it's often looked upon as helping the commander get timely information within a context to make a better decision. In KM, the components to make this happen are dependent upon people, process and technology, while taking into consideration the unit's culture, structure, and content. Typically your first inclination is to focus on technology because it's easy to see, and to describe. It readily provides measurable results.

In reality, 70-80% of KM application involves people and the process of how something is done

In reality, 70-80% of KM application involves people and the process of how something is done to make new or innovative changes to the creation or distribution of knowledge within the organization.

to make new or innovative changes to the creation or distribution of knowledge within the organization. Technology is a supporting element. However, the Commander's understanding of KM execution directs how the KM section supports the command. This varies greatly across commands. One of the first questions you should ask your boss is, "What are your expectations of KM integration and support to the staff and subordinate units?" Prior to asking this question, I recommend that you have researched the resources listed above and have a draft KM strategy, because your boss may reply back to you with, "What is KM and what can it do for us?"

Since you are talking to your boss, who exactly is that person... the G6, G3, G2, chief of staff, or someone else? Chances are it varies from unit to unit, but doctrine states

the KMO works for the chief of staff, or in a brigade task force, the deputy commander or executive officer. Advantages exist for working within a staff section because you can build a support base and have an ally in promoting a course of action. The downside of working inside a staff section is you tend to look at a problem through a different lens; if working for the G6, you are more likely to initially apply a technical solution; if working for the G3 or G2, the solution is likely to focus on operations or intelligence, while potentially missing involvement of the support staff.

A KMO that works directly for the chief of staff promotes the ability to support the entire staff without pressure of loyalty to another primary staff section. The chief of staff maintains visibility of and collaboration across the staff,



Coordinating multiple streams of information into useful knowledge requires vigilant analysis, both on the collection side and the recording end.



and most KM solutions will require support from multiple staff sections. Plus, with the chief of staff serving as the unit's chief knowledge officer, he/she is your champion. The chief of staff enforces KM best practices, such as ensuring transparency across the command by directing mega-large reads-ahead be posted on the portal site instead of e-mailing them to a select list. The provides situational awareness to the entire command instead of a select few.

Now that you've identified your KM support system and references; know generally what KM is, what its components are; and who you work for, what skills will you need to be successful as a KM? As a Signal officer, you can start with the technology skills. You are probably comfortable with the technology component, especially if you are familiar with the full capabilities of MS Office, SharePoint, InfoPath, Adobe Connect, and Army Knowledge Online. Your DKMO as a FA 57A should have a good understanding of the ABCS capabilities, connectivity and support to operations. But to be successful as a KMO you will need to establish personal relationships – with the division staff, with other unit KMs, with KM contractors, with the garrison staff – as you will interface with a variety of people to solve problems. Sometimes it will be you bringing people together to solve a problem or improve a process. This is where the ability to facilitate collaboration, run an effective meeting, identify and assign responsibilities comes into play. Being able to serve as that 'outside observer' to the group and not get personally involved in the problem is another important skill to have as a KMO. Finally, a skill that you likely already possess as a Signal officer is leadership. Just as in any leadership position, you will make recommendations to execute a COA that is unpopular, but results in a higher performing unit.

Where can you develop a more

in-depth understanding of KM and the skills needed to be successful? Several organizations on Fort Leavenworth provide KM training and coursework for the Army. Army Knowledge Management Proponent provides training for basic KM, content management, assessment, at no cost to the unit other than travel and per diem expenses. A KM elective is also available at the Command and General Staff College's Intermediate Level Education course. AKMP also supports an annual three day Army Operational Knowledge Management conference, which provides a unique opportunity to meet peers, higher HQs KMOs, and military KM experts who have significant experience and expertise. This conference is typically held the third week of October in Kansas City, Kan., and shares current military KM practices and experiences. Commercial KM courses are available through various civilian KM organizations, where 'certifications' can be earned. However be aware of KM certifications – currently there is no industry standard established. Several graduate programs offer a KM degree and a careful examination of the courses will indicate if the degree is process oriented, technology oriented, a combination, or possibly even business focused. Before taking any course, review the course content to ensure your expectations are met.

Finally, what are some of the challenges in KM that you will face? KM is a 'soft' field, meaning often it is difficult to define the metrics to see the 'return on investment.' It's often difficult to measure better decisions and processes improved, even when you 'know' that the unit is working more effectively. Your commander's guidance towards KM is often personality or experience based, which means your work may or may not match Army doctrine. When operating in a joint or coalition environment, doctrine is mostly non-existent and best practices may not be similar across services or countries, where

culture strongly influences practices. And just as in Signal operations, working across multiple networks, with various classifications, while depending on unreliable connectivity is a challenge for good knowledge management.

For a Signal officer serving as the knowledge management officer, the challenges prove to be more than just maintaining 'the network,' or managing 'the Portal.' Serving as a KMO will expand your understanding of staff processes and the impact of information and knowledge management on decision making. And as with any duty position, whether coded for a Signal officer or not – in the role of the KMO, you get out of it what you put into it.

For more information on KM refer to the following links:

1) KMNet <https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=341623>

2) MilSuite – Army Knowledge Management <https://www.milsuite.mil/book/groups/army-knowledge-management?view=overview>

3) https://wkb.bcks.army.mil/Search/MetadataSummary.aspx?f=/content/live/bcks/a963_km_white_paper_20091229.pdf (NOTE: When I first wrote this paper, the link listed above worked. On 15 April 2011 the link did not work. Here is information on the resource that you may want to explore: "So you're going to be a KMO? - A Competency Model for a Knowledge Management Officer," 15 Dec 2009 by MAJ Michael McCarthy).

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Defining Knowledge Management

By CW 2 James L. Walker

A little over a year ago I had to face the question, "What is Knowledge Management?"

As a 254A, Signal systems support technician, I was trained to supervise and integrate the ABCS, LAN, radio systems, and management of COMSEC facilities into tactical non-signal units. After assignment to Korea, I was diverted to the division KM office. That's when I encountered the questions, "What is KM and why is a Signal warrant tasked for this?"

After receiving an overview on KM from my boss, I went to Fort Leavenworth, Kansas, to attend the Army Knowledge Management Qualification Course pilot. At the course, I learned about the components of KM, content management, and assessments. Following that course

"It was not until I deployed that I finally got to see what KM really entailed."

I also attended a civilian certified knowledge management course. Both courses gave me a general idea of what KM is all about. It was not until I deployed that I finally got to see what KM really entailed.

The components of KM are people, process and technology. As a 254A, technology was a concept of which I was most familiar. The hardest part for me to grasp was the people and process components because in the KM world you have to approach the problem or issue from an outside perspective. Some solutions can be solved by taking an

"outside the box" approach. During deployment to the RC(E)/CJTF-101 HQs, I worked in the KM section as the assessments officer.

Assessments play a vital role in the understanding of unit or section's business processes. As the assessments officer, I sat down with the RIC OIC and Deputy to develop a plan for the RIC to become the information warehouse for RC(E)/CJTF-101. The KM section worked with the newly formed regional information center in the setup and management of their portal. In order to accomplish this task, we put KM to practice by first utilizing the technology component. We wanted to create a site that was very user friendly, easy to navigate and had search ability. We adhered to a three click rule that allowed the user to access needed information within three clicks from the home page. By doing so, this allowed information to be accessible by the primary staff sections and subordinate units. We also create a customized request for information workflow that allowed users to request information not readily available. The portal was used for the posting current information, including working documents. This helped reduce the e-mailing of large files across an already limited network in terms of bandwidth usage. Once we completely established the technology framework, we moved to the people and process components of KM.

We focused on the knowers



Members of Regional Command (East)/Combined Joint Task Force 101 in Bagram, Afghanistan, LTC David West and COL John P. Johnson review the unit's knowledge management plan during operations in Afghanistan.

and the learners. Our goal was to create multiple forms of collaboration with the RIC. Inside the RIC, we decided military and civilian personnel would work in an open area, to allow them to work side by side with each other. This provided the opportunity for young Soldiers to work and learn from their civilian counterparts who were experts in their fields. We wanted to increase the amount of face-to-face interaction within the RIC and reduce the amount of collaboration being conducted over e-mail and the telephone. Face-to-face interaction is very important because you can create a more personal relationship with your co-workers. We encouraged personnel working within the RIC to physically leave their desks to talk to other sections when researching information and collecting ideas for a product. When face-to-face interaction was unable to take place, other means of collaboration such as e-mail, phone calls and VTCs (DCO and Adobe Connect) were then utilized.

With the technology information sharing portal structure established and the people collaborating and learning from each other, we turned to the process component. We began with the question, "How can we get the information to the people who need it quickly enough to make accurate and informed decisions?" Information, technology and people are critical, but if you do not have effective processes in place to provide information when needed, it quickly becomes obsolete.

We implemented several different types of daily information sharing sessions. Shift change briefs were conducted twice a day. The RIC OIC and other RIC personnel held internal RIC meetings. An RFI tracker was created, which allowed RFI's to be tracked from the time it was initiated through to completion. The RIC used the CJTF's standard for naming conventions of documents and files, increasing the ability to search information being created and stored. The RIC personnel also standardized their process when creating research papers for subordinate units and other government agencies. By implementing a few simple processes, the RIC functioned more effectively.

Working in the RC(E)/CJTF-101 KM section during this deployment added a skill set that I would not have gained anywhere else. Being a Signal Warrant Officer gave me an advantage by knowing what technology is available and its capabilities, helping me to decide if technology should be used in a solution and how to implement it. Working in the KM section also taught me the value of effective collaboration, the ability to assess processes, and most importantly, the ability to analyze a problem without being a part of the problem. These valuable skills broaden my ability to better serve in a Brigade Combat Team or Division Signal Team, where my focus will be technological application, but recognizing when a solution to the problem may be changes to process or people, not the technology.

CW2 James L. Walker served as the chief of assessments for Regional Command (East)/Combined Joint Task Force 101 in Bagram, Afghanistan, from May 2010 – May 2011. Upon redeployment he will serve in the 101st Airborne Division (Air Assault). His specialty area is 254A Signal systems support technician. CW2 Walker holds an associate degree in Liberal Arts and Applied Science from Amarillo College and will complete his Bachelor of Science degree in information technology from the University of Phoenix in 2012.

Components of a Knowledge Environment



Figure 1

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Fashioning knowledge into a potent weapon

By Emmitt Richardson, Jr.

Introduction

I am a member of a team of knowledge management integrators contracted to provide dedicated service to seven brigade combat teams assigned to Regional Command (East) in Afghanistan. KM personnel have a myriad of backgrounds and experiences. My perspective is based upon 23 years experience in information technology.

Summary

KM in brigade and below units is relatively uncharted area, due to the lack of an authorized KM Section. As with any new capability, putting it in the right place at the right time in their Army Force Generation cycle fully enables a KMI's impact. KM needs to be incorporated into a unit just as all weapons systems are integrated, with training, familiarization, and tactics, techniques, and procedures. The preferred practice is to integrate KM prior to deployment for the unit to fully exploit the potential of KM integration into the unit's processes and support to the commander. Finally, KM works closely with IT, IMO and the staff to incorporate standardized processes, with the end state being better, more informed decision-making by the command.

Weaponization of KM

During Operation Enduring Freedom XI, in June 2010, seven brigades in RC(E) were outfitted with KMI.

Since brigades do not normally have dedicated KM support personnel at their level, having KM expertise was a new experience for the brigade.

KM for the brigade requires an introduction of its capabilities and limitations, training, and incorporation into the unit, just as a new weapon system would be integrated. The challenge of this introduction is especially true when it is coupled with the brigade's high operational tempo in support of combat operations at the tactical level.

As a KM integrator in a combat brigade, there was a need to coach and mentor staff in the understanding of KM philosophy and services. When introduced to staff as the brigade knowledge manager, it became evident that many never heard of a KM or understood how knowledge can be managed.

To facilitate the introduction to KM, a KM presentation along with a complete website that gives pertinent information and tools needed to teach KM processes and concepts was developed. But that was not enough; a training program was needed, thus the development of the KM working group (KMWG). To help bring KM directly to a staff section, staff KM representatives were asked to participate in the working group to determine and discuss specific section needs; to help other sections learn; and to give the KM practitioners the opportunity to discuss critical information that needed to be shared.

Since many staff members are not accustomed to KM, it makes sense to conduct WGs that can be facilitated by a single representative instead of training the entire staff, which have other functions to perform.

Development of the KMWG was critical to understand staff section needs and to facilitate a single point of contact per section. KMIs participate in the KMWG, bringing questions, projects, concepts, and concerns to the meetings that are addressed among the entire group, not just the KMI. Sections provided a representative that was the "best fit" for the position and not based on rank or primary duty position. The KMI took the feedback and outcomes from the KMWG to their sections for implementation.

The KM program attempts to standardize daily processes, such as managing document libraries, synchronizing the battle rhythm, file naming conventions, managing personally identifiable information, sharing the common operating picture, and cross network domain transfers, to name but a few. During my tenure, staff sections and

the command used KM to streamline and improve processes.

Bringing KM to the unit during combat is problematic and needs to be corrected. When the decision was made to bring a KM integrator to the brigade level, the unit was already deployed and established in OEF with their mission already underway. At this point, the unit has an established battle rhythm based on how they perform in garrison, pre-deployment exercises, and concepts inherited from the previous unit that occupied the same battle space. Introducing a KM integrator after a unit is established is challenging.

Recommendation

Changing established practices of the command and staff to something new, something unfamiliar, and something untested within the organization is difficult in any situation, but even more so when the unit is engaged in warfighting. It's best to introduce a KM integrator during the unit's training phase where newly incorporated changes carry less risk. The KM integrator would theoretically stay with the unit during deployment, to optimize current processes and serve as a member of the team to address new challenges discovered while in combat.

Defining BCT KM Relationships

KM sections are normally authorized at the division echelon and above. The KM Section is typically manned by military officers and non-commissioned officers that run the program as well as web developers and server administrators. During CJTF-101's deployment as the RC (E) headquarters in Afghanistan, the CJTF KM section contracted KM personnel for U.S. BCTs, and these personnel held the title of KM Integrators (KMI). The KMI's function is to bring KM to the brigade, supporting processes and standards in collaborative communication and explicit data management. At my current brigade, there are no officers, non-commissioned officers or technical experts authorized for a KM section, requiring the KMI to provide

more services and guidance to the command.

At the brigade level and lower, KM functions are often assigned as an additional duty, usually to the staff Signal officer, S6. At my current combat brigade, the S6 is considered synonymous with KM because of the information technology tools the two sections use.

The staff believes that KM serves under the S6 because of how the dedicated KMI is integrated. Why? Because a myriad of perceptions remain unchanged. One perception is that the primary collaboration tool at the combat brigade is Microsoft Office SharePoint Server also known as MOSS or the portal, which is technology based hardware and software, and therefore a function of the S6.

Since S6 installs the portal, users believe services and functionality are handled by the S6 and not the KM, another perception which set the S6 to serve as the KMO, before a dedicated KM practitioner was contracted. Lastly the placement of the KM cell/work area within the office of the S6 Information Management section implies the KM Section works for the S6. The combination of these perceptions leads the casual observer to infer that KM works for the S6, or the S6 is responsible for KM at the BCT.

To successfully bring KM to the brigade requires understanding the needs of the staff, the dynamics of diverse staff members not familiar KM processes. The development of a close relationship with the brigade information management and staff signal officer can assist in implementing changes and improvements to staff operations.

Upon arrival, a KMI must determine the pulse of the organization. This includes determining the commander's expectations, an analysis of what KM can provide to the unit, and defining the Knowledge Services that can be provided to the organization. Knowledge services are the training, collaboration tools, concepts and processes the unit can use to enhance its operations.

As defined in AR 25-1, IM is the planning, budgeting, manipulating and controlling of information throughout its life cycle. IMO is defined as the office/individual responsible to the respective commander/director/chief for coordinating service definition, management oversight, advice, planning, and funding coordination of all IT/IM requirements (business and mission) for the organization.

The IMO assists the commander/ director/chief in exercising responsibility to effectively manage the organization's IT/IM processes and resources that enable the organization's business and mission processes. Typically the IMO function resides in the S6 office and is performed by the S6 Signal officer, with support from the S6 FA53 information systems manager, and the S6 chief warrant officer 254A Signal systems support technician.

In a BCT, the IM responsibility is not directly assigned to a section; rather the Staff Sections must manage their respective information with assistance from the S6 (ISM) and the KMO.

As it relates to the IMO and IM, the KMO advises the organization on KM processes that take advantage of existing IT infrastructure, software, and systems supported by the S6 Office. However, KM processes should endeavor to take advantage of unit resources (materiel and skills), unless additional means are needed to answer the commander's information and knowledge sharing requirements. Additional technical assistance or IT may be required, dependent upon the S6 Section's skill set, software and equipment inventory.

The IMO position requires many hours of certified training and experience in technical skills to include routing, information assurance, networking, hardware and software installation, and security protocols. Knowledge management is more involved with assessing the needs of the organization through process review, and recommending solutions that include potential changes to people, process, technology, or culture. To know the unit's people and understand their needs is paramount in knowledge management.

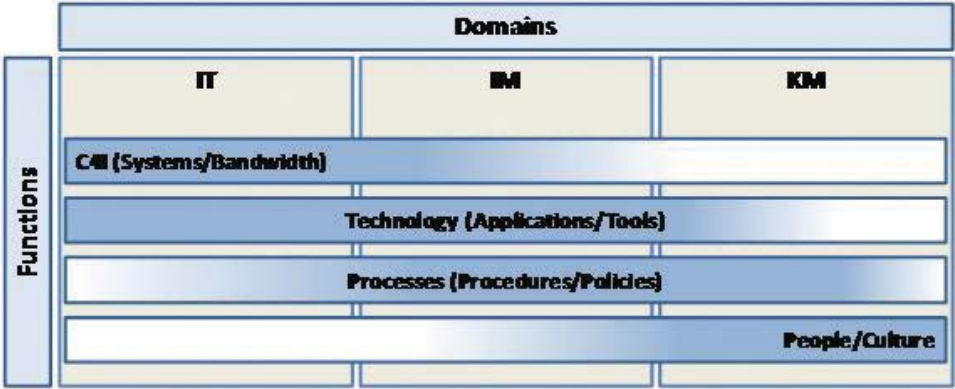


Figure 1

The KMO - IM - IMO Relationship

While an overlapping relationship exists between KM, information management and the information management office, I believe a definitive break exists between these functions based off of my experiences.

Recognizing processes and technology that promote knowledge flow are also prerequisites for being a good KMO. Based on previous experience, there is no requirement for a KMO to have a proficiency in IM; however significant advantages exist when the KMO knows and understands information systems and information management.

Depending upon organizational needs, the KMO may be expected to have IM skills that go beyond normal KM requirements. Those skills might include web page design, server administration, computer language, and database management. Though a KM integrator may have IT certifications or experience and skilled enough to work in an IT section or on specific IT systems, organizations should avoid assigning them to the S6 section, for as discussed above, they

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frequently lose the ability to develop a broad understanding of unit needs. The S6 Officer in a brigade reports to the executive officer for daily operational guidance and the KM Officer should do the same. However, because of the idea that KM is associated with IM, the KMO often reports to the S6 Officer. This relationship tends to reinforce the

misunderstanding that KM solutions are almost always related to a technological solution. Often the solution focuses on the people, process or culture change, with technology holding a supporting role. But when the KMO works for the executive officer, they inherit greater flexibility to support all staff sections without the expectation of providing only technological solutions.

To recap the KM – IMO – IM

relationship, the IMO ensures the installation and security of IT equipment and networks plus performs monitoring and maintenance. IM in the BCT is a shared responsibility across all staff functions with technical assistance from the S6 and best sharing practices from the KMO. The Knowledge Management office assists the command in developing and executing a knowledge management program based on the commander's priorities.



Emmitt Richardson, Jr., knowledge management officer, shares information with others in his unit during operations in Afghanistan.

Mr. Emmitt Richardson, Jr. served as the knowledge manager for a forward deployed combat brigade task force in Regional Command (East) (RC (E)), Afghanistan, from June 2010 – June 2011. As a retired Army Signal first sergeant, his expertise consists of 23 years in information management specialties. Mr. Richardson holds a Bachelor of business management degree and a Master of information systems degree from the University of Phoenix.

ACRONYM QuickScan

AAR – After Action Review
ABCS – Army Battle Command System
AKMQC – Army Knowledge Management Qualification Course
AMN – Afghanistan Mission Network
ARFORGEN – Army Force Generation
BCT – Brigade Combat Team
BP – Best Practices
C4I – Command, Control, Communications, Computers and Intelligence
CALL – Center for Army Lessons Learned
CENTRIX-ISAF – Combined Enterprise Regional Information Exchange - International Security Assistance Forces
CIO – Chief Information Officer
CJ – Combined Joint
CKM – Certified Knowledge Manager
CKO – Chief Knowledge Officer
CJTF – Combined Joint Task Force
CM – Content Management
COA – Course of Action
CoE – Center of Excellence
COMSEC – Communications Security
CWO – Chief Warrant Officer

DCO – Defense Connect Online
DKMO – Deputy Knowledge Management Officer
DLI – Defense Language Institute
FA – Functional Area
FM – Field Manual
FORSCOM – Forces Command
IJC – ISAF Joint Command
IM – Information Management
IMO – Information Management Officer
ISAF – International Security Assistance Forces
ISM – Information Systems Manager
IT – Information Technology
JAMO – Joint Automation Management Office
JMD – Joint Manning Document
JRTC – Joint Readiness Training Center
KM – Knowledge Management
KMI – Knowledge Management Integrator
KMNet – Knowledge Management Network
KMO – Knowledge Management Officer
KMR – Knowledge Management Representative
KMWG – Knowledge Management

Work Group
KS – Kansas
LAN – Local Area Network
LL – Lessons Learned
LTC – Lieutenant Colonel
MAJ – Major
MOSS – Microsoft Office SharePoint Server
MTOE – Modified Table of Organization and Allowances
NTC – National Training Center
OEF – Operation Enduring Freedom
OGA – Other Government Agency
OIC – Officer In Charge
OPORD – Operational Order
OPTEMPO – Operational Tempo
PCSing – Permanent Change of Station
RC(E) – Regional Command (East)
RFI – Request for Information
RIC – Regional Information Center
SOP – Standard Operating Procedure
TRADOC – Training and Doctrine Command
TTPs – Tactics, Techniques, and Procedures
VTC – Video Teleconference
WG – Work Group
XO – Executive Officer

Microsoft SharePoint integration a missing element

By Ron Bascue

As the Army transitions to Microsoft SharePoint as its primary enterprise knowledge sharing environment, units are finding the transition to be challenging at the user level.

Integrating SharePoint into daily operations is helping improve organizational information flow and allowing easier access to a common knowledge base. Simultaneously it is reducing e-mail traffic with file attachments and helping move away from undisciplined, disorganized shared drives. Other benefits include a more organized, disciplined collaborative environment allowing users: to share common calendars; create wikis for standardizing SOPs and OPORDS; develop blogs with viewer commenting ability; customize workflows to improve business processes; create various views of the same data set for different audiences; design informational dashboards to improve situational awareness; take advantage of the ease of integration with other Microsoft products; as well as a plethora of other capabilities.

The problem I've observed with the transition is the day-to-day users of SharePoint do not see the benefit of all these capabilities.

It's not until the unit realizes that e-mail attachments are still the primary information sharing method and that shared drive sizes continue to grow at an amazing pace that the question – "what went wrong?" – is posed?

The answer comes from a common practice in the Army of deploying software with no training strategy and expecting the users to either "learn by doing" or to take the initiative to seek out training opportunities. This may seem like a more cost effective method to get your organization trained and ready to use the capability. However, when you start comparing the personnel hours spent in discovery learning with the amount of lost productivity, there is no real return on investment.

While conducting research for this article I sought an internal organization (the CIO/G-6) or school that provides authorized and certified Microsoft SharePoint trainers and courses. Attendance could be either attended in residence or delivered via mobile training teams. Instead I found several commercial companies offering to provide contracted training – at a significant cost – with a list of several satisfied customers, frequently including the U.S. Army.

With the lack of trained users, most units are integrating SharePoint without fully understanding the benefits of the tool. At best, units have a few individuals who take it upon themselves to learn enough about SharePoint to become the resident experts. However, a more common scenario is units are contracting SharePoint expertise, making them dependent on outside experts. This



Ron Bascue, knowledge management integrator for Regional Command (East)/Combined Joint Task Force 101 in Bagram, Afghanistan takes a break from his duties in Afghanistan.

approach can work if each contractor has similar skill sets and contractors don't rotate out, leaving a gap in the unit's support.

The challenge now becomes getting the users trained on the software as quickly as possible so operational momentum isn't lost. The initial thrust of the training needs to focus on the basics: how to build lists and libraries; what Web parts are and how to use them; how to manage permissions and archive documents; etc.

Recommendations

It is recommended that organizations develop a training strategy for SharePoint deployment that takes into consideration the following phases:

1) Instructor-led training during initial deployment. This ensures the day-to-day users learn the tool well enough to understand and take advantage of most of its capabilities. It also helps build a cadre of subject matter experts for others within the unit to consult for help.

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- 2) Use of e-learning sites like LandWarNet eUniversity, Skillsoft and Microsoft's Office Website. These are staples in improving proficiency and can be used for "refresher" training as needed.
- 3) Use internal training and local learning centers to introduce the tool to new arrivals to ensure they have a basic familiarity with the software and know how it is being implemented within the organization.
- 4) Create a collaboration community to support continued development and to help users find solutions to challenges as they find new, creative methods of using the tools.

A strategy like the one described above would have helped CJTF-101 as they deployed their SharePoint portals to Regional Command East (RC (E)) with very little user training or operational experience. CJTF-101 used Microsoft Office SharePoint Server (MOSS) 2007 as their operational information sharing tool in theater but during deployment preparation user training was not a primary focus. It wasn't until after several months in theater that the organization as a whole became comfortable enough with the tool to start looking for new ways to make it work for them.

And even though CJTF-101 successfully transitioned several staff processes to their SharePoint environment, there is still a need for training on the tools. While initially thinking that training a deployed headquarters would have ensured a much more focused audience, the real thrust of the training should be during deployment preparation, when OPTEMPO is lower and the students can focus on process improvements instead of Soldier survival. Any training on SharePoint needs to include context though. Every unit/section will use the tool differently and have challenges like no other, so generic training is only useful in the initial stages; everything after that needs to be tailored to the unit/section or the individuals. This type of training is more challenging because it takes time to know the unit and its issues before a training plan can be developed. This is where the Knowledge Management Office can support the integration plan. The KMO should be attuned to the knowledge environment needs of the organization because they have been conducting assessments and capturing gaps in capabilities and identifying solution sets to fill those gaps. The KMO should have a close working relationship with the Information Systems Managers

and be aware of the electronic challenges that hinder knowledge and information flow. With the two section's broad view of the organization, they would be able to help the trainers develop a training plan that is suitable for each staff section or subordinate command. The KMO should ensure this training team is tightly connected with the unit SharePoint administrators and web developers. These individuals are in the best position to understand the daily needs of the staff sections and should know what training is needed. Another consideration is to ensure training is not only tailored for context, but also adjusted to meet the different tasks Soldiers will execute on the portal. Training would be established based on the type of user: basic, power, site administrators and site developers.

This recommendation is a short term alternative until the CIO/G-6 fully implements their vision of the SharePoint enterprise and TRADOC incorporates SharePoint training (and usage) into the institutional training model. Until then, units will continue to deploy their portals with limited user training, leaving them to continue learning while doing and not getting the full benefit of the tools.

Mr. Ronald Bascue served as the knowledge management integrator for Regional Command (East)/ Combined Joint Task Force 101 in Bagram, Afghanistan, from June 2010 - May 2011. Mr. Bascue served as the project team lead for a virtual team of seven KMIs deployed to subordinate brigade combat teams throughout the combat zone. He is a retired Army Intelligence first sergeant and has over six years of KM experience and holds a Bachelor of Science degree in Liberal Arts with a linguistics focus from Excelsior College, Albany, N.Y.

Training Material Locations

LandWarNet eUniversity blackboard Microsoft Office 2007 Core Training (LWN-EC-MELL):
https://train.gordon.army.mil/webapps/portal/frameset.jsp?tab_id=_2_1&url=%2Fwebapps%2Fblackboard%2Fexecute%2Flauncher%3Ftype%3DCourse%26id%3D_2072_1%26url%3D

SkillSoft training: Microsoft Certified Technology Specialist: Microsoft Office SharePoint Server 2007, Configuration

Signaleers share front line experiences--an FA57 perspective

Translating technical to tactical and back again

By LTC Jason Jones

Simulation Operations Officers (Functional Area 57) working in the Knowledge Management realm take on the position of Battle Command Systems Officer, charged with ensuring users are getting the most out of their ABCS. Based on the recent deployment of the command and the leadership's high confidence in our operators ABCS ability, the Chief of Staff declared that the CJ6 would manage these systems, not the KMO so that role was taken on by the users and the JAMO.

With the traditional ABCS role for the FA57 covered, I moved into the deputy KMO position and managed numerous projects outside the technical realm.

Fortunately, many of the skills associated with FA57 transfer into KM, but much of the job uses skills Army officers possess.

Required skills Battle Command Systems

I didn't use these much during our tour, but the FA57 is the lead for integrating ABCS and should be well versed in this area.

Translating technical to tactical

God bless you pointy-headed programmers (I'm looking at you FA53). I love you, but somebody has to turn your deep thoughts and code-speak into something an end user can understand. From the world of exercise development, FA57s are experienced with explaining the capabilities and limitations of simulation systems and briefing how these systems can best be used to meet the commander's training objectives.

Translating tactical to technical

The people we work with and for usually know what they want, but they are rarely well enough versed in the technology to know the range of possible solutions. Users frequently will demand solutions based on their experience (I want a spreadsheet that shows "X").

The user may know that a spreadsheet isn't the

best solution, but it's what they know – to the hammer, every problem looks like a nail.

The FA57's experiences turning training objectives into a set of instructions that create a training environment work equally well on these problems. The FA57 breaks down staff requirements to their critical components (requirements, stakeholders and objectives) and identifies only the framework of a solution.

If a solution seems to be technical in nature, the FA57 and FA53 meet and review the requirements and the solution framework. At this point, the FA53's technical expertise helps determine the most effective solution implementation. But be careful, even the FA53 can turn into the hammer and engineer a more complex solution than what's needed.

LTC Jason M. Jones served as deputy knowledge management officer for Regional Command (East)/ Combined Joint Task Force 101 in Bagram, Afghanistan, from May 2010 – May 2011. Upon redeployment he will continue to serve in the 101st Airborne Division (Air Assault). His functional area is 57A simulations operations officer and his basic branch is Logistics. LTC Jones holds a Bachelor of Arts degree in Biology from Transylvania University and a Master of Science degree in Modeling Virtual Environments and Simulations from the Naval Post Graduate School.



**101st Airborne Division (Air Assault)
logo**

101st Airborne Division Knowledge Management strategic plan

Excerpts from the 101st Airborne Division (Air Assault) Knowledge Management Strategy 02 April 2011

Introduction

Knowledge Management means different things to every organization depending on several factors: the operational environment, age of the organization, stability of the work force, ability to adapt to new and changing technologies, the culture and structure of the organization, and the leadership focus.

Because of these factors, this strategy focuses on supporting the knowledge environment instead of trying to define knowledge management. The knowledge environment is made up of an overall set of organizational activities that enable knowledge flow with the goal of improving individual and collective learning, achieving high performance, promoting faster innovation and shortening the decision cycle from the Senior Leaders to the Soldiers fighting on the battlefield.

By focusing on the components that make up the knowledge environment the ability to influence change happens at a faster pace than normal. The components that make up this environment are people, processes, technology, culture, structure and content (See Figure 1).

The knowledge environment encompasses every aspect of the organization, making it imperative that leaders at all levels support the knowledge management

strategy ensuring the organizational culture is one focused on continuous improvement.

This KM Strategy is the first in a set of documents which includes a KM plan and a KM SOP. The KM plan will be developed upon completion of a knowledge assessment to identify gaps in the knowledge environment with a “way ahead” developed to close those gaps. The KM SOP is a living document that will be continuously revised depending on various factors including where the organization is within the Army Force Generation cycle. Areas that will be addressed in the KM Plan and SOP include: current situation; short and long term goals and objectives; proposed glide path; measures of effectiveness and metrics; KM section roles and responsibilities; the KM workgroup and KM representatives; risks and barriers to success; identified best practices; etc.

The Vision

In order to create a culture of knowledge sharing within the 101st Airborne Division (Air Assault), the leadership will strive to break down communication stovepipes to provide greater information transparency; enhance cross-organizational collaboration; ensure Soldiers not only ask “Who needs to know?” but also “Who else needs to know?”; reward efforts to improve knowledge sharing; create a common operational network with ease of access; respond with “please post in the portal” instead of “email it to me”; and make every effort to create a culture of continuous learning and improvement.

The Mission

The mission of the knowledge management section is to provide the command and staff of 101st Airborne Division (Air Assault) with solutions designed to help the commander and staff sections improve processes, build a more efficient collaborative environment and better utilize their information sharing tools. This is done by conducting continuous formal and informal assessments of how the organization manages its knowledge environment with particular focus on people, processes and technology while remaining true to the Division’s inherent culture of high performance, striving for excellence and mission accomplishment. From these assessments, knowledge gaps are identified and the KM section works with the organization to develop solution sets to close those gaps.

Components of a Knowledge Environment

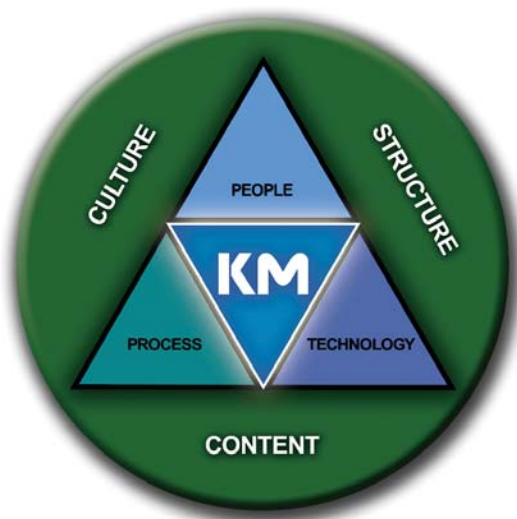


Figure 1

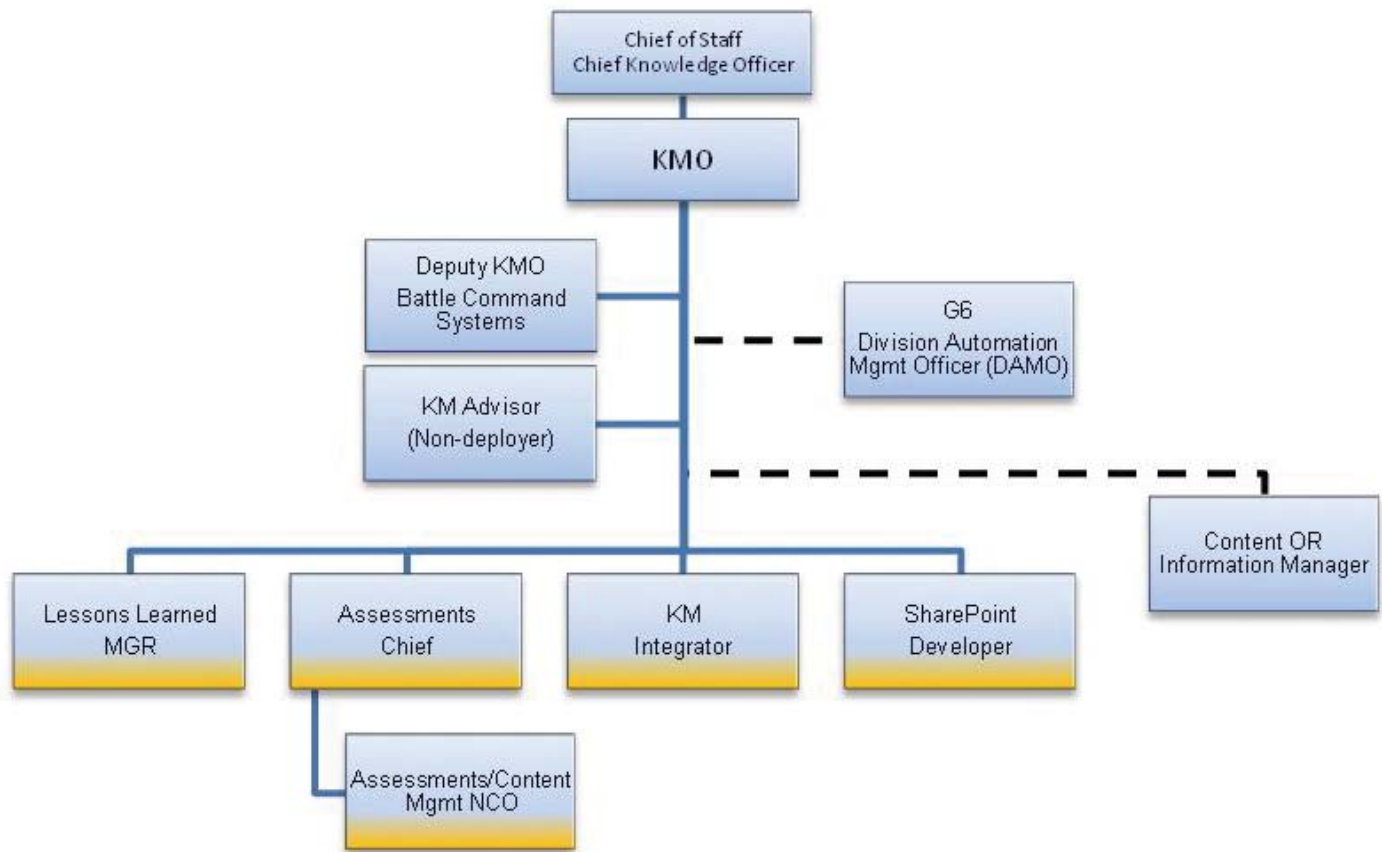


Figure 2

Implementation

In order for the KM Strategy to be successful, the Division will implement it in three non-linear phases. The tasks supporting these phases can be applied at any time, but are sequenced to show the stages necessary to support either establishment of a new KM Section or upon a significant change to mission/phase of the ARFORGEN cycle. Table 1, on the final page of the KM strategy, provides greater detail regarding how each KM component is supported by various KM tasks. As in the following phases, the tasks may support the ARFORGEN cycle where required, as determined through commander's guidance and assessment.

Phase I

Phase I prepares the KM Section to support the mission, ensuring it's resourced with the people, tools, training and budget necessary to:

- Build and develop the KM Team (Figure 2 depicts both a Division KM team and the structure of the CJTF-101 KM team during OEF XI, 2010-11).
- Conduct continuous assessments in support of the command, including assessing the office's capabilities and priorities in support of the command.
- Prepare and provide small group and one-on-one KM training.

- Create a KM plan, KM SOP and/or KM annex to operations orders.
 - Design metrics to monitor measures of performance improvement throughout all phases.
 - Facilitate meetings as either a lead or supporting staff. Research and apply solutions.
- In Figure 2 above, The 101st Airborne Division (Air Assault) KM Team (in light blue) with the CJTF-101 KM Team from Operation Enduring Freedom XI indicated by a gold lower border. Note the association of the team with the CJ6 Automation Management Officer and the Division's Information/Content Manager.

Phase II

Phase II focuses on conducting assessments, training, coaching and mentoring:

- Create a knowledge assessment plan that encompasses the headquarters staff sections and their interactions with higher and lower headquarters.
- Conduct knowledge assessments of that organization.
- Identify knowledge gaps and recommending a strategy to close them.
- Identify the command's critical processes and apply KM to improve efficiency and knowledge sharing.

(Continued on page 40)

- Create KM courses for the different levels of the command structure to include senior leader, mid-grade leader, and Soldier levels.
- Develop the training implementation plan that includes new arrival training, workshops and desk-side mentoring sessions.
- Consider the full range of solutions under the construct of doctrine, organization, training, material, leadership, personnel, facilities and culture. Remember, not every solution involves a computer.

Phase III

Phase III supports implementation of the recommendations generated during the knowledge assessment:

- Review recommendations and solution designs with stakeholders to ensure they're suitable, acceptable, feasible and enduring.
- Facilitate the development and implementation of solutions.
- Work closely with the Information Management and Automation Management offices to map the "knowledge environment."
- Identify redundant technological capabilities, disparate databases and content duplication to support efforts to streamline processes and improve knowledge discovery.
- Implement virtual collaboration capabilities such as Communities of Practice to improve horizontal information sharing.

Once this strategy is fully implemented the organization will:

- Put people as the focal point of every KM effort.
- Have Soldiers that understand the need to share knowledge across the organization.
- Have a shared understanding of the mission, vision and operational lines of effort.
- Understand that KM works for efficient solutions, not always a technological solution.
- Receive training on KM principles and common practices.
- Operate within an easily accessible common operating environment.
- Have a comprehensive knowledge network map that encompasses all communication and collaboration systems.
- Ensure unit in-processing includes coaching on established KM processes while highlighting key components of the common operating environment.
- Support staff sections as they create innovative methods to improve workflows and decrease staff action time.
- Ensure the battle rhythm is synchronized across the organization and redundant information is reduced to the extent possible.

- Implement meeting management principles that ensure the right people are in the right place for the right reasons – meetings are no longer viewed as "a waste of time."
- Have one organizational calendar for tracking key events across the unit.

- Understand that everyone has a stake in knowledge management and is a knowledge manager.

During the implementation of this strategy the KM section needs to consider the following:

- Not every solution is an IT solution. Sometimes it simply requires figuring out the right people to bring together and then facilitating a meeting to identify solutions to an issue.
- Identifying the "pockets of expertise" early will help make future jobs easier.
- Remember that everyone in the organization has experience and expertise in something so don't ignore the operator, admin clerk or line mechanic – they may know a better way.
- Communicate, communicate, communicate – even though word of mouth is a measure of success, the unit can easily get focused on the organization's operational tempo and forget the value you bring.
- Information overload hampers knowledge transfer. The staff's goal is to help the command filter through the information to find and transfer the nuggets of knowledge.

Conclusion

Understanding the knowledge environment and focusing the KM section's efforts on the Division's mission and position in the ARFORGEN cycle are key factors in making the division more efficient and consistently effective in its operations. The KM Section must identify the command's critical tasks/processes and make recommendations to the chief of staff on how KM processes should be applied. This will help create the organizational culture that drives users to execute their tasks in a way that promotes knowledge sharing and efficient execution of missions.

JOHN P. JOHNSON
COL, GS
Chief of Staff

KM Support throughout the ARFORGEN Cycle				
	Training Gates->	RESET	TRAIN/READY	AVAILABLE/DEPLOY
		Individual & Collective Trng	CAPSTONE Exercises (MRX/MRE/OTC) Enabled by BCTP	Support provided to MRX & PDSS
K M C o m p o n e n t s	People	- Individual/Team Training - KM training - Organizational Structure / Restructure - Reception/Integration of new personnel - Capture and storage of AARs/OIL/ Leader Interviews - ID In-bound and Out-bound expertise/experience - Continue expertise capture initiatives - Take opportunities to share deployed experiences	- METL Review/Revision - Collective Training - Software training (KM focus on common operational picture tools - ABCS and SP) - New Equipment Training - PDSS question development - Identify and begin supporting KMOs and KM Representatives - Identify and begin communicating with KM offices in theater - Ensure personnel are trained on Foreign Disclosure and cross-network file sharing processes	- Support Virtual Right-Seat-Rides - PDSS support - Support KMOs and KM Representatives - Collaborate with theater KM offices - Identify expertise and begin knowledge capture processes
	Process	- SOP Review and Revision - Establish Garrison battle rhythm - Individual Training - Re-organization as needed for efficiencies - Battle Drill Review based off of deployment - Review award and eval tracking systems for efficiencies - Refine/Validate Continuity books - Mission/Vision review - Develop/refine mentorship program - Leaders use blogs to keep Soldiers/families informed - Collect and store AARs, reports, articles, etc in common database - Schedule and conduct K assessments	- SOP Validation - Collective Training - METL Validation - Cross Training - Mission/Vision validation - Refine deployed battle rhythm (B2C2WG) - Train interview techniques to support knowledge capture (Cognitive Task Analysis) - Conduct Virtual Right-Seat-Rides - Sections trained on Portal tools - Continue K assessments - Establish KM Work Group - Integrate Meeting Management (virtual and Face-to-Face) TTPs	- Common Operating Picture continuously reviewed/revise as needed - Process support to Cmd and Staff - Continuity books continuously updated - Commander's update posted/written on portal - Prepare for and conduct virtual umbrella week - Support Virtual Right-Seat-Rides - KM Work Group integrated into battle rhythm
		>-----Capture Expertise Throughout-----<		
		>-----Content Management Throughout-----<		
		>-----Refine Portal Structure Throughout-----<		
		>-----Refine Battle Rhythm Throughout-----<		
	Technology	- Fall-in on Rear-Det info portal if it supports mission - Create portal for daily operations - Review info sharing systems to ID redundant capabilities - Validate and incorporate customized code into systems	- Network development to match deployed environment - Evaluate systems for redundant capabilities	- Optimize use of available information systems - Map of network architecture(s) in use - Prepare network for redeployment and to support RIPing unit
	Culture	- Focus on Integration of new personnel - Identify amount of organizational knowledge being lost - Review Team/Staff structure for optimization - Develop atmosphere of collaboration and knowledge sharing	- Teamwork developed - Virtual team/work spaces used to support battle rhythm - Prepare to operate in a multi-national environment	- Virtual teaming is fully supported - Integration of Coalition partners into operations - Integrate with higher HQ, while integrating subordinate elements
	Structure	- Proper job skills for missions - Evaluate office layout to ensure it supports collaboration - Evaluate budget for proper funding	- Identify and work to ensure staff needs are met for deployment - Conduct KM specific training to fill gaps	- Team fully staffed to support operational focus - Rear detachment KM support for continuity of operations
Ron Bessie, Contractor, CJTF-101 KM Office, March 2011				

Table 1 - KM Support throughout the ARFORGEN Cycle

Signaleers share front line experiences--an FA53 perspective

Information systems managers play pivotal role

By MAJ Benjamin Ring

The division information systems manager, also known as the RC(E)/CJTF-101 joint automation management officer, plays a pivotal role in supporting the knowledge management effort.

As the senior 53A for the division, the ISM brings advanced technical skills to advise the KMO in helping to apply technology to staff and command processes. Ideally, the 53A possesses a computer science, engineering or comparable background with the ability to comprehend and grasp complex problems and apply an engineering design solution. Working with the KMO to clearly define the technical requirements, the ISM's

experiences help to identify the optimal technical application for a given scenario, develop a solid design and process, and then test, distribute and execute the solution.

The ISM should also be wary of over-applying technology and understand when a human process is more adequate to solve a given problem. In particular, the ISM should have a solid understanding of Microsoft Active Directory administration, MOSS Sharepoint administration, and data management. Ideally, the 53A should have a broad technical background with a variety of computer experiences. With a vast array of computer skills, the 53A can better grasp problems and identify creative, unique, and appropriate

technical solutions in supporting the division's knowledge management requirements.

MAJ Benjamin A. Ring served as the joint automation management officer for Regional Command (East)/ Combined Joint Task Force 101 in Bagram, Afghanistan, from May 2010 - May 2011. Upon redeployment he will serve at Fort Leavenworth, Kan. His functional area is 53A automations officer and his basic branch is Armor. MAJ Ring holds a Bachelor of Science degree in computer science from the U. S. Military Academy and a Master of Science degree in computer science from Boston University.

Army Operational Knowledge Management

Creating an enduring KM capability across the Army

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Public Page: <http://usacac.army.mil/CAC2/index.asp>
Professional Forums (AKO): <https://forums.call.army.mil>



Knowledge management assessment trends

By Linda McGurn

Knowledge flow is essential in an operational environment where we must learn faster, understand better, and adapt more rapidly. The baseline flow requires an integrated knowledge environment where information moves freely between people, between systems, and between people and systems. Unfortunately, knowledge does not flow naturally in our complex environments; barriers come in all shapes and sizes. The knowledge assessment is a structured five-phase process (see Figure 1) that looks at all components of the knowledge environment – People, Processes, Technology, Content, Organizational Structure & Culture and Knowledge Leadership – and identifies barriers to knowledge flow.

Each knowledge assessment is performed by a team from Battle Command Knowledge System and involves a series of interviews with key leaders, mid-level managers, and employees in the organization. The Knowledge Assessment identifies:

- Knowledge and performance gaps
- The causes or factors contributing to the gaps

- The impact each gap has on the organization
- Measures of effectiveness and priorities for addressing the gaps
- Recommendations for strategies and approaches to close the gaps

An action plan with practical and operational solutions, along with a pilot and evaluation, usually follows the assessment. The knowledge assessment, like the mission analysis phase of the Military Decision Making Process, ensures we have identified the right problems and considered all the relevant facts, assumptions, and current available information before we begin looking at solutions. Each knowledge assessment engagement is unique and must be tailored to the needs of the organization.

To date BCKS has conducted knowledge assessments of more than 10 organizations ranging in size from ASCCs to directorates to individual staff functions. In these knowledge assessments, trends have emerged in knowledge activities, and knowledge gaps, and the factors contributing to the gaps.

Knowledge activities are the actions that the organization undertakes to manage knowledge. Within organizations assessed to

date, knowledge activities fall into several major categories including: knowledge planning; knowledge creation, capture and transfer; and content management. The number of activities undertaken by organizations depended on its knowledge management maturity and the availability of resources.

Knowledge gaps occur when there are disconnects between what an organization knows and what it MUST know in order to accomplish its mission. While the knowledge activities may vary from organization to organization, the knowledge gaps observed have been very similar; we discuss those in greater detail below.

Contributing factors are those things in the operating environment that cause (or contribute to) the knowledge gaps. When we categorized the contributing factors across knowledge assessments conducted to date by the components of the knowledge environment, we found that the preponderance of factors related to process (See Figure 2). Contributing factors related to people and content were a distant second and third respectively.

(Continued on page 44)



Figure 1: Knowledge Assessment Process

Trends in Knowledge Gaps

Across the organizations that BCKS assessed, these emerged as the most prevalent knowledge gaps:

- Organizations don't have a common operating picture. Information regarding the organization's overarching mission is not centrally or readily available. Consequently, individuals or groups don't understand how they support the mission. Tools that could help establish a command "map," like a shared calendar and an organizational battle rhythm, are either underutilized or not implemented. What we observe: Organizations are using multiple calendars as opposed to a common, synchronized calendar to maintain visibility on what the Command and its leadership are

doing. There is no SOP on what calendars to use, or how to use calendars effectively. Individuals are manually inputting information on multiple calendars rather than using built in software features to automate the process.

- People can't find information. Staff wastes valuable time looking for content or posting the same content in multiple places and formats. Out-of-date versions of key documents are used. Content management techniques are not known, understood or practiced. When information is found, for example on a portal, it often is not trusted because it may be dated. What we observe: Very few organizations have even basic content governance in place to guide how and where documents should be organized, stored and managed. Content management SOPs are insufficient or nonexistent. File structures and naming conventions are

inconsistent. Many organizations are still using shared drives as central repositories.

- Information flow is inhibited by absence, misuse or misunderstanding of collaborative tools. Even where the technology is available to support blogging, wikis, libraries, team workspaces (just to cite a few examples), the tools are often seen as more of a hindrance than value-added. Consequently, an organization's ability to collaborate and maintain situational awareness is impacted. What we observe: Email is used as the primary tool for discussions, collaboration, and tasking even though more appropriate tools are available. Frequent use of "reply all" adds to user email overload and results in redundancy. There is no consistent understanding how to leverage tools, like SharePoint.

- Opportunities for face-to-face interactions and tacit knowledge exchange are missed

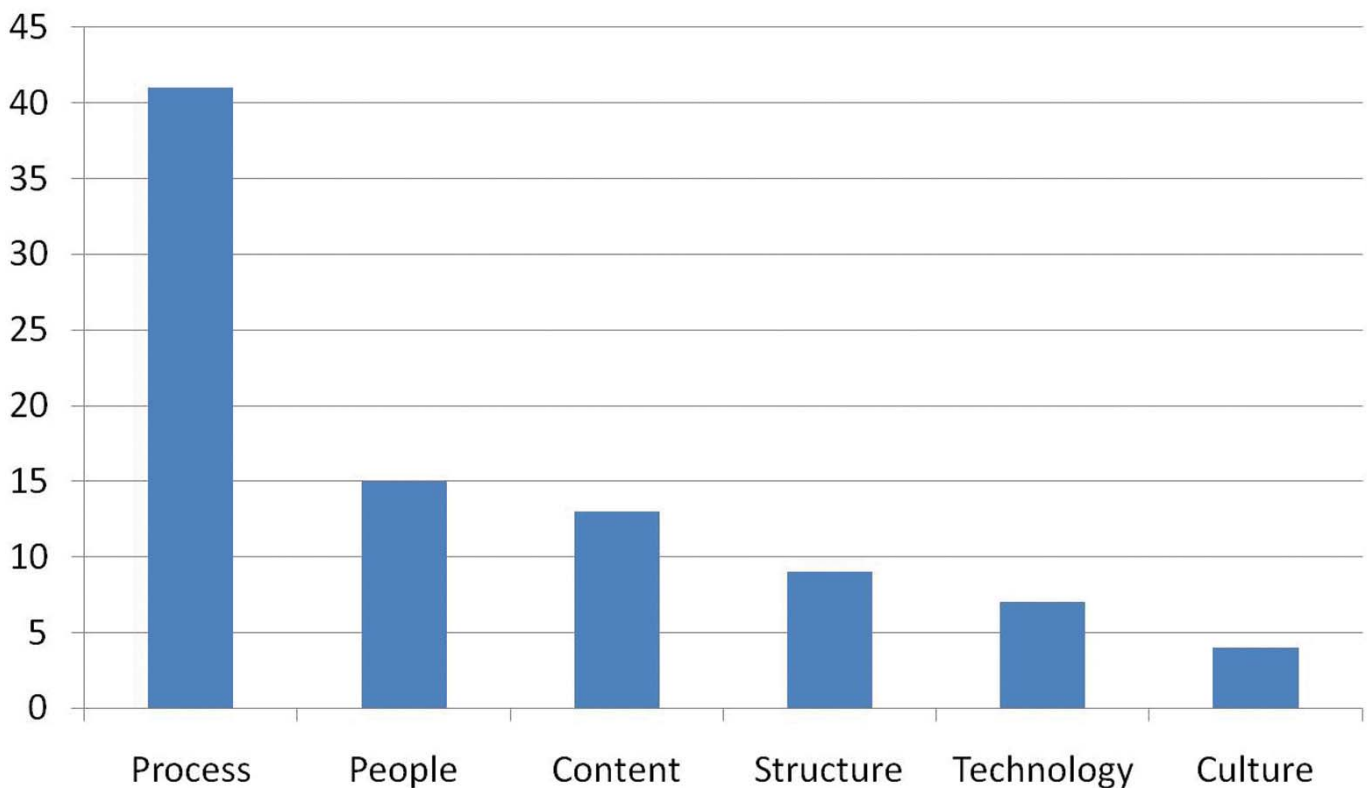


Figure 2: Contributing Factors Across the Knowledge Environment

or mismanaged. Because of high OPTEMPO, individuals will use email to convey complex messages that would be better communicated face-to-face. Where there is face-to-face interaction, knowledge sharing is not emphasized or facilitated. What we observe: Too many meetings, and the meetings that are held are not well-organized and do not include the right attendees. Meetings are scheduled at the last minute, disrupting schedules. The purpose of the meeting is not well understood and there is no apparent link between the outputs of one meeting and the inputs of another. Agendas are either incomplete or not adhered to, so meetings are ineffective and waste time.

- Knowledge is not effectively captured or transferred when there is personnel turnover. Organizational knowledge often resides in a handful of resources, and is lost when those resources depart. New hires are brought into an organization with few introductions and little training, then expected to perform optimally from day one. There are no formal programs to encourage and reward the sharing of tacit knowledge, within and between organizations. What we observe: an absence of processes and tools to identify expertise with an organization. New hires don't have access to a continuity book or a formal program to orient them to the organization.

The BCKS assessment team

has helped organizations close these gaps by recommending practical and operational knowledge solutions. BCKS uses subject matter experts in areas such as process improvement, tacit knowledge transfer, content management and SharePoint to identify best practices. Depending on the needs of the organization, the recommendations can include a KM roadmap with prioritized tasks and measures of effectiveness.

To find out more about the knowledge assessment process, visit the Knowledge Assessment page on AKO: <https://www.us.army.mil/suite/page/598135>.

To request a BCKS knowledge assessment, please visit: <https://survey.bcks.army.mil/secure/TakeSurvey.aspx?SurveyID=94LM4m2>

For further discussion on this topic, visit KMNet, one of the BCKS Professional Forums. All BCKS Professional Forums require AKO access. Most BCKS forums require membership to view or participate in the forums. To join a forum, it's a simple 3-step process:

1. Access the BCKS Professional Forum page at: <https://forums.bcks.army.mil>.

2. Select the link to forum you want to join.

3. Then select "Become a Member," fill out the profile and submit.

Linda McGurn is a consultant with Dynamics Research Corporation and serves as the project lead for the Battle

Command Knowledge System Knowledge Services Division, which provides knowledge assessments and knowledge management training to the Army. Prior to joining BCKS, she worked for a consulting company based in Kansas City providing project management, assessment, process improvement and training services to public and private sector clients. She has more than 15 years of executive experience in the telecommunications industry, where she specialized in building and leading departments engaged in collecting, analyzing and disseminating information on markets and competitors to support strategic and tactical decision-making. She holds a Bachelor of Arts degree from the University of Kansas and a Master of Business Administration degree from Keller Graduate School of Management. She is also a certified project management professional and certified knowledge manager.

ACRONYM QuickScan

ASCC – Army Service Component Command

BCKS – Battle Command Knowledge System

OPTEMPO – Operations Tempo

SOP – Standard Operating Procedure

Unit cycle dictates knowledge management posture

By LTC Paul Calvert

Where your unit is in the Army Forces Generation cycle dictates how it approaches knowledge management activities. For example, when you begin a cycle, usually at the conclusion of an operation or deployment, knowledge workers gather observations and best practices, archive and catalog good ideas and best practices, and finally improve processes that did not work so well. As equipment and people are reset, new Soldiers come while old Soldiers go. New and overhauled equipment are issued.

During the ready phase, knowledge workers sharpen their axes and help the unit prepare. Unit members integrate new equipment, evaluate processes, train staffs/operators, develop standard procedures and establish drills. Members also begin contacting their deployed counterparts for possible changes and adjustments to their SOPs, while new and emerging doctrine is reviewed and incorporated into routine activities. But it is during the training events leading up to a unit's deployment when KM emerges. As operations centers and tactical operations centers are established and digital systems begin to get wide spread use again, some of the KM bills come due from the reset and ready phases. If you missed steps along the way, they will be readily apparent when processes falter. The right people and

adequate resources must have been committed before major training activities, or there will be diminished capability and false starts.

Obviously, the larger the unit, the more resources are required to ensure a smooth transition between cycles.

The biggest proof of a successful KM program can best be seen during operations, particularly in how knowledge workers feed inputs to the command group so that accurate situational awareness is maintained. Whether gathered face-to-face during trips around the battlefield or digitally through sensors, information management feeds or collaborative team efforts, the various inputs help form the common operational picture.

Some anticipate the need and make the appropriate allocations in advance. Others by necessity morph from how they were initially organized. It doesn't matter what you call it or who you designate to do it, knowledge management still has to be done. We operate in a mostly digital, wired environment and new functions are performed in many places.

Here are some ways to hedge against some of the KM challenges that face a unit before deployment:

- Maintain a full-time knowledge worker throughout ARFORGEN, a belly button to poke within your unit.
- Use as many tactical digital systems and collaboration tools for garrison operations as is possible to maintain proficiency, and



adapt your internal processes to maximize their use.

- Train your people on how to be good at knowledge sharing, which for some may be an unusual role.
- Build people-to-people networks and encourage your staff members to reach out to experts outside the organization.
- Take advantage of as many training opportunities as possible, and allow as many people as you can to participate in workshops and conferences to stay aware of emerging concepts and ideas.

These are a few techniques and others may very well apply. Seek out further ideas from your knowledge management specialists.

ACRONYM QuickScan

ARFORGEN – Army Force Generation

KM – Knowledge Management

SOP – Standard Operating Procedure

TOC – Tactical Operations Center

Cultural learning barriers present challenges

By Arthur Robinson

Challenges await any trainer who tries to impart new information to a group of people. But place that trainer in a military environment, with a group of sharp young officers as students, and make the subject matter both important and written for a more experienced audience and you have just increased your challenges significantly. So why would a lesson on knowledge management be so difficult to deliver?

My formal exposure to the concepts of KM and its components began while I was an instructor for the Signal Captains' Career Course at Fort Gordon, back in 2009. I strongly suspect that I had been a practitioner of the art for the better part of my life. However, it took being assigned as the instructor who delivered the KM class to a group of captains before I came to understand many of the aspects of what defines knowledge, how well it may or may not be managed and the challenges inherent in handling it.

To begin, let me disengage from any reader who wishes to argue the point that knowledge can never be managed. Assuming the preceding sentence may be true, I would argue the point that even if we do not manage it, we certainly cultivate it by encouraging learning and a sharing of tidbits of information that we have, perhaps like a parent helps a child. So, rather than get caught up in semantics, let's simply agree to put off this discussion for a while because whether or not you agree that knowledge can be managed, you must certainly acknowledge that getting someone to adopt a new idea or technique can present a challenge if not an outright obstacle.

How many times have we caught ourselves struggling with a new idea simply because we didn't understand some supporting principle? Or perhaps our problem was that the new information didn't fit a preconceived notion of right or wrong or it challenged some dearly held belief that we had been cherishing for some time.

In any case, ask anyone who has ever had to teach classes about what kind of challenges exist when presenting new information to a group of students. You should get an earful! Yes, the classroom may have been too cold, too warm, too noisy or too sunny. But if you are able to overcome these semi-common obstacles to learning, you would think that giving a class should prove to be an easy enough task to achieve. However, sitting in the back of your mind might be the thought that while you had just delivered a world-class lesson on some topic, some, if not all students still didn't embrace or, dare I say, relish the gems of thought that you had been dispensing. This hurdle is what brings me to the theme of this article.

"I strongly believe that the mostly overlooked concept of culture, and one of the pillars of KM--the people pillar-- is often responsible for blocking learning to a significant degree."

I strongly believe that the mostly overlooked concept of culture, and one of the pillars of KM—the people pillar—is often responsible for blocking learning to a significant degree. I was able to experience this over and over while providing instruction to captains attending the career course though the idea didn't solidify for a while.

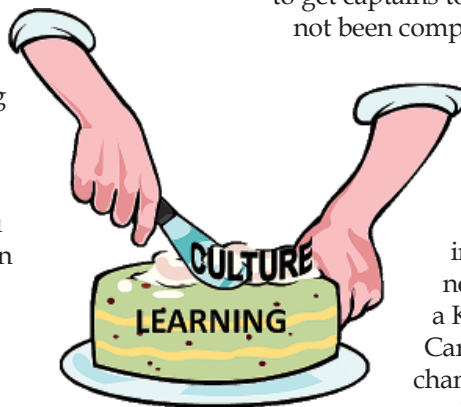
The material I had been using to instruct the captains was not reaching the target audience and I was at a complete loss to explain why this was so. I surmised that the majority of the class believed that another lesson had been checked off the required to-do list and they could breathe easy. But, little learning had occurred which was the whole point of having the class in the first place. I could count on one hand the number of officers who bravely approached me afterwards to inquire further into the topic of KM, and I would still have fingers left over.

Something was obviously missing.

Though it didn't take long to discover that much of the material was shooting over the heads of the intended audience, it took time and assistance from a good friend before I could identify the problem as one of culture. Trying to get captains to learn a new topic using materials that had not been compiled with them in mind as the intended

audience was what I decided had been the problem all along with many of the topics on which I had to provide the instruction. This is where the culture issue came to mind.

It took some time, but I was invited to join in on an opportunity to build something new. I was asked to assist with co-authoring a KM elective for use by the Signal Captains' Career Course program. This gave me the chance to try out a new idea to see if my suspicions were valid. So, we began the process of building our new KM lesson by holding a few meetings to lay out our plan on how to attack the learning problem.



(Continued on page 48)

(Continued from page 47)

I knew that I wanted to try something different and my co-author partner, who is involved in completing a master degree in KM, was more than willing to actively participate in this endeavor.

I started with some memories of what it was like to sit through numerous training classes over a number of years and recalled that the ones that made the biggest impression on me were the ones that were definitely out of the ordinary. One such example that remains fresh to this day had to do with a lesson about the rule that one should always keep their chemical protective mask with them at all times.

The lesson was taught outdoors and while sitting in a set of bleachers along with my classmates, we observed a small foot patrol coming from behind the bleachers. When this patrol advanced to a spot directly in front of the students, someone yelled "Gas!" and the members of the patrol immediately reacted.

One member of the patrol pulled his dirty laundry from the canvas carrier for his mask. Another Soldier pulled food out of the carrier. Only one member of the patrol pulled his protective mask from his carrier, put it on properly, and continued with the patrol. The other members of the patrol were all lying on their backs wiggling their arms and legs in the air (the dying cockroach pose) in the supposed throes of dying from a chemical attack. Because this was not the typical classroom lesson, the idea stuck with me all these years that one should always keep the protective mask handy. I am certain you too have experienced something similar in your life at some time in a learning environment. For me, I learned that lesson 42 years ago but can still recall the class as if it were yesterday. This is what I was hoping for with our new KM elective lesson.

The other key concept to our new KM elective lesson was that we, the lesson developers, had to deliver the class at least two or three times to work out any bugs we overlooked. This allows the people most intimately familiar with the lesson material to see how well it works in front of a live audience before the lesson gets handed off to an instructor.

In the elective lesson we were building, we talk about three pillars of KM, people (or culture), processes, and technology. Each pillar has its own separate block of instruction and each block has two hours of time set aside. The KM elective itself has 12 hours of time allocated in six equal blocks of classroom time. It is during the people/culture block that we introduce an exercise to the captains that involves them leaving the classroom on a scavenger hunt.

The scavenger hunt has the class broken up into two teams. Because this is an elective, the teams, so far, have ranged in size from four to two members. Each team is given a handout filled with images and a brief description of some poster, sign or plaque to be found at a destination that matches the image and description in the handout. By recording a single letter from the poster or plaque, they will find that they have eventually composed a word. But the goal they were told about in the classroom before setting out on their hunt was to come up with a phrase.

Since the people/culture block of instruction in class emphasized overcoming cultural obstacles and promoting sharing, it was hoped that the students would recognize that they had found only a single word and therefore had not achieved the goal of the scavenger hunt. Upon returning to the classroom, the students are given enough time to socialize. While engaging each other in small talk, someone eventually asks a member of the opposing team what word they found. When the class quiz is then given, the only question to be answered on it is what the phrase is. When sharing of information actually occurs amongst the students and they have each other's word, they have no problem writing down what the phrase was. Pow! Mission accomplished!

Though this seems like a very simplistic exercise to be conducted in what is often billed as a graduate level program, we managed to achieve several good results. First of all, we try and teach the concepts of KM in easy to comprehend language using easy to recognize examples. Before turning the students loose on the

scavenger hunt in this particular block of instruction, they are explicitly told what goal they are to achieve. When they return to the classroom and recognize they have not yet achieved the goal of the hunt that was to find a phrase, they share this information through socialization. When they complete the simple quiz successfully, they come away with a good feeling out of achieving the goal of the hunt which helps to reinforce what the learning was all about. In this case, they recognize that to succeed they had to share the unique information that each hunt team found.

I honestly believe, though it is still much too soon to recognize this as a truth, that the students we had for this KM elective lesson will remember the need to share and that this concept should not be taken for granted. Combining an out-of-the-box concept for a class exercise (the scavenger hunt) with the goal of finding a wordy phrase that can only be achieved by remembering what their instruction was all about and keeping the whole thing as simple as possible, is what our task as instructors was. Only time will tell if we instructors had managed to pass along any nuggets of information that will be remembered and prove useful to our future leaders. But I shall remain confident that we achieved our learning goal!

Arthur Robinson is the current contracted knowledge management advisor working in the Signal Center's G6 office with the Knowledge Management Officer. Prior to this posting, he served as an instructor with the Signal Captains Career Course. He is a retired 25A Signal Officer and a 48G Middle East Foreign Affairs Officer. He graduated in 1973 from the U.S. Military Academy at West Point and spent his post-military career days as a trainer.

ACRONYM QuickScan

KM - Knowledge Management
SCCC - Signal Captains' Career Course

Understanding the knowledge environment

LTC (R)Michael Prevou

Knowledge and other intangibles such as leadership and experience are valuable commodities to the Army and a driving force behind the emerging human capital strategy initiatives.

In a 1994 Fortune Magazine article, Tom Stewart warned companies to focus less on what they own and more on what they know: their intellectual capital. Since then, Peter Drucker, among others, has identified knowledge as the new basis of competition in post-capitalist society, and Stanford economist Paul Romer has called knowledge the only unlimited resource. In the mid-90s, the term 'knowledge management' was used to address the shortcomings of information technology to deliver on the promise of improved effectiveness and increased efficiency.

Army leaders have embraced the need for KM over the last 8-10 years even as they struggled to define it. Currently, knowledge management often seems technical and software-oriented. One of the main reasons KM initiatives fail is because of how the term 'knowledge management' is used and the misunderstanding

this creates in the minds of stakeholders.

Confronting the threats of a network-centric enemy with a slow, traditional hierarchical structure, weighed down by cumbersome processes and out of date structures is no longer sufficient to win the learning competition. We need new approaches that will prepare the unit on the ground for the next patrol rather than the next war.

The "how" and "why" elements of tacit knowledge have become critical for mission command. In a complex and rapidly changing environment, managing and applying knowledge gives us a competitive edge, allowing our decision cycle to turn faster than that of an adversary.

This application of tacit knowledge (the knowledge in our heads) has replaced the who, what, when, and where questions that provided us only information. As a result, the Army has embraced the discipline to increase the speed with which we acquire, retain, create, share, learn, and manage what we know and to increase the flow of that knowledge throughout the organization.

Recently, the meaning of the term 'knowledge management' has been debated and redefined repeatedly. It has even been argued that knowledge management is a poor term because knowledge cannot be managed, since it lives primarily in people's minds. Information management isn't much of an improvement because it carries with it almost two decades of baggage and preconceptions that focus on technology. Some say knowledge is an infinite resource, and almost all practitioners agree that unused knowledge has no value.

In fact, knowledge appears to increase in value the more it is shared, and effective organizations enable this knowledge flow through the specific elements of a knowledge environment they control.

Effective KM requires a broader understanding of the elements in this environment and the interactions that we can manage to make knowledge flow more effectively.

Like an ecosystem, the knowledge environment must maintain a certain balance of these elements or it will cease to function correctly. The knowledge assessment team has visited more than a dozen units in the last two years and has witnessed firsthand the ecosystem out of balance.

Before we delve too deeply into the knowledge environment and knowledge flow, let's establish a few working definitions. In an attempt to explain knowledge, there is sometimes a misconception that knowledge is information.

Information is data that has been given meaning by context. A spreadsheet is often used to make information from data. Another example is the SPOT report containing 6-9 lines of data put into context to create a common picture.

Knowledge can have many definitions or explanations. An absolute definition is hard to formulate because knowledge "is the subjective interpretation of information in the mind of the perceiver," according to experts expounding in Makhfi Introduction To Knowledge Modeling, http://www.makhfi.com/KCM_intro.htm. It is information combined with understanding and capability.

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KM enables:

- Situational understanding
- A shared common operational picture
- Decision-making
- Transfer and availability of expertise and experience
- Organizational learning during operations
- Collaboration
- Speeding knowledge transfer between units and individuals
- Reach-back capability to Army schools, centers of excellence, and other resources
- Process improvements
- Helping leaders and Soldiers become more agile and adaptive during operations
- Doctrine development

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In their tome, *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston 1998, T.H. Davenport and L. Prusak write, "It is originated and applied in the minds of the knower or informed person." Knowledge is "information combined with experience, context, interpretation, and reflection. It is a high-value form of information that is ready to apply to decisions and actions."

Typically, knowledge provides a level of predictability that stems from recognizing patterns. For example, information from two or three different SPOT reports has significant meaning to a unit operating in the area for a while, whereas it would be unrelated pieces of information to someone new.

"Knowledge is the essential factor in adding meaning to information," write A. Abell and N. Oxbrow, in *Competing With Knowledge*. London: Facet Publishing. 2001.

Tacit Knowledge refers to personal knowledge rooted in the individual experience and involves intangible factors, such as personal belief, perspectives, and values. Tacit knowledge can be very difficult to transfer. Examples include judgment, know-how, or intuition.

Explicit knowledge refers to tacit knowledge that has been documented – articulated into formal language – and can be much more easily transferred among individuals. Explicit knowledge is found in documents and databases, such as manuals, reports, and procedures. Making tacit knowledge explicit is one of the key functions of KM strategies.

Knowledge flow is the movement of knowledge through an organization. Like a river, the flow finds its own way but can be

disrupted or stopped by barriers. We can steer the direction of flow and can manage the elements that impact that flow through the environment. According to Frank Leistner, writing in *Mastering Organizational Knowledge Flow*, Wiley and SAS business Series, Hoboken N.J. 2010, pages 17-18, effective flow comes from two sources: the active side with directed actions, and the passive side where you remove the barriers that prevent knowledge sharing from happening.

Knowledge management, simply stated, is the art and science of connecting people who need the right knowledge, at the right time, to those who have it. The nature and role of KM as mandated in FM 3-0 is, "To respond to a rapidly changing operational environment and develop creativity, innovation, and adaptation, information must become knowledge. That knowledge must permeate throughout the Army. This requires both art and science. Knowledge management is the art of gaining and applying information throughout the Army and across the joint force.

It generates knowledge products and services by and among commanders and staffs. It supports collaboration and the conduct of operations while improving organizational performance."

According to FM 6-01.1, the primary purpose of KM is to help commanders and their staffs make informed, timely decisions. KM enables effective collaboration by ensuring efficient and timely flow of knowledge throughout the commanders' organizations. It also narrows the gap between relevant information commanders require and that which they have. Managing the Knowledge Environment

If KM is a deliberate approach to help organizations plan, create, organize, integrate, maintain, transfer, assess, and effectively use and reuse what they know (both tacit and explicit) to achieve a sustained competitive advantage, then where do we start? To be effective we must manage the components of the full-spectrum knowledge environment...not just the knowledge artifacts.

KM systems (the technology) get the right information to the right people at the right time,

COMPONENTS OF A KNOWLEDGE ENVIRONMENT

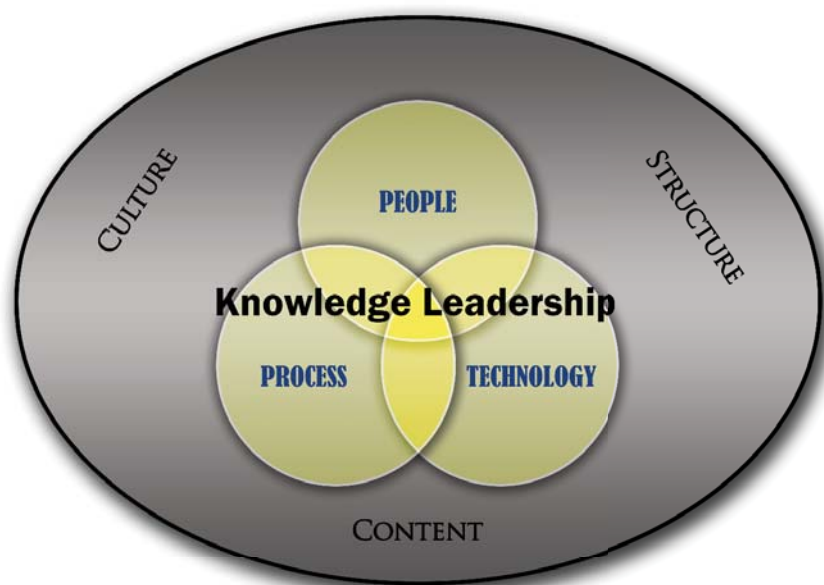


Figure 1

provide them with the tools for analyzing that information, and give them the power to respond to the insights they glean from that knowledge. But effective KM requires high human-to-human interaction and helps eliminate barriers by networking the hierarchy of an organization and by helping knowledge flow from its source through the organization. KM is a discipline that treats intellectual capital, both tacit and explicit, as a managed asset; whereas, information management systems manage just the explicit documentation. The KM discipline is more holistic. Knowledge managers strive to manage the knowledge environment, not simply the assets. The knowledge environment consists of seven major components: structure, people, processes, technology, content, organizational culture, and knowledge leadership.

As shown in Figure 1, the people, processes, and technology intersect, forming linked variables that must be in balance. Culture, content, and structure are independent variables that affect each of the linked variables. Knowledge leadership is overlaid across all the components and provides the vision, drive, and resources to make KM effective.

Components of a Knowledge Environment

This integrated knowledge environment is an ecosystem that requires a balance of three types of interactions: human-to-human, human-to-system, and system-to-system. These interactions are critical to an organization's ability to function properly, and the organization's structures, people, processes, technologies, and culture make it possible for the 'flow' of data to become information and then to knowledge. KM optimizes knowledge flow by enabling the interactions that produce that flow and managing the components in the environment. Knowledge is social and only moves through people. Information systems can only store and move the data and information.

The paradox is that knowledge does not flow naturally within our complex organizations. Barriers come in all shapes and sizes, and KM cannot be left to happenstance if we are to stay competitive and continuously learn, innovate, and adapt. Knowledge leadership is required at the highest levels of an organization to resource, prioritize, and advocate for a deliberate KM

Knowledge superiority is the dominance in the flow of knowledge and expertise through personalization and codification sufficient to win the learning competition in counterinsurgency and persistent conflict.

approach. Knowledge leadership at the middle and bottom of the organization is also required to innovate, identify opportunities and threats to knowledge flow, and practice effective KM strategies to prevent the loss of organizational knowledge.

The knowledge environment must address the full spectrum of

knowledge—from explicit knowledge that we can write down and manage as a physical artifact, to the more elusive tacit knowledge (the knowledge in our heads), which many argue cannot be made explicit. However, through the proper techniques, it can be brought forward, made visible, and shared in some limited fashion. Without understanding the difference, we try to manage all knowledge as explicit, falsely believing it can be captured, stored, and shared through electronic means. Nothing could be further from the truth, and this accounts for the frustrations most organizations experience, given a heavy technology emphasis.

The elements of the knowledge environment that must be managed include the following:

People

Knowledge is social and only moves through people. Information systems can only store and move the data and information. When we speak of people, we refer to their ability to understand, learn, and apply the processes, technologies, principles, and strategies required in a self aware and adaptive Army. The knowledge, skills, and abilities of each Soldier must be deliberately developed. We don't send Soldiers into combat without proper marksmanship training, yet we send them into staff work and combat without training on how to use the knowledge tools and processes.

Process

KM processes help us convert knowledge to action and achieve results as we move to accomplish an organizational/unit objective. The results of these processes must be linked and contribute to accomplishing organizational objectives before the true value of KM can be realized. A variety of knowledge processes exist based on who you read. All have some degree of knowledge acquisition, organization, and dissemination. Most KM literature cites knowledge use as central to each KM process.

The current FM 6-01.1 lists four KM processes,

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but current thinking describes seven to nine processes used to plan, create, acquire, organize, integrate, maintain, transfer, assess, and effectively use and reuse what they know. These are not the organizational processes like the military decisionmaking process or troop leading or task management; these are processes specific to knowledge, and each one is used for any single given organizational process.

Using knowledge is not a process itself, but rather the reason we manage these processes – to effectively use and reuse what we know. These processes apply to individuals, organizations, and across the enterprise. Failure to understand the processes and address them directly is one of the major reasons stovepipes continue to appear and we, as an Army, have difficulty sharing across organizational boundaries. Technology will enable these processes, but in the end, the ability to share and use the knowledge is a human endeavor.

Technology

Technology enables KM. It is not KM itself. Technology allows us to reach further and span time and geography. It also allows us to store and move unthinkable amounts of information and data. Too often we have seen organizations that equate SharePoint to KM. Technology is essential for effective KM, as we can no longer rely on sharing with just a local group as we did in the past. We can manage the technologies and access to them either locally or across the enterprise.

One of the biggest frustrations today remains our inability to access our information from outside our local domain. Soldiers remain frustrated with technology since they have such world-wide access to information at home but constantly

seemed to be blocked at work. Training on current information technologies is one of the biggest shortcomings we see during our visits to units and organizations. Every organization we have visited has a deficiency in IT/KM technology training, primarily because some leaders continue to believe systems are intuitive or that training provided once is sufficient to sustain you for the next few years. However, the most successful organizations have continuous training on systems and processes available for all Soldiers and civilians, not just for “knowledge workers.” Technology in support of the knowledge environment must provide a suite of services and applications, for both synchronous and asynchronous interactions, and it must provide the security protocols required to protect information without severely restricting access to critical knowledge.

Structure

Structure refers to organizational structures such as: organizational layout or wire diagram; the policies, procedures, and processes; the physical structure of where people sit and who they interact with regularly; and the plans and strategies that guide daily operations. In one organization, we improved knowledge flow by more than 30 percent by simply changing the arrangements of people in the Operations Center. Much of the component ‘structure’ is about human-to-human interactions and removing the barriers that inhibit these interactions. Structure in this construct also includes doctrine, the knowledge repositories and databases used by the Army, the business practices employed both administratively and tactically, and the KM structures and infrastructure at each unit level.

Content

This component consists of both tacit and explicit knowledge. According to many recent studies, 80 percent of the knowledge we

KM Processes

- *Knowledge planning*
- *Knowledge creation*
- *Knowledge acquisition*
- *Knowledge integration*
- *Knowledge organization*
- *Knowledge transfer*
- *Maintaining knowledge*
- *Assessing knowledge*

use on the job is tacit. The majority of which cannot be made explicit, yet we continue to expend nearly all our resources on technology solutions that can only organize, store, and move 20 percent of what we know. We have disregarded the other elements of the knowledge environment and continue to fail to understand that knowledge flow requires movement of both types of knowledge to show value.

While our IT systems are great at storing and moving data, information at rest in these systems is virtually useless. The more we share and adapt it, the more valuable it becomes. Making tacit knowledge flow requires person-to-person interactions, communities of practice, Army professional forums, and collaborative sessions. All of these practices are excellent methods that apply technology to assist content flow.

On the other hand, no technology is required to perform an effective after action review or hold a peer assist.

Culture

This is about creating an obligation for continuous learning and sharing. ‘Knowledge is power’ is an outdated axiom and can often cost lives. The new mantra for an organization must be ‘The power of knowledge shared’ to create a culture

of collaboration, where we can routinely build and create knowledge jointly. To effect change, we have to focus on specific behaviors, and without understanding this component of the knowledge environment, most change initiatives never live past the leader's departure. Culture change can and must be deliberately and delicately managed. It lies in all three of the people, processes, and technology components, but must be clearly identified and targeted if change is to last.

Knowledge Leadership

This component affects the other components and is often the single point of failure in a unit's ability to collaborate and share effectively. When the boss doesn't get it, it is unlikely collaboration will be a priority. Effective knowledge leadership will:

- o Make KM a top priority and put it on the agenda
- o Establish and communicate a knowledge vision, allowing the organization to:
- o Manage conversation
- o Enable knowledge activists
- o Manage change processes
- o Globalize knowledge
- o Develop knowledge leaders in the organization
- o Build a guiding team
- o Create an obligation to share
- o Enable action: put tools in place
- o Create momentum and sustain it

If all other components are perfectly balanced but no effective knowledge leadership exists, the frustration and lack of resources will quickly grind any KM initiative to a halt. Knowledge leadership does not have to come from the top. In many cases, we have seen it from the middle or a grassroots level. These efforts are often slower and fail more often as they are crushed by the bureaucracy. More often than not, the obstacles to effective collaboration also come from the middle levels of our organizations. They are the dead-end senior field grades and civilians who don't understand

systems, the speed or complexity of knowledge flow, and are too busy to get organized. They are usually approaching the end of their careers and have given up on learning anything new. They are the ones who former Army Chief of Staff GEN Eric Shinseki, was talking to when he said "if you don't like change, you're going to hate being irrelevant." Strong knowledge leadership is required to make us a net-centric, learning organization and ensure we can win the learning competition.

Conclusion

Managing the knowledge environment should not be left to chance. We don't build schools and expect learning to occur without having teachers. We don't build libraries and expect the patrons to understand the filing system, manage the stacks, or know where each type of book might be located. For these reasons, we need dedicated KM professionals in every organization to assist the leadership in developing plans and policies that govern the unit's human capital, integrating and training unit personnel, managing tools and content that facilitate the human-to-human and human-to-system interactions, and program the system-to-system interactions.

KM and the associated tools and technologies that support and enable it are increasing in complexity. Building understanding and acceptance of the KM policies, tools, and procedures must happen early in a Soldier's introduction to the organization and recur often to remain current. As tools and processes change quickly, the organization needs a strategy for acculturating new members and developing legacy workers through continuous education and learning. This learning must be built, coordinated, managed, and quality controlled by the KM team in careful coordination with the schools and departments. It must be part of a continuous learning philosophy and assist in creating a culture of collaboration and lifelong learning.

**Technology is an enabler,
not a replacement for an
effective KM strategy.**

The knowledge environment is a framework that we can manage. It offers a practical approach to a discipline saddled by heavy baggage and misunderstanding. We must create a culture of collaboration and knowledge sharing in the Army where key information is not only 'pushed and pulled,' but where organizational prodding (think Amazon.com when it sends you an e-mail saying people who liked X book will like Y book) helps connect the Soldier to the global knowledge they need now to meet mission objectives. We must help knowledge flow across the knowledge environment so that good ideas are shared immediately and are valued regardless of the source. In this new Army culture, knowledge sharing is recognized and rewarded, and the knowledgebase is accessible without technological or structural barriers. In this new Army culture, we manage the knowledge environment; not just the knowledge.

LTC (R) Michael Prevou, Ph.D., is an Army veteran with operational tours in Afghanistan, Macedonia, and Bosnia. He has served at various command and staff positions throughout his career and as an observer controller (combat training coach) at the National Training Center and Battle Command Training Program. He has been involved in KM with the Army for over nine years.

ACRONYM QuickScan

FM - Field Manual
IT - Information Technology
KM - Knowledge Management
MDMP - Military Decisionmaking Process

Digital Master Gunner Course offers unique training

By CW4 (R) Wesley Postol

The Signal Center of Excellence has established a Digital Master Gunner Course, which provides unique information management and knowledge management technology training to non-commissioned officers.

"I can't get to the art of war because the science is holding me back," said COL (P) Robert Abrams former commandant of the Combined Arms Training Center. Based on the recent Change 1 to Field Manual 3-0 (Operations), the science consists of systems and procedures to improve the commander's understanding and support accomplishing missions. Within the science exist four primary tasks:

- Conduct the operations process: plan, prepare, execute, and assess
- Conduct knowledge management and information management
- Conduct inform and influence activities
- Conduct cyber/electromagnetic activities

COL Abrams' problem statement became the impetus to creating "Digital Master Gunners" responsible for each warfighting function-specific digital system. The Army Battle Command Strategy mandates that each Training and Doctrine Command Center of Excellence offer a DMG Course to enable Soldiers in the science of Mission Command [Battle Command].

The DMG Course is only offered at Fort Gordon, Ga., at this time. The DMG Course trains NCOs to become

masters of the tactical local area network, Battle Command Common Services, and integrators of information within Army Battle Command Systems.

IM/KM technology-based positions exist at Brigade Combat Team/Multifunctional Brigade and higher (e.g. the Senior Battle Command NCO in the corps KM Section or the Senior Information Technology Specialist in the BCT/MF S6 Section). In the past, Soldiers filling these positions did not arrive at their units adequately trained. The fact that they hit the ground at the end or after the TRAIN phase of the ARFORGEN cycle created a gap in Soldiers developing the right IM/KM technology knowledge, skills, and abilities necessary for deployment.

The SigCoE is addressing the training gap via two solutions. The first effort is the insertion of Battle Command systems into the Signal MOS/AOC generating and leadership courses. Table 1 depicts what IM/KM technology training will be included in each course

The SigCoE established the Signal DMG Course as a second solution to address training gaps. The Signal DMG Course was designed to fill a training void related to keeping pace with rapidly changing and emerging Army and joint IM/KM technologies. The Signal DMG will fill IM/KM positions in the G6/S6 and KM Section and focus on the configuration, installation and integration of ABCS, BCCS, DTOC and the CPN, planning and management of BCT/BN signal communications, including information flow, architecture and operations of mission command systems integration, leading to the common operational picture development and display in the Digital TOC.

Table 3-2

TRADOC Non-Proponent CoEs and Schools

CoE/School	AIT	ALC	SLC	WOC	BOLC	CCC
Maneuver Support Center of Excellence (MSCoE)						
Engineer	-FBCB2	-FBCB2	-TBC Client	-TBC Client -FBCB2	-FBCB2	-TBC Client
Military Police	-FBCB2				-FBCB2	-TBC Client
Chemical		-TBC Client	-TBC Client		-TBC Client -FBCB2	-TBC Client
Signal Center of Excellence (SigCoE)						
SigCoE	-TBC Client -FBCB2 -TBC Server	-TBC Client -FBCB2 -TBC Server	-TBC Client -FBCB2 -TBC Server	-TBC Client -FBCB2 -TBC Server	-FBCB2 -BCS3 -AFATDS -AMDWS -TAIS AWS -DCGS-A -GCCS-A -TBC Server	-FBCB2 -BCS3 -AFATDS -AMDWS -TAIS AWS -DCGS-A -GCCS-A -TBC Server
Soldier Support Institute (SSI)						
SSI		-FBCB2	-FBCB2	-TBC Client -FBCB2	-FBCB2	-TBC Client
Chaplain School						
Chaplain School	-TBC Client -FBCB2	-TBC Client -FBCB2	-TBC Client -FBCB2		-TBC Client -FBCB2	-TBC Client -FBCB2

Course Details

The S-DMG is a five-week functional course that builds the knowledge, skills, and abilities required by NCOs to provide information management/knowledge management technologies through the integration of BCCS, ABCS, and the local area network.

Location

The Signal-DMG Course is conducted at Signal Command Center of Excellence, Fort Gordon, Ga.

Course Dates

- 21 Jul – 25 Aug 11 (005-11)
- 05 Oct – 09 Nov 11 (001-12)
- 31 Jan – 04 March 12 (002-12)
- 28 March – 29 April 12 (03-12)

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Digital Master Gunner
PDF of S-DMG Information Includes Course Material Covered, Pre-Requisites, and More!

UPDATE!!! The next class is 28,FEB - 01,APR 2011.

- 30 May – 01 July 12 (04-12)
- 18 July – 19 Aug 12 (05-12)
- 12 Sep – 07 Oct 12 (06-12)

Sign up Contact:

Mr. Mark Crenshaw; 706-791-7840
Mark.crenshaw@conus.army.mil

Mr. Robert McDaniel; 706-791-3342
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Mr. Wes Postol; 706-791-3711
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Course Material Covered

- Roles of Signal-DMG
- Warfighter Information Network-Tactical
- CISCO Router and Switches Integration
- Satellite Transportable Trailer
- Cisco Call Manager
- VOIP
- Network Monitoring
- Firewall Configuration
- CPN Encryption Devices
- Network Troubleshooting
- VMware
- ABCS Integration
- Blue Force Tracking
- FBCB2
- LDIF / Data Products
- Maneuver Control System
- TBC Clients and Servers

- BCS / PASS Functionalities
- Microsoft Server and Client Operating Systems
- Command Post of the Future (CPOF)
- C2 Systems Troubleshooting

Prerequisites

- Active and Reserve Component 25B and 25U NCO in the grade of SGT, SSG or above.
 - Successfully complete a 50 question entry quiz with a 70% before arrival.
 - Army personnel must be IAW AR 600-9 height / weight requirements.
 - A Secret clearance is required for attendance to this course.
 - Prerequisites grade and MOS may be waived by LTC/ COL commander (in writing in coordination with the course manager).
- More Information available at <https://s6.army.mil>

CW3 (R) Wes Postol retired in 2010 after 22 years of military service. His assignments include 10th Mountain, 82nd Airborne, 3rd Infantry Division, 3-75 Ranger, 1st Armor Division, 173rd ABN, 4ID. Deployments include Desert Storm, Macedonia, Albania, Hungary, and two tours each

in Kosovo and Operation Iraqi Freedom. He has served as a battalion and brigade S6 during real deployments. In his last assignment he resourced and created the Digital Tactical Operations Center course focused on teaching all equipment as a student would see in a command post with a concentration on ABCS, and BCCS Server. He currently is the course manager for the Signal Digital Master Gunner course and a senior C4 systems analyst for Science Applications International Corporation.

ACRONYM QuickScan

ABCS - Army Battle Command Systems
BCCS - Battle Command Common Services
BCS - Battle Command Server
BCT CP - Brigade Combat Team command post
BCTS - The Battle Command Training Strategy
BFT - Blue Force Tracking
C2 - Command and Control
CoE - Center of Excellence
CAC-T - Combined Arms Center Training
CP - Command post
CPN - Command post node
CPOF - Command Post of the Future
FBCB2 - Force Twenty one Brigade and Below
IMT - Initial Military training
JNN - Joint Network Nodes
LDIF - Lightweight Data Interchange Format
MCS - Maneuver Control System
NET - New equipment fielding
PME - Primary Military education
SCOM - System Center Operations Manager
S-DMG - Signal Digital Master Gunner
SoS CP - System of System Command Post
STT - Satellite Transportable Trailer
VOIP - Voice over Internet protocol
WIN-T Warfighter Information Network-Tactical

Army develops smart phone framework, applications for battlefield operations

By Claire Heininger

Leading his team of paratroopers en route to capturing a high-value target, SPC Hao Bui encountered obstacles - enemies, streets, roadside bombs.

He pulled a smart phone from his uniform and entered the information into an app, immediately transmitting warning graphics to his buddies and higher headquarters.

"If we see an enemy up front, we could put it in the GPS system," said SPC Bui, a member of the 3rd Brigade Combat Team of the 82nd Airborne Division. "Even though they (fellow

Soldiers) can't see it, you can mark it for them."

The device, known as a Joint Battle Command-Platform, or JBC-P Handheld, is the first developed under an Army effort to devise an Android-based smart phone framework and suite of applications for tactical operations. The government-owned framework, known as Mobile / Handheld Computing Environment, or CE, ensures that regardless of who develops them, applications will be secure and interoperable with existing mission command systems so information flows seamlessly across all echelons of the force.

This framework, originally prototyped by MITRE, is now being developed at the Software Engineering Directorate in Huntsville, Ala., with the JBC-P family of systems and is aligned with the assistant secretary of the Army for acquisition, Logistics and Technology Common Operating Environment, or COE strategy.

"Using the Mobile / Handheld CE Product Developers Kit, we're going to allow the third-party developers to actually develop capabilities that aren't stove piped," said LTC Mark Daniels, product manager for JBC-P. JBC-P, which will be fielded to both the Army and the Marine Corps beginning in fiscal year 2013, is the follow-on program of record for Force XXI Battle Command Brigade and Below/Blue Force Tracking, or FBCB2/BFT.

"That's going to allow us to be interoperable across the entire family of systems of JBC-P, which would include the platforms, the aviation, the logistics community, the tanks, the Bradleys, the handhelds," LTC Daniels said.

The Mobile / Handheld CE development kit will be released to industry in July, he said. In the interim

the Army is refining the Mission Command Apps, which will include mapping, blue force tracking, Tactical Ground Reporting, or TIGR tactical graphics and critical messaging (such as SPOT reports, Medevac and Mayday) between all mission command systems. The baseline suite of applications will also include supporting apps like an address book and Open Office for document viewing.

"It's like when you get an iPhone and you have the Apple-made apps: the contacts, the e-mail," said J. Tyler Barton, an engineer with one of the Army organizations designing apps, the Research, Development and Engineering Command's communications-electronics center Command and Control Directorate. "Then other applications are free to use those apps, or to go above and beyond that."

Allowing industry to freely develop apps within a government-led software environment means the Army can leverage fresh ideas and technology while still maintaining "disciplined" governance, LTC Daniels said.

"All of the research dollars are out there in the commercial market. All of the best minds are at work in these companies to produce these smart phones and this software," Daniels said. "We don't want to rehash that, we want to leverage it. We want to take advantage of it and get it out to the Soldier in a structured fashion, so it can be implemented in a way that is secure and useful at the same time."

For the JBC-P Handheld smart phones themselves, the Army is currently evaluating prototypes to determine whether to use a government-off-the-shelf model or a commercial-off-the-shelf model in a ruggedized tactical sleeve or



Photo by Ashley Blumenfeld

GEN Peter Chiarelli, Army vice chief of staff, views a photo downloaded on a prototype JBC-P Handheld smart phone. GEN Chiarelli attended a recent field exercise at Fort Bragg, N.C., where Paratroopers from the 3rd Brigade Combat Team of the 82nd Airborne Division experimented with the JBC-P Handheld prototype, the first developed under an Army effort to devise an Android-based smart phone framework and suite of applications for tactical operations.

case. However, the software is being designed so it can run on a variety of different Android platforms.

"We're trying to set this program up so that it can rapidly adapt and

maintain relevance to the current warfighting generation," LTC Daniels said.

That flexibility also extends to communications. The JBC-P

Handhelds will work over different types of radio networks, including the Joint Tactical Radio System, or JTRS Soldier Radio Waveform, Netted Iridium, and Marine Corps radios such as the PRC 117G and PRC 152A. Even when connected to a radio, the lightweight system weighs approximately two pounds.

Soldiers from the 2nd Brigade, 1st Armored Division will try out the handhelds and JBC-P software during the Network Integration Rehearsal at White Sands Missile Range, N.M., in October. The Network Integration Rehearsal is part of a series of four events leading to executing a fully integrated Brigade Combat Team Network Evaluation at the end of 2012.

For dismounted Soldiers like SPC Bui, the software approach consistent with modern day commercial technology will also provide a consistent, easy-to-use experience. They will be able to choose different Mission Command applications for their specific mission needs without intensive training.

"I was just shown a quick, little, five-minute brief on it - that's all it took and we were ready to use them," said SPC Randy Fite, who like SPC Bui experimented with the JBC-P Handheld prototype during a recent training exercise at Fort Bragg, N.C. He said the app's blue icons indicating the GPS locations of his fellow Soldiers helped them navigate and coordinate actions during the capture.

"We can know where each unit is in our platoon, and how they're moving," SPC Fite said. "It makes the job a lot easier."

Claire Heininger is a staff writer for Symbolic Systems, Inc., supporting the Army's Program Executive Office Command, Control and Communications-Tactical. She is a graduate of the University of Notre Dame and a former Statehouse reporter for The Star-Ledger, New Jersey's largest newspaper.



Paratroopers from the 3rd Brigade Combat Team of the 82nd Airborne Division use radios and smart phones to communicate during a recent field exercise at Fort Bragg, N.C.

7th Signal Command showcases its successful KM platforms

By Gerald King

Leaders of 7th Signal Command are using technology to provide essential links throughout all levels of modern organizations.

Today leaders have very little management time to devote to sharing their reflection and contemplation about the mission and the organization. Geography and the pressures of internal and external meetings mean face time with the senior leaders does not come easily to the average Soldier or employee. And yet it is direct communication that best inculcates loyalty and a personal grasp of the leader's intent. Technology enables today's senior leaders to communicate their philosophy and priorities directly to the rank and file. This concept is exemplified in the ACOM Warfighter Forums

(https://www.us.army.mil/suite/portal/index.jsp;sessionid=7A966132E1F58B932DD9D4CDB45F80BB.appd03_3) and StrykerNet (<https://strykernet.army.mil/default.aspx>).

At 7th Signal Command we use four primary KM platforms. None by itself can meet all of our requirements. There is some capability overlap between platforms, and one could argue that one or the other would be better for a particular function. However, we would rather get on with the task at hand than suffer analysis paralysis.

For our unclassified intranet needs, we have a site collection on the 9th Signal Command (Army) Microsoft Office SharePoint Server (MOSS) (<https://idm.netcom.army.mil/Pages/9thSignal.aspx>). In the Quick Launch box of the portal page are links to features and content of general interest to all members of the command. The top menu has drop-down menu links to staff element and subordinate unit sites and pages (<https://idm.netcom.army.mil/sites/7thsignal/Pages/Home.aspx>). These pages are customized for the internal use of the directorate, brigade or Theater Network Operations Support Center. Information and content accessed from here is managed by the



- MOSS
- ACO
- BCKS
- milSuite

subordinate organization's content manager with advice and support from the KM Cell. This concept is mirrored on SIPRnet on the Warfighter Forum MOSS server provided by the Combined Arms Center and BCKS.

Our extranet service is hosted on Army Knowledge Online to enable access to users across DoD including family members (<https://www.us.army.mil/suite/page/599678>). Access to content varies on subordinate pages and channels. Again, this concept is mirrored on SIPRnet.

To provide facilitated discussion forums we only had to look to BCKS (Battle Command Knowledge System) for a mature and stable platform. Tucked neatly in the Signal Link forum are two groups for Network Enterprise Centers (<https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=519541&lang=en-US>) and NEC directors (<https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=530676&lang=en-US>) to asynchronously contribute, refine and reuse content. This feature is slowly gaining traction within the command as more people hear about it through their brigade additional duty KMOs or by attending the Signal Center of Excellence NEC Course. Signal Link uses ACO SSO authentication, making it accessible

worldwide to all theater signal commands.

The most recent addition to our KM ammo box is milSuite. Here we can learn from the experience of and share with subject matter experts with DKO/AKO access. For example, staff personnel can search milWiki for SOP templates and information. In milBook we have created groups for project team and functional collaboration.

Part of the challenge is how to encourage a culture of collaboration. Collaboration is not the same as donating your work to others. It is working with colleagues who help flesh out skeletal ideas. This allows the team to build and innovate together from knowledge context unavailable to each individually. In KM circles we often hear this described succinctly in the phrase, "all of us are smarter than any of us." Colleagues share the nucleus of an idea with others who refine the idea and then share it with their entire community who reuse and continue to refine the knowledge product.

Leaders who reward all three aspects of collaboration (contribution, refinement and reuse) will achieve maximum benefits of the enabling tool.

The practice of Knowledge Management is the assessment and measurement of culture, people, processes and technologies within organizations to enhance decision making and effectiveness. KM considerations in the People domain include vocational training, adult learning, organizational structure, ranks, age ranges, and education levels. In the Army, analysis of the organization's mission objectives to determine the skill sets needed to reach those goals is essential in the absence of

established doctrinal structures that exist for tactical units.

Mission objectives need to be broken down to functions, functions into supporting tasks. The required skills and training needed to accomplish institutional Army mission tasks lead to identification of military occupational specialties and civilian job series. Tasks have characteristics of frequency and duration which provide manpower data inputs. Adding the manhours for all the tasks required for each specialty considering the size and scope of the mission yields the required number of people needed in that specialty.

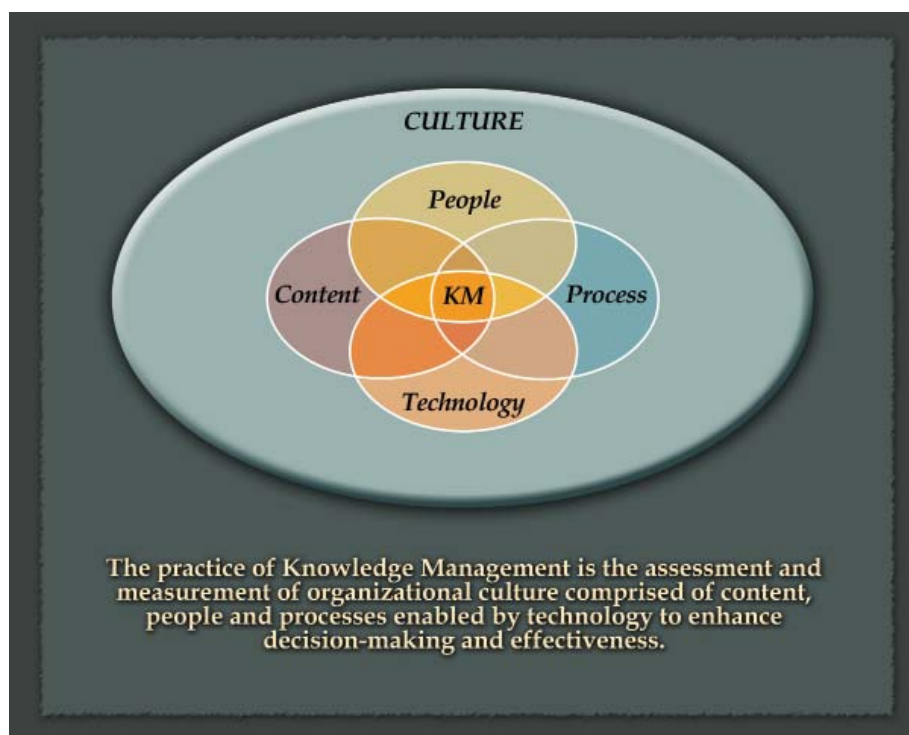
A major people goal of KM practice is expertise location. The account profiles inherent to our KM tools allow us to search for others who have certification, education or training in an area of interest. A majority of this information is voluntarily entered but a number

of fields in AKO and milSuite are drawn directly from Army authoritative databases.

The next domain, Process, involves all the ways the organization conducts its business, supports the Army or is supported by other organizations. Everything from ordering pencils to justification and hiring new personnel involves a process. Obviously not all of the processes will be developed, controlled or even coordinated by the KM Cell. The more people and echelons are involved in the process, the more likely it has devolved into an undocumented and informal way of getting the job done. Such informal processes can be very efficient when all the usual people are present. The usual people have the process knowledge in their heads and easily accomplish the task. But when one or more of these people is absent or transfers, the process breaks.

Informal processes can reign supreme in longstanding organizations with many long-term employees possessing the tacit knowledge of how things work.

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Task frequency* duration = manhours per task

Manhours per task/2086 hours per year = 1 required employee

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Trouble arises in these organizations when decisions are made or the unit is reorganized based on the formal process documentation that inaccurately describes reality.

When there is a great difference between the formal process and organization and the informal way things are done, new personnel are going to be frustrated and ineffective. Such an organization is inefficient and often dysfunctional. In 7th Signal Command we have a different challenge in that neither the organization nor the mission preexisted. Initial stand up of a new theater Signal command required extensive creative mission analysis and historical research. Definition of the personnel structure needed and the processes to "operate and defend" the Army's portion of the Global Information Grid was incredibly difficult but accomplished ahead of schedule. Ongoing efforts to standardize process across the command have to consider variations in tenant activities, BRAC and the changing missions and organizations of cyber warfare.

Of these four domains of knowledge management, technology is the most frequently resourced but can be the least efficiently and effectively used. Mission media technology tools are no magic wand.

Without the proper application of the tool to the job, nothing is accomplished. A carpenter's tool box builds nothing. But the proper tools applied by a skilled craftsman with a plan and good purpose rapidly produce a superior structure. Technology exists to enable information and knowledge collaboration, collection, contemplation, connection, community and culture. In this model, content is separated from technology to highlight functions beyond data storage. In particular

we describe content in terms of the elements of metadata, (data about the data), taxonomy, (relations between data), and ontology (the context of data).

A comprehensive content management plan requires skills from records management, database management and subject matter expertise. Well managed content facilitates the high priority goals of knowledge managers to make content easy to contribute and recall through relevant search results.

More often than not, the latest content is stored on a local drive where it is more vulnerable to loss instead of a shared network drive that is professionally backed up. Network file shares are a crude form of content management especially crude, when there is no organizationally enforced naming convention for directories, folders or files.

Left to their own methods, computer users develop ad hoc methods of naming and storing content. Usually this is a hierarchy of categories that suit their work habits using a combination of topics and chronological criteria. At 7th SC (T) directorates and brigades manage their own content to suit their missions and processes. The recent appointment of a command records manager will bring additional expertise to the organization of our data.

At the dynamic intersection of these four domains is Knowledge Management. Not wholly responsible for any of the domains, the KMO is nonetheless involved in all and sometimes accountable for project or process results. Success depends heavily on executive sponsorship of the KM program. This reflects the Army AOKM proponent's admonition that the KM cell report directly to the unit's chief of staff or executive officer, as is the case in 7th Signal Command. Field Manual 6-01.1, Knowledge

Management Section, prescribes this structure for tactical combat formations.

The future of knowledge management in 7th Signal Command (Theater) is bright. The KM Cell has great support from the senior leadership. Our technical staff is expanding and acquiring better tools. All of which will permit more time to train the directorate and brigade KM practitioners. And more time to dedicate to deeper assessment of the knowledge gaps and research the best ways to close those gaps.

Gerald King is the knowledge management officer for 7th Signal Command at Fort Gordon, Ga., The command's KM cell is part of its strategic communication special staff section, which is responsible for managing the command's strategic communications planning and operations. The section includes staff members who perform the functions of strategic communication, public affairs, as well as knowledge management.

ACRONYM QuickScan

7th SC (T) - 7th Signal Command (Theater)

ACOM - Army Command

AKO - Army Knowledge Online

AOKM - Army Operational Knowledge Management

BCKS - Battle Command Knowledge System

DKO - Defense Knowledge Online

KM Knowledge Management

KMOs - Knowledge Management Officers

MOSS - Microsoft Office SharePoint Server

NEC - Network Enterprise Centers

SIPRnet - Secret Internet Protocol Routed Network

SOP - Standard Operating Procedures

SSO - Single Sign On

WfF - Warfighter Forums

Front line Signal unit manages boom growth



MAJ David W. Gill and CPT Aaron M. Parker

The 307th Expeditionary Signal Battalion faced a tough challenge in its communications mission when it deployed to Afghanistan as a part of the 2010 force package two troop uplift, in support of the expansion of the Regional Command – North area of operations.

Since the start of Task Force Dragon's deployment, requirements for the RC-N's U.S. contingent exploded from less than 100 to more than 8,000 customers. As the network ballooned many hurdles had to be overcome to provide warfighters with the high quality service expected from the U.S. Army Signal Corps.

One of the first and largest hurdles was the lack of infrastructure throughout the RC-N area of operations. Not just the infrastructure between forward operating bases and contingency operation posts but the infrastructure on the bases as well. At the time, many of the bases were still under construction. This meant construction teams were still clearing mines, building HESCO barriers, tents and work places. At most sites planning communications was very difficult because the layouts changed weekly. This level of non-predictability combined with the slow supply chains of Afghanistan left TF Dragon scrambling to develop a plan to extend services to the ever growing number of customers.

The first solution was to provide customers tactical communications via SIPR, NIPR Access Points, command post nodes, and joint network nodes. These nodes provide a relatively basic level of services through either a shared mesh of seven, five mega symbol time division multiple access carriers; or through a dedicated three or four Mbps frequency division multiple access link (JNNs only). This solution was logical and appropriate for the expansion, because by doctrine, that is how an expeditionary Signal battalion fights.

However, with continuously growing customer requirements and lack of base infrastructure, it was becoming common to require multiple tactical terminals on the same base in order to cover all the customer requirements. Not necessarily because of the number of customers but because of their location. Previously Army customers settled in around the source of the communications. In today's changing battle field, customers are forced to setup their locations wherever possible, which means the communications have to come to the customer. Because of this we find multiple tactical nodes being used to support customers with much fewer requirements than the node is capable of supporting.

This wasn't just a waste of the potential of that node; it also had an ill effect on the shared TDMA network. Because of the increasing number of tactical nodes in the TDMA mesh, the network began reaching a constant state of 95% saturation which was causing network instability and poor quality customer service.

Reducing dependency on the TDMA network was TF

Dragon's second big hurdle to overcome. The question was how to reduce the demand on the TDMA mesh network but still provide high quality customer service to sites with even the smallest requirements.

TF Dragon's network engineers were able to work out a couple of courses of action to combat this taxing of the TDMA network and increase customer quality of service. The first action was to interconnect the TDMA dependant nodes with the nodes capable of using FDMA or connecting the nodes to the Microwave Line of Site links to the RC-N headquarters at Camp Marmal. This interconnection virtually took the TDMA nodes out of the timeslot requesting cycle for the TDMA mesh but left the satellite link in place in case the interconnected FDMA/MLoS link failed. This type of interconnection is not too uncommon since it's been designed into the WIN-T architecture with the HCLoS system and tactical fiber optic cable assembly runs. However due to the limited land and material available and the layout of the FOBs and COPs; the laying of tactical fiber or the emplacement of the large WIN-T HCLoS shelters was not always an option. So the interconnection was accomplished using a newer IP radio system.

The Harris 7800W IP Radio system has been used throughout theater in a point-to-point configuration for quite some time with a high rate of reliability. Because of its small size and efficiency, up to 108Mbps through put in PtP mode, it has become a staple for LOS communications in the theater, up to 54Km. However, in the North we were able to use it in its more versatile mode, point to multi-point. When using the PtMP configuration and the sixty degree sector panel antenna we were able to build a robust base infrastructure networks with just a few radio sets. In PtMP configuration the Harris 7800W IP Radio is capable of a maximum through put of 54 Mbps at distances up to 24 KM. In this configuration the sector controller radio can control up to 20 sector subscriber radios. For example, on FOB Dehdadi II, by utilizing a setup of both a PtP and a PtMP radio network the tactical node footprint has been reduced from nine tactical nodes down to two, providing communications to over 500 customers on NIPR, SIPR and CX-I.

Besides just utilizing the standard tactical node interconnect TF Dragon's network engineers needed to find a way to extend service to customers without having to emplace an entire tactical node in order to interconnect. The solution was to build area distribution nodes. These ADN's come in two forms tactical and strategic.

The original tactical ADN consisted of an AES256 capable router and switch for NIPR connected to a set with a TACLANE, router and switch for both SIPR and CX-I. But due to a shortage of networking equipment we found a way

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to reduce the equipment requirements of this ADN but removing the SIPR and CX-I routers and terminating the GRE Tunnel on the Layer 3 enable switch. This worked for all tactical sites because the number of users was low so it wouldn't over tax the switch's CPU.

The original strategic ADN looked very similar but with one difference. Strategic uses a Black Core transport network that consists of an open switched network to allow any end to end encrypted traffic to flow to any point that it was needed. So the strategic ADN stack consisted of a Black Core switch; NIPR router and switch; SIPR & CX-I TACLANE and switch. Or because of the Black Core infrastructure if a site just required one of the services all that was required was the Black Core switch and the appropriate switch/router/TACLANE combination to provide the required service. A prime example of this combination of ADN and 7800W radio network infrastructure is on Camp Marmal. By utilizing a two SC Radios setup with overlapping fans

TF Dragon was able to support the entire FOB with 18 current SS radios ADN's at customer sites offering full strategic services from the strategic point of presence; with the expansion capability to support up to 40 ADN sites.

By utilizing both of these solution sets TF Dragon was able to reduce its TDMA footprint from a peak of 72 tactical terminals to the current 50, with the current 50 having 12 interconnects--8 from TDMA nodes to an FDMA capable node and the remainder connected to the MLoS back to Camp Marmal.

This reduced the TDMA network burst time plan from a constant 95% utilization to an ideal 60% utilization over a seven carrier TDMA mesh. This in turn left room for the ever increasing customer base which from the start of implementation increased by over 50%. By implementing these creative architectural changes to the RC-N network infrastructure, TF Dragon and its network engineers have ensured a manageable and stable network for the future expansion of customer service throughout the North.

MAJ David W. Gill is the 307th Expeditionary Signal Battalion S3. MAJ Gill's education includes a Master's degree in national security and strategic studies. He completed the College of Naval Command and Staff, and the Marine Corps Expeditionary Warfare schools. MAJ Gill's former positions include, information assurance program manager, Iraq Assistance Group J6, C Company, 307th Signal Battalion (DGM) company commander, and S6 for 69th ADA Brigade.

CPT Aaron M. Parker is the 307th Expeditionary Signal Battalion assistant S3/battle captain. CPT Parker's education includes a Master's Degree in information systems. Previous assignments include CPT Parker's former positions include, C Company 307th ESB commander, 516th Signal Brigade assistant S3 and operations officer for the 4th Signal Center/Pacific Theater Network Operations Center.



Signal Soldiers operating in Afghanistan.

307th Expeditionary Signal Battalion demonstrates operational capabilities

MAJ David W. Gill and CPT Aaron M. Parker

Even though taking control of Mazar-E Sharif (Afghanistan's fifth largest city and Northern Afghanistan's Capital) was the first major U.S. victory following the start of Operation Enduring Freedom in October 2001, the U.S. communications infrastructure in Northern Afghanistan was the most immature communications network in the theater after more than eight years of ongoing combat operations. This lack of established infrastructure led to the deployment of the 307th Expeditionary Signal Battalion.

In mid-2010, the 307th ESB deployed to the northern region of Afghanistan as part of the Presidential Force Uplift. The battalion was identified to provide tactical command and control and information system communications support to the International Security and Assistance Force Regional Command (North) and U.S. Forces-Afghanistan.

Prior to deploying, the battalion recognized that it needed to develop a communications campaign plan that focused on developing Soldiers' skills and that utilized all available resources to increase the coalition, command and control, communications, computers, intelligence, surveillance and reconnaissance capabilities of commanders across RC (N).

The battalion quickly learned that there are no cookie cutter solutions when conducting initial entry operations and that innovative solutions would be required for this mission. Immediately upon arrival in the region, the battalion was able to establish full spectrum tactical communications support while simultaneously beginning to establish strategic communications capabilities in support of the RC (N) Headquarters.

This hard work and expeditionary mindset earned the respect of the warfighter, even leading a senior commander to comment, "I am a fan of the ESB, they are truly an expeditionary enabler" COL Willard Burleson, 1-10 Mountain, Infantry Brigade Combat Team commander.

Forming a Signal Task Force

Along with being expeditionary, ESBs are also modular. The 307th ESB deployed to RC (N) with only its organic HHC. Two expeditionary Signal companies-- B Company, 44th ESB and A Company, 151st ESB were assigned to 307th ESB to provide communications

support throughout RC (N). To effectively command and control this task organization, 307th leaders organized in theater into a Signal task force to maximize personnel potential and equipment capabilities. TF Dragon was formed to efficiently meet the needs of the customers in RC (N).

Although the formation of TF Dragon occurred in Afghanistan, the preparation for the mission started in late February 2010, when the 307th ESB received notification of deployment and was given four short months to train, prepare and deploy to theater.

During the preparation for this short notice deployment, the battalion was also fielded the latest expeditionary information systems in the Army's Inventory. Project manager, WIN-T arrived in Hawaii and fielded the battalion's entire compliment of ESB systems including battalion command post nodes, joint network nodes and satellite traffic terminals. Concurrently with the fielding of this equipment, the battalion began mission oriented training that focused on providing rapid and reliable communications in an austere environment. This was no easy feat to accomplish and this high operations tempo environment began to develop the Soldiers' and leaders' expeditionary and innovative mindset, a foundation that would be critical in accomplishing their upcoming mission.

With the fielding of equipment and the Soldiers' training complete, the battalion deployed into theater and began to focus on supporting customers with an array of communication solutions. The Task Force was immediately able to show its expeditionary prowess by developing the initial tactical and strategic networks in RC (N).

Expeditionary Area Support Mindset

Building the networks in the region began with the identification of the units and organizations communications requirements. The battalion recognized it was critical to understand the specific requirements of these customers and prioritize the limited assets that were available to support the strategic objectives of the ISAF commander. The battalion's primary role, along with supporting the U.S. brigades in RC (N) was to provide connectivity to the

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disadvantaged users. This ensured that all units, down to the company and detachment level, had access to enterprise services. To fulfill these functions, TF Dragon took on the role of communications integrator in RC (N). Using lessons learned from Operation Iraqi Freedom, the battalion developed a process to discharge this responsibility, and to focus the efforts of the COMS-I on gathering the customers' requirements, validating operational needs, engineering solutions, tasking available assets, procuring material, installing solutions and providing service to the customer. Because of the underdeveloped state of the communications infrastructure, supporting the customer often meant seeking creative solutions and solving problems not seen in other areas of the theater. The criticality of the mission meant taking on a "never say no" philosophy of support and facilitated the Task Force's drive to quickly find innovative solutions to provide service to the customer no matter the location or element's size.

This mindset also applied to operating and managing the tactical WIN-T network across the region. The battalion and all of the RC (N) tactical communication assemblages were required to utilize the Combined Joint Task Force 101st Unit Hub Node on Bagram Air Base, Afghanistan and the 160th Signal Brigade's Regional Hub Node on Camp Arifjan, Kuwait in order to interconnect into the Afghanistan domain (i.e. afghan.swa.army.mil). This required many hours of coordination and planning with the 101st Infantry Division CJ6 to manage the network efficiently and effectively. This required the Network Operations and engineers to delineate the respective responsibilities and establish procedures and procedures between TF Dragon and CJTF 101, CJ6. This collaboration promoted

a cohesive relationship between the newly established Regional Network Control Center – North and CJ6 which facilitated the continued growth and maturation of the network, maintained network stability and ultimately ensured that the customers received the best quality of service possible.

In addition to having the challenges of a remote tactical hub and an underdeveloped communications network, the battalion was required to operate a majority of its systems on a Time Division Multiple Access network. This TDMA network was the workhorse of the RC (N) tactical network with over 60 satellite terminals supporting over 8000 customers on seven 5 mega-symbol TDMA Carriers. The number of TDMA terminals combined with user demands saturated the TDMA mesh due to the limited number of TDMA satellite carriers available to the battalion upon arrival in Afghanistan.

These limited resources along with the ever increasing demand for access to enterprise services made it essential that the battalion leverage every available asset, begin the building of the strategic communications architecture in RC (N), and establish TTPs to ensure that the battalion was both good stewards of available equipment and bandwidth.

Building the Strategic Communications Support from the Ground Up

Prior to the battalion's arrival in Afghanistan, a USC-60 and C4DP (Promina Node 200) had been transported to Camp Marmal to meet the growing communications needs of the USFOR-A customers on Camp Marmal, specifically in the RC (N) HQ. 307th began the development of the strategic network the day it hit the ground with the installation of Node 200,

additional satellite terminals and a Microwave Line of Sight circuit to provide service to the RC (N) Headquarters. This data package consisted of a Promina and a full complement of enterprise servers designed to provide full strategic enterprise services for each of the required security domains to the customers on Camp Marmal. These assets are not native to an ESB equipment set and presented significant challenges during the installation phase.

The battalion literally learned the engineering and installation process for this node through trial and error. In light of these challenges the battalion quickly leveraged the economies of Soldiers previous experiences and backgrounds on strategic nodes. In addition, the battalion received technical assistance from engineers in the Joint Network Command Center – Afghanistan who controlled the strategic communications in the theater. This process required building the strategic signal infrastructure in RC (N) from the ground up.

The battalion was tenacious in finding solutions to the various challenges associated with doing an initial network installation and ways to improve the quality of service available to the customers in the RC (N) Headquarters. But the unit's persistent efforts paid off, the outcome was access to a full complement of enterprise service and an increase of available bandwidth to the customer by over 4000% and which greatly increased the quality of service to the regional headquarters and the 4th Infantry Division's Combat Aviation Brigade Headquarters.

Once the installation of the data package supporting the RC (N) Headquarters was complete, TF Dragon took on the task of extending the enterprise services from N200 to other customers on Camp Marmal and across the

region. Using all the assets the unit could acquire, the network engineers designed a black core network that would be the backbone transport layer of the RC (N) strategic network that could extend enterprise services to customers throughout the region. This black core transport layer enabled TF Dragon to create a standard network topology to support the rapid growth in the region and to emplace internally designed Area Distribution Nodes to extend services to geographically separated customers while maintaining information and network security. These ADNs were connected back to strategic services using a variety of equipment and anything that was available. TF Dragon used Harris 7800W line-of-site IP radios, fiber optic cable, microwave line-of-sight and Orthogon radios. The disadvantaged users that required services on Camp Marmal and various other FOBs exceeded the capability of N200, and the number of CPNs and JNNs that 307th had in its inventory. Operating in an economy of force environment, the battalion required additional resources and material to install the networking components necessary to provide service to all of the customers in the region. While extending the network, TF Dragon remained flexible to meet mission requirements and ensure that all the customers who needed support were provided full access to enterprise services.

Maintaining a Tactical and Expeditionary Mindset

The “never quit” expeditionary mindset was absolutely critical in the accomplishment of the mission during the battalion’s time in Afghanistan. The skills needed to

support the customer were often outside the traditional tasks of an ESB and required Soldiers and Leaders in the battalion to understand the science of communications installation and the art of communications management. From the training the battalion conducted while at home station to the non-organic equipment used and solutions that were implemented in theater, the battalion’s Soldiers and leaders never quit, never lost sight of supporting mission and earned the respect of the warfighter along the way.

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ACRONYM QuickScan

ADN - Area Distribution Nodes
CAB - Combat Aviation Brigade
CJOA-A - Combined/Joint operations Area-Afghanistan
CJTF 101 - Combined Joint Task Force 101st
CPN - Command Post Node
COM-I - Communications Integrator
C4DP - Command, Control, Communications and Computers Data Package
C5ISR - Coalition Command and Control, Communications, Computers, Intelligence, Surveillance

and Reconnaissance
ESB - Expeditionary Signal Battalion
ESC - Expeditionary Signal Company
HHC - Headquarters and Headquarters’ Company
ISAF - International Security and Assistance Force
JNCC-A - Joint Network Command Center – Afghanistan
JNN - Joint Network Node
MLoS - Microwave Line of Sight
MRT - Master Reference Terminal
NETOPS - Network Operations
OPCON - Operational Control

PM WIN-T - Project Manager Warfighter Information Network – Tactical
RC (E) - Regional Command (East)
RC (N) - Regional Command (North)
RHN - Regional Hub Node
RNCC-N - Regional Network Control Center - North
STT - Satellite Traffic Terminals
TDMA - Time Division Multiple Access
TTP - Tactics Techniques and Procedures
UHN - Unit Hub Node
USFOR-A - U.S. Forces-Afghanistan

USER COMPLIANCE IMPROVEMENT

By Grace E.H. Dalton

An innovative project at Network Enterprise Technology Command/9th Signal Command (Army) (NETCOM/9th SC(A)) has boosted information technology user compliance with Department of Defense and Army elevated-privileges requirements. NETCOM/9th SC(A)'s Information Assurance (IA) division – at the direction of senior leadership and Assistant Chief of Staff (ACofS) G-6, Stacy Ware - streamlined, consolidated, and replaced elevated privilege account creation processes at NETCOM Headquarters. The command forecasts even better compliance figures as the Army transitions to global enterprise operations.

"We are very excited about implementing this new and simplified procedure," said Eric Tobias, NETCOM/9th SC(A)'s IA division chief and manager. "This novel process combines several compliance policies and streamlines them into one basic course of action. The end result enables the IT user to comply with the mandated elevated privileges requirements with a higher degree of conformity."

NETCOM HQ defines privileged users as account holders with elevated privileges (e.g., escalated privileges, administrative privileges, and administrative rights). Privileged users perform mission-critical functions associated with system administration, network administration, database administration, system vulnerability assessments, web development, and web maintenance.

Evolving position responsibilities coupled with the emergence of the global enterprise created gaps in the elevated account creation and maintenance processes for those holding such privileges. Paperwork routing among the NETCOM HQ directorates became non-standardized, and the roles and responsibilities of employees in requesting and maintaining elevated privileges became primarily tacit. Now NETCOM HQ regulations and supporting documentation (to include the Acceptable Use Policy and Non-Disclosure Agreement blend several process documents into concise instruction for the requestor. Further, the process is documented and tracked, so employees' certifications and profiles are maintained as information management officer and IA security officer duties rotate to other individuals. NETCOM Regulation 25-4 and the NETCOM Elevated Privilege Tactics, Techniques, and Procedures document is a combined effort of the NETCOM 9th SC(A) ACofS, G-6 IA Division and the Fort Huachuca Network Enterprise Center IA Division.

"The standardization of processes and commonly used forms, like the Acceptable Use Policy are critical in ensuring seamless transitioning and processing of personnel across the Army," said David Dillard, NETCOM/9th SC(A) deputy IA manager. Currently, many installations use their own version of the AUP or access request which defeats this standardization across the Global Network Enterprise Construct."

The elevated account creation process is undergoing a

Rehearsal of Concept drill with selected directorates. The lessons learned will be used to refine the documents. Influence from all groups provides NETCOM HQ employees with customer-focused procedures, versus documents that take a purely academic standpoint.

To increase user compliance with DoD and Army requirements for elevated privileges, the ACofS, G-6 IA Division along with the Training Readiness Officer of the newly created Cyber Division have teamed to populate NETCOM HQ profiles and certifications within the Army Training and Certification Tracking System. Incorporating ATCTS into the process is important to hold elevated privilege account holders responsible for documentation and certification. Plans are also underway to include ATCTS in the employee in- and out-processing checklist at NETCOM HQ. In addition, monthly IMO and IASO meetings with the ACofS, G-6 IA Division will be held to ensure those having IMO and IASO duties remain familiar with the process, are updated on new policy developments and training, and adhere to DoD and Army requirements, ultimately strengthening NETCOM HQ's security posture.

Documenting the elevated privilege account creation process within NETCOM HQ ensures separation of duties on the network and reduces risk across the enterprise. Once the process is refined, document routing within the command will become automated. The process will minimize risk to LandWarNet by limiting elevated privileges, and maintaining the certifications to hold those rights. In time, NETCOM HQ's processes will help fulfill obligations, such as elevated privilege requests and maintenance, required for missions across the Army.

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ACRONYM QuickScan

ACofS – Assistant Chief of Staff
ATCTS – Army Training & Certification Tracking System
AUP – Acceptable Use Policy
IA – Information Assurance
IASO – Information Assurance security officer
IMO – Information Management Officer
NEC – Network Enterprise Center
NDA – Non-Disclosure Agreement
ROC – Rehearsal of Concept
TPP – Tactics, Techniques, and Procedures

From zero to full immersion

MAJ Albert Hill

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As I prepared to write this article, I found myself faced with a very interesting dilemma. Do I write an informative article, or do I invoke a knowledge-based essay and expound on the merits of transforming information into knowledge? How do I differentiate between the two: information versus knowledge? I further challenged myself by considering the following: if the article is purely informative, does it defeat the purpose of the article and its value to the readers? And if it is to be focused on the management of knowledge, how do I pinpoint the informational requirements of the reader? My dilemma became more convoluted as I continued to add more information. Then I realized that I was replicating and exacerbating the exact problem that Knowledge Management (KM) was intended to solve. I decided to focus on the merits of turning information into knowledge.

Arriving at Fort Hood in August of 2009, I was immediately immersed into the Corps' preparation for an upcoming rotation to support Operation Iraqi Freedom, which would eventually transform to Operation New Dawn. As a FA 53, Information Systems Manager, I was assigned to the Corps KM section. I had no previous experience, nor exposure,

to KM principles as a recognized discipline, although I had practiced the concepts throughout my career.

As a very young Field Artillery lieutenant, I can recall being charged with running my first M16 qualification range. I had to coordinate with range control to acquire the use of the range, and also get the necessary briefings, standard operating procedures and documentation needed to execute the range safely, properly and, most importantly, effectively. My leadership instructed me to write the OPORD for the range, gather resources and rehearse, rehearse, rehearse.

The mission of executing a successful M16 qualification range required the utmost attention to detail and meticulous planning. I was inundated with information. The S3 provided maps, routes, equipment needed, safety considerations, TTPs and a list of objectives. The S4 chimed in with the logistical requirements: medics, fuel, mechanics, extra parts, targets, flags, food and, of course, ammunition. Several sections within the battalion anted up their particular section's unique informational resources and/or support.

My mission was to ingest the information and bring everything together coherently to present it to the leaders, the range support personnel and qualifiers of the unit. No one needed to know how I staffed the requirement, collected the assets or resourced the mission; they had little to no concern for what range control briefed me on the days prior to

setting up the range for execution. The concerns were mainly, "When do we leave? How do we get there? What's the firing order? How will my scores be tracked and reported?" Leaders and Soldiers required the critical information that would allow them to execute their decision-making process.

The information I provided in the OPORD had to be understandable and executable.

Fast forward 20 years later, and I am still doing the same thing. The difference is the level at which I operate, the mission being executed, and my role as a facilitator to the mission executor(s). Staff sections within the Corps still perform stovepiped operations to a degree. Commanders are still in dire need of knowledge extracted from staff products to make precise and timely decisions. Although staff sections operate independently of one another when building products for mission analysis, there is the need to ensure that the products reach across boundaries to other sections to support collaborative and unified resolution at the end state.

At any point in time, the S-3 shop should be fully aware, or have the ability to access the progress of the S-2 shop. KM is the solution. People, processes, and technology are tools used by KM personnel to flatten the informational stove pipes. A flattened data structure provides visibility across the command and staff, and it guides efforts and activities toward a common

(Continued on page 68)

operational picture. The drivers of that COP are the requirements identified by the commander in the form of, but not limited to, critical informational requirements, commanders intent and commanders guidance. From these, we can extract the knowledge from the information produced by the individual staff sections and begin the process of knowledge presentation to the commander.

The KM officer's tools of the trade--people, processes and technology--are thoroughly examined for the best means of presenting the harvested knowledge in such a manner that the commander has reliable, accurate and timely data accessible within a single click of a mouse button, dashboard view, CPOF/CIDNE feed or phone call. It's strictly based on how the commander prefers to receive and process the knowledge presented.

The SharePoint portal was the tool I employed most. The deputy commanding general, advising and training extracted knowledge and information mainly from this tool. The staff collaborated within the portal to meet the DCG's CIR. Calendars were synchronized on the portal, meetings were scheduled, tasks were tracked and documents were shared. I placed heavy emphasis on training for all sections, and moved a large population of shared drive users to portal operations. SP training was the window of opportunity to showcase the many advantages of collaborative processes.

The benefits of using SharePoint versus the use of shared drives became evident during the training session. In response to the CIR, the staff knew where to place certain information, mainly in the "watering hole" as it was called. This was a single-click location for knowledge used by the DCG. Staff sections were given workspace within the portal to perform analytical work. At any time, one staff section could see the working progress of another section, as products were maintained in shared document folders for collaborative purposes.

KM success relies on command emphasis, training and effective results. If a KM solution happens to be the portal, the command has to emphasize its use for it to be effective. To gain the trust of users, they must be trained, retrained and eagerly supported. The system employed must prove better than the one being replaced and the delta gained has to be large. Happy to glad changes will not gain favor over a staff section that's efficient with an outdated mode of staffing.

I learned many lessons during my tour. The KM field has many branches, and one could write

endlessly on people, processes and technological solutions for the many different commanders and command types that exist. No two things are the same, and there is no one-over-the-world solution that applies to every situation. Each change in mission, personnel, or technology requires a new look at how we can best support the commander.

As my tour winds down and we prepare to transfer our KM TTPs to the incoming unit, I am once again feeling the urge to have the internal argument. Am I delivering the typical, left seat-right seat informational dump, or am I providing my successors with knowledgeable data that will support their KM efforts, or both? As KM practitioners, we may support the efforts of the lieutenant charged with running the M16 qualification range or the General who is in charge of advising and training a country to provide for its own security. Regardless of the mission, KM provides the smarts to present the knowledge used to make the critical decisions accurately, timely and precisely. The commander executes more proficiently when he receives knowledge versus information. Therefore, transforming information into knowledge is essential for supporting commanders at all levels in order to achieve mission success. KM enables that requirement.

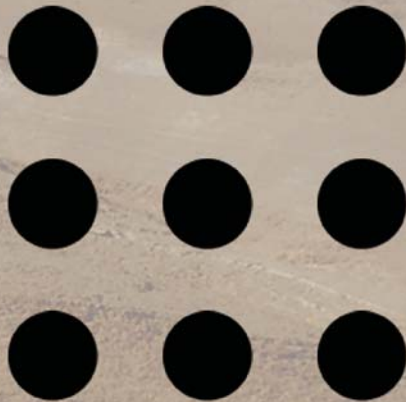
MAJ Albert Hill is a former knowledge management officer. As a lieutenant, MAJ Hill's career began as a firing battery and an HHSB executive officer. As a captain, he worked in the brigade S3, conducting training and exercises for three Artillery battalions. It was when he left battery command and became an FA53, information systems management officer that he was introduced to computing systems. He spent a year training with industry at Raytheon. Shortly thereafter he received his Master's degree in information management systems from Webster's University.

ACRONYM QuickScan

A&T - Advising and Training
CIDNE - Combined Information Data Network Exchange
CIR - Commander's Information Requirements
COP - Common Operational Picture
CPOF - Command Post of the Future
DCG - Deputy Commanding General
KM - Knowledge Management
OPORD - Operations Order

Think outside “the box”

Nine Dot Puzzle



Without lifting pencil from paper, draw no more than four straight lines that will cross through all nine dots.

The solution:



To solve this puzzle draw lines outside the confines of the square area defined by the dots themselves. The puzzle only seems difficult when we imagine a boundary around the edge of the array.

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Bob Gilbert

BG Albert J. Myer Portrayer

Observing the 150th anniversary of significant Signal Corps activity in pivotal Civil War battles, the next issue of Army Communicator will feature Gilbert as he shares his experiences of his portrayal of Myer, whose work during the Civil War led to the development of the Signal Corps.

"On 29 March 1860, the House approved the Army appropriations bill for fiscal year 1861 with the following amendment attached:

'For the manufacture or purchase of apparatus and equipment for field signals, \$2000; and that there be added to the staff of the Army one signal officer, with the rank, pay, and allowance of a Major of cavalry, who shall have charge, under the direction of the Secretary of War, of all signal duty, and all books, papers, and apparatus connected therewith.'

On 27 June 1860, the Senate confirmed Myer's appointment as Signal Officer with the rank of Major."

- Rebecca Robbins Raines
Getting the Message Through -
A Branch History of the U.S. Army
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