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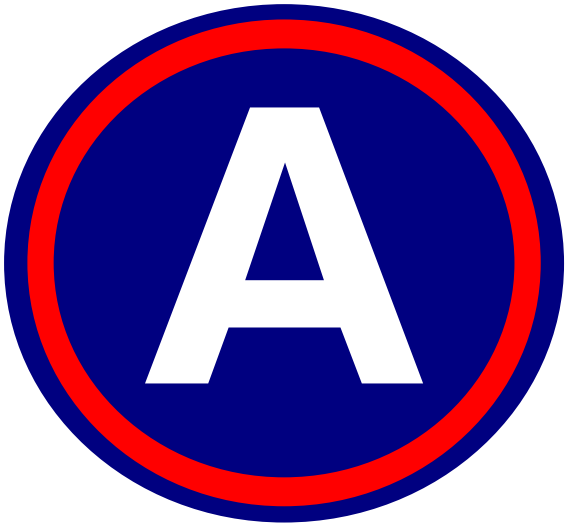
KNOWLEDGE MANAGEMENT PLAN



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15 November 2008

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Preface

PURPOSE

This document provides doctrine for the organization and operations of the Knowledge Management (KM) Section. It establishes USARCENT's position on how the KM Section helps integrate KM into headquarters' operations. This is a guide for the organization, duties and responsibilities, and processes of the KM Section in its support to KM.

Ultimately, the purpose of KM is to assist the commander and staff to make informed and timely decisions.

KNOWLEDGE MANAGEMENT IN CONTEXT

Although the military forces have performed "knowledge management" activities implicitly since military operations began, the term knowledge management has only recently been identified and used. Throughout history it was said that, "Knowledge is Power" (Sir Francis Bacon). But in the *Knowledge Age*, 1980 to the present, it is more accurately stated as, "Knowledge Shared is Power." However, until recently, the synthesis and exchange of actionable knowledge was limited to a specific context and left to chance. The Army has embraced the concept of KM – adopted from business practices – to provide systematic and explicit management of the organizational knowledge of the Army and its Soldiers to increase our advantages in conducting operations.

Military staffs developed to provide knowledge for the commander and subordinate and adjacent forces. Rudimentary staffs can be documented back even as far as the Greek phalanx. Later in antiquity, the Roman legions had a fairly sophisticated staff organization. It included a leader development system that gave its officer equivalents a breadth of experiences that they could apply in progressively more demanding assignments of greater responsibility. As the complexity of warfare increased, the size and functions of these staffs expanded; however, all military staffs had two major functions from the earliest times. First, they carried out functions for the commander that the commander could physically not perform alone or that required specialists in knowledge, such as engineers, artillery, and logistics. Second, the military staffs gathered information, organized it, analyzed it to create knowledge about the situation or operation, applied it in planning and decision making, and transferred it to the commander, other staff members, and higher, subordinate, and adjacent organizations. Their main purpose was knowledge.

The creation, organization, application, and transfer of knowledge in those earlier examples—and through the nineteenth century—were all performed manually and within individuals' minds. Collaboration took place, but it was tied to a physical location. Occasionally, commanders met in a formal council of war, but this did not necessarily result in collaboration as currently understood. Transfer of knowledge depended on physical means such as collocation, flags, banners or standards, sounds (bugle, drum, and flute), lights, and others. Knowledge transfer also depended on messengers to high-ranking commanders. Often these messengers were high-ranking officers, as, due to changes in the situation while they were traveling, they required authority to amend instructions to fit the actual situation upon arrival. Often, commanders performed their own synthesis of the knowledge provided by various staff officers.

The rise of the formal staff system in the nineteenth century began to systematize the creation, organization, application, and transfer of knowledge. The introduction of staff procedures allowed for more collaboration and synthesis of knowledge before it reached the commander for decision. Moreover, the formal delegation of authority to staff officers permitted them to direct functions for the commander that the commander no longer had time or expertise to perform personally. During this period, the first non-manual information technologies were developed: telegraph, telephone, radio, phonograph, Dictaphone, and dictograph. However, they were incapable of storing usable quantities of knowledge.

The development of electronic information technology in the second half of the twentieth century brought new capabilities for the creation, organization, application, and transfer of information and knowledge.

With it, vastly greater quantities of information could be generated, leading to greater quantities of knowledge available. That led to the generation of KM as a discipline, which the Army adopted in 2003.

EMERGING KNOWLEDGE MANAGEMENT REQUIREMENTS

Since 9/11 and the start of the Global War or Terror (GWOT), significant changes in the management of information have occurred, including the growth of KM within the Army and refinement of associated technology—both hardware and software. As KM has grown within the generating force (formerly institutional Army), organizations in the operating force have attempted to generate KM within their organizations. The KM Sections are already active in deployed divisions—even in ones for which a KM Section has not yet been authorized by tables of organization and equipment.

As the Army transforms to the modular Army, KM has become one of the important additions in force design. The approved modular division force design incorporates a KM Section. A similar section will be incorporated in USARCENT, as well as in Corps and brigade combat team designs.

Based on feedback from the Army proponents at Fort Leavenworth, KS, one of the recurring themes from modular force reviews at all venues is the need for guidance on what KM really is and who does what to whom in the KM arena. Units handle KM in a number of different ways but with little commonality.

USARCENT, as the Army's first Army Service Component Command (ASCC), has a definite interest in establishing standard KM processes. The following chapters discuss this process and establish responsibilities in order for the staff to coordinate and deal with each other digitally.

WHAT TO REMEMBER ABOUT KNOWLEDGE MANAGEMENT

We all have to be good KM examples. These are the principles which will guide our efforts:

1. Always encourage collaboration and knowledge sharing within USARCENT.

2. Identify and ways to make our organization and processes better and make it happen.

3. Personally help USARCENT meet its mission and objectives.

Chapter 1
Fundamentals of KM

This chapter provides fundamentals necessary to execute the more specific functions, duties, and processes of the knowledge management (KM) Section outlined in succeeding chapters. It presents the nature of KM, its purposes, role, principles, and components. It concludes by discussing the relationship between battle command, KM, and information.

NATURE OF KNOWLEDGE MANAGEMENT

Understanding the nature of KM consists of two parts: understanding its definitions and purposes. Definitions pertinent to KM include the term itself, *knowledge*, *explicit knowledge*, and *tacit knowledge*.

DEFINITIONS

Knowledge management is the art of creating, organizing, applying, and transferring knowledge to facilitate situational understanding and decision making. KM supports improving organizational learning, innovation, and performance. KM processes ensure that knowledge products and services are relevant, accurate, timely, and useable to commanders and decision makers. (FM 3-0) KM creates value to the organization by compounding the use of knowledge to increase operational effectiveness, superior decisions, and innovation.

Data is unprocessed signals communicated between any nodes in an information system or sensings from the environment detected by a collector of any kind (human, mechanical, or electronic). It only starts to be truly useful as it is developed into information.

Information is the meaning humans assign to data. Data placed within some interpretive context gives it meaning and value. Information like data can be quantified, stored, and organized in files and databases, but it also does not provide enough to act.

Knowledge is information that has been analyzed to provide meaning or value within a context or evaluated to give the information context or provide a synthesis with conclusions about the meaning. Knowledge includes individual or organizational knowledge of how to do something or knowledge gained from experience and culture (customs, institutions, and achievements of a particular nation, people, or group).

A simplified example of the data-information-knowledge relationship is shown in table 1-1.

Term	*Example*	*Relationship*
Data	100 tanks	Symbols out of context
Information	100 T72 tanks at grid location AB271683	Plotted on a map that relates to the terrain
Knowledge	100 T72 tanks at grid location AB271683 indicates the enemy has committed its reserve	Developed from experience, analysis, or study

Table 1-1. Relationship of data, information, and knowledge

There are two types of knowledge: *explicit* and *tacit.*

Explicit knowledge can be recorded or stored. It is definite, openly stated, often objective, and lends itself to rules, limits, and precise meanings. It is easily collected, stored, and disseminated using information

systems. Examples of explicit knowledge include field manuals, unit standing operating procedures, operation orders, and technical specifications or capabilities of materials or equipment.

Tacit knowledge is held in the mind of an individual, whether conscious or subconscious. It is unique to that individual and includes facts and expertise in analysis or evaluation. Each individual has a personal store of knowledge. Gained from experiences, training, and informal networks of friends and professional acquaintances, individuals can also seek knowledge to solve a problem or explore an opportunity. Tasks get done and people succeed with tacit knowledge by knowing an answer, how to find an answer, or someone who can help with their tacit knowledge. Examples of tacit knowledge include intuition as defined in Army doctrine, understanding the critical factors upon which to focus in a complex situation, and numerous matters of fact acquired throughout operational and training experiences. KM aims to elicit individuals' tacit knowledge, bringing it into useful knowledge as explicit knowledge, which may then be shared and transferred among people and organizations.

PURPOSES OF KNOWLEDGE MANAGEMENT

Effective KM supports commanders to make informed, timely decisions and reduces the fog of operations. It also links the various organizations and personnel requiring knowledge to enable effective collaboration. It enhances rapid adaptation in a dynamic operational environment, especially when faced with a hostile, thinking, and adaptive enemy. It comprises analysis and evaluation to create knowledge. Since a broad range of knowledge potentially affects operations, the field of interest for a commander may extend into areas well beyond purely military matters. Defining the commander's realm of interest is an important aspect of KM.

Commander's critical information requirements (CCIR) focus the development of KM products. All leaders need to understand the processes and procedures associated with available systems to share information and acquire knowledge. KM narrows the gap between relevant information commanders require and the relevant information they have. The staff organizes KM for the commander. Once organized, KM clarifies relevant information. More specific purposes of KM include:

- Improving the creation, organization, application, and transfer of knowledge within the organization in:
    - Situational understanding.
    - Common operational picture.
    - Decision making.
    - Transfer and availability of expertise and experience.
- Enhancing collaboration among personnel not necessarily physically co-located.
- Providing reachback capability.
- Generating organizational learning during operations.
- Creating conditions for more effective knowledge sharing.
- Capturing and storing knowledge better, with more rapid availability to later users.
- Sharing lessons learned and tactics, techniques, and procedures across organizations.
- Incorporating simulations and experiential learning.

- Supporting leaders and Soldiers to be more agile and adaptive during operations.
- Integrating emerging KM practices.

THE ROLE OF KNOWLEDGE MANAGEMENT

KM transfers knowledge, experience, and expertise to staffs and finally to the commander to support achieving understanding, making decisions, and improving operational performance. Likewise, commanders transfer their tacit knowledge to their staff and subordinates, in the form of explicit knowledge, to guide them in supporting their understanding and decision making. Since knowledge transfer occurs between people, KM also includes deliberately creating techniques and processes to develop knowledge skills in leaders, build experience, and transfer expertise.

KNOWLEDGE TRANSFER

***Knowledge transfer* is the actual movement of explicit knowledge from one individual to another.** KM is more than simply moving or transferring files and data from one Soldier (or unit) to another. It allows others to build upon one person's life experience in a way that strengthens not only the Soldier, but the organization as a whole. "Knowledge transfer" describes the actual movement of explicit knowledge from one individual to another. This transfer helps bring commanders' and staff officers' tacit knowledge into explicit knowledge, facilitating collaboration among many people. Knowledge transfer is a function of the Soldier and the medium for the transfer.

KM supports current operations by providing tools that allow leaders and Soldiers to be more adaptive and agile, creating an operational advantage. KM can eliminate layers and stovepipes within the organization and between organizations. However, as shown in Figure 1 on the next page, laborious or "non-user-friendly" mediums tend to stifle collaboration and force Soldiers to migrate to solutions which are easier to use. For example, nearly all (if not all) Soldiers in the headquarters are familiar with, and routinely use, cell phones to communicate and pass knowledge. One reason for this is that feedback is usually received very quickly, and there is nearly no learning curve. Conversely, a KCI – a memorandum used to "keep the commander informed" – can be laborious to produce, difficult to get through staffing, and may never lead to feedback. This phenomenon is similar to the Defense Travel Service (DTS). Soldiers do not know if their inputs were correct until very late in the process, then they still have to print paper orders and received approval for their travel in much the same method their fathers used during the 1950s: in a complete, paper-based system.

Our goal is to produce collaboration, whether or not the particular Soldier is part of a social group. Collaboration more effectively generates knowledge that supports achieving understanding and decision making. Through KM, knowledge transfer quickens as individuals and organizations learn faster.

KM enables the force to—

- Facilitate better, more informed decisions.
- Eliminate redundant processes.
- Eliminate processing time induced by processing information at multiple echelons.
- Encourage insight and innovation by the more free flow of ideas.
- Improve individual and networked speed, efficiency, and productivity.
- Ensure the integration of processes and compatibility of knowledge products.

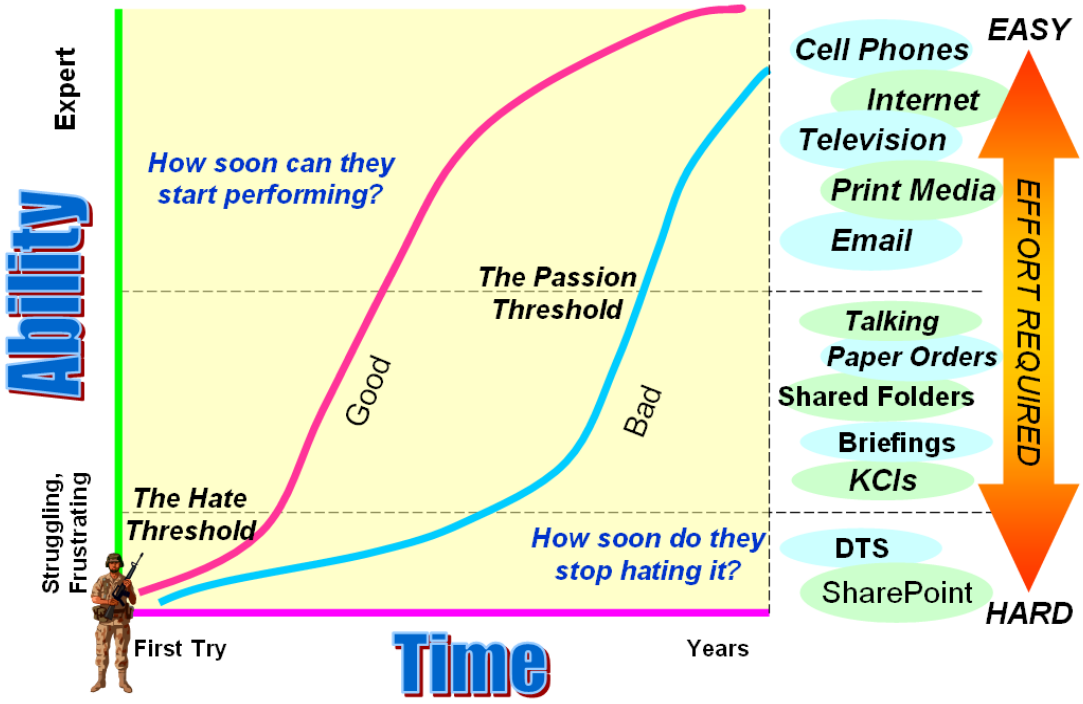

Figure 1. Collaboration and the Effort Required

KNOWLEDGE MANAGEMENT AND LESSONS LEARNED

KM improves how Army organizations share their lessons learned before, during, and after operations. It integrates those lessons for organizational improvement and allows reachback to critically short expertise. It also connects units in austere environments subject matter experts' expertise as well as peers who have undergone a similar operation to obtain assistance from their experiences or lessons before the operation commences. It also allows access to the vast databases of lessons learned at the Center for Army Lessons Learned (CALL), as well as those available in the headquarters. It expedites their incorporation into the operations process and contributes to successful application in full spectrum operations (FSO). KM provides the procedures and techniques to bring all these sources together. Finally, KM allows the unit to contribute its learning and lessons to the sources cited above for others' benefit.

KM brings combat lessons learned immediately into collective training to better prepare the unit in reset/retrain. Collaborative tools enable team development, planning, and operations. KM provides judgment and tools for developing decision-making skills based on tacit knowledge drawn from the most experienced operators and trainers.

Within all organizations, KM improves knowledge flow, sharing lessons learned in preparation for the current fight as well as for future conflict and connecting those who need knowledge with subject matter experts. To enable this, we as a headquarters have to use LL and best practices. We also have to empower our subordinates.

KNOWLEDGE MANAGEMENT PRINCIPLES

Enhance battle command. KM exists to improve the exercise of battle command. To accomplish this, KM integrates within processes, systems, and activities of the operations process. This includes developing and managing a KM architecture and plan. Applying in-depth knowledge and understanding of current and future operations is part of this principle. In coordination with the G-6, this principle includes building competency and capacity in the use of information technologies. Finally, this principle includes leveraging models and simulations to improve individual, team, and organizational performance within current and future operations.

Connect people with expertise. KM focuses on collaboration and exchanging insights. It incorporates the tacit knowledge of individuals as explicit knowledge within the organization. This principle also requires focusing on knowledge flow, to include the flows necessary to create knowledge. It makes stored explicit knowledge more easily and readily available to more people and organizations.

Foster organizational learning. KM integrates informal learning, organizational learning strategies, and KM capabilities while honing learning organizations. Fostering learning depends first on promoting initiative and innovation. It also depends on accelerating the learning of organizations and individuals, to exceed that of enemies and adversaries. Last, fostering learning depends on encouragement of knowledge transfer as well as interaction and collaboration among people.

Employ KM technology intelligently. Above all, technology serves people, not the reverse. Since technology is a means, not an end, employing technology depends on serving the ends that serve people and applying technology to focus on those ends. Those ends are identified in the purposes of KM. Technology enables access to people, storage, and online knowledge transfer.

Promote trust and mutual understanding. One of the principles of mission command is to encourage trust and mutual understanding; effective KM requires this trust also. It involves promoting trust so that individual views are welcome. Further, individuals must be empowered to act within the commander's intent. To cultivate developing professional expertise and skills further contributes to promoting mutual understanding.

Soldiers must be led to empowerment; they must be taught and coached. They cannot be declared empowered by executive fiat. Soldiers who are micromanaged tend to wait for specific instructions before they will act. These cultural barriers will lower the motivation of Soldiers, and slow the tempo of the headquarters. As Bob Lutz, former President of Chrysler states in his book, "Guts", people have to be shown that they have authority. KM can empower people, but not alone. He states that his employees rejected his early overtures at "change", describing their reactions in the following manner:

> Years of fearing failure and of seeking safety in collective decision making had taken their toll. Team members sought guidance where they needed none, asked permission when they'd been told they already had it, and dutifully followed old, hoary, wasteful administrative procedures when they'd been told to throw these out the window. The familiar exerted too strong a hold for them to break free overnight"

KNOWLEDGE MANAGEMENT COMPONENTS

As shown in figure 2 below, KM comprises three major components:

- **People**: Those inside and outside the organization who create, organize, share, and apply knowledge and the leaders who act upon that knowledge to achieve understanding, make decisions, and assess progress.

- **Processes**: The methods to create, organize, and apply knowledge.

- **Technology**: Information systems that help put knowledge products and services into organized frameworks.

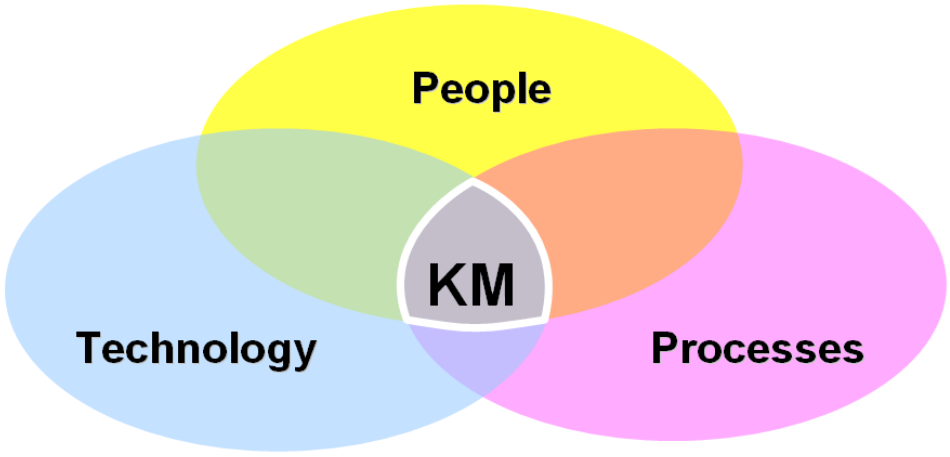

Figure 2. The KM Process

PEOPLE

Of the three components, people are the most vital for successful KM. Knowledge only has meaning in a human context; it moves between and benefits people, not machines. Successful KM depends upon *willingness* to share knowledge so that others can benefit; sharing depends heavily upon building an environment of trust. People include the staff and the commander; higher, lower, and adjacent staffs; and other sources of knowledge or information that might contribute to any identified knowledge requirements.

In particular, people include military staffs developed as institutions devoted to "knowledge" and KM without the term being explicitly stated. The staffs provide knowledge upon which commanders and other decision makers may develop an understanding, make decisions, and then execute those decisions, both directing forces to carry out assigned tasks and assessing the progress of the operation towards mission accomplishment. The structure of personnel, organizations, and activities creates explicit paths of communication of that particular knowledge.

An estimated 80–90 percent of all knowledge exists as the experience, expertise, and insight of people. Therefore, techniques to transfer this knowledge focus on connecting people and building social networks. This tacit knowledge is transferred as explicit knowledge primarily through conversations and direct observations of an activity followed by immediate feedback. The Army's after action review process illustrates the transfer of tacit knowledge.

Staff responsibility for KM begins Chief of Operational Maneuver (G3). Chapter 2 covers functions, duties, and responsibilities of the KM Section and individual members.

PROCESSES

KM is one of the integrating processes identified in FM 3-0. However, it enables the other integrating processes and continuing activities to create, organize, apply, and transfer knowledge more effectively and efficiently within the operations process. KM requires effective information management.

Individuals and units use KM processes to create, organize, apply, and transfer knowledge. Analyzing the flow of knowledge determines how smoothly the process operates. Identifying the patterns of knowledge flow is critical to making adjustments for effectiveness, efficiency, and outputs. Adjusting this flow improves the relevance, accuracy, timeliness, and usefulness of knowledge for decision making. Chapter 3 contains details of KM processes, but they may be listed under two broad categories:

- **Content management:** This set of processes and techniques support KM throughout the digital cycle of information. It includes tagging and storing processes (the latter in conjunction with information management storing) via web-accessible portals that allow sharing explicit knowledge and retrieving explicit knowledge by those who have a knowledge requirement similar to some already developed and organized in storage. It focuses on creating content, using it, and determining who uses it, when is it used, where it is stored, and what happens with it.

- **Learning before, during, and after operations:** This set of KM processes and techniques support learning before, during, and after operations, a cardinal function of KM. Learning before, during, and after operations is a process to create easily or transfer quickly the knowledge and experience based on operations from one person or group to another. The organization KM Section's role in facilitating unit learning throughout an operation is an important one.

TECHNOLOGY

KM technologies include various software tools:

- **Information systems:** KM helps provide operational and functional understanding of the information systems and their servers, storage, inputs, processing, outputs, formats, content, software, and capabilities used in command and control. KM also helps information systems to fuse information to support a common operational picture.

- **Collaboration tools:** These tools provide online capabilities including chat, white boarding, professional forums, communities of interest, communities of practice, and virtual teaming that support team development and collaboration.

- **Expertise location tools:** These tools support finding a subject matter expert from whom to ask questions, get help, and receive advice.

- **Data mining tools:** These tools support analysis and sorting through data to identify patterns and establish relationships that had not previously been discovered.

- **Search and discover tools:** These tools provide search engines that look for topics, recommend similar topics or authors, and show relationships to other topics.

- **Expertise development tools:** These tools use simulations and situated learning to support the development of experience, expertise, and judgment virtually.

The KM Section can assist in applying the Army Battle Command System (ABCS) capabilities through KM practices, networked reach, and collaborative applications. They can also help develop and support conduct of individual and collective training on the employment of ABCS in KM.

Critical to using any operational system is training. This calls for individual and staff training on respective components of ABCS, testing integration of the system into the network, producing the digital staff products, and sharing these products across the network. All USARCENT Soldiers must have individual proficiency in these areas. Collectively, the staff will test in similar standards in establishing and displacing the command post while producing collective staff products that are vertically and horizontally integrated.

The KM Section assists staff operations through carefully planned standing operating procedures and content management practices to exercise digital enablers until the gaps are closed. The KM Section works with the staff to meet the commander's critical information requirements by using collaborative, networked software applications. In all cases, however, the Section advises the staff on KM. It trains the staff to perform its own KM functions. The staff gets advice from the Section rather than the Section actually performing KM for the staff.

KNOWLEDGE MANAGEMENT TRANSFER TECHNIQUES

KM operates along a spectrum of techniques from exclusively information technology-focused to people-focused. More information technology-focused techniques apply when:

- They deal with similar problems over and over as in standing operating procedures.
- They reuse the same explicit knowledge on many different projects such as in an operation order format.
- There are standardized products or services.
- They rely on explicit (easily codified) knowledge from which to do the work such as weapon systems capabilities.

More people-focused techniques apply when situations:

- Require innovation such as adapting to changes in enemy tactics.
- Tackle unique problems that don't have a clear solution at the outset such as emerging doctrine and new technology.
- Apply knowledge across different types of problems such as cultural awareness.
- Need highly customized knowledge to meet particular and unique needs such as coordinating activities between tribes in Afghanistan.
- Rely on not easily codified knowledge such as expertise and experience for an operation or task.

Army KM uses information technology- and people-focused techniques in different degrees. The needs and the circumstances of the operational environment as well as the overarching operational goals determine which approach is most beneficial. In any particular project or communication, one will be emphasized more based upon the needs assessment, but neither will be used exclusively.

KNOWLEDGE MANAGEMENT CYCLES

KM cycles focus on how knowledge is acquired, how it is used, who uses it, when is it used, and what happens with it. How knowledge flows through a unit determines its relevance, usefulness, and timeliness.

If knowledge flows well in an organization, people will have what they need to make decisions and take actions.

The value of KM comes from the ability of people to effectively and efficiently use knowledge to improve performance. KM must be interwoven into how Soldiers conduct daily operations, not perform a separate activity or task. Answers to the following questions facilitate collaboration and the exchange of knowledge:

- What are the mission essential tasks?
- What is leadership most passionate about?
- What keeps the leadership and staff "awake at night"?
- How can units save time?
- What is in this for the leader? What is in this for the unit?
- How does the unit avoid repeating mistakes?
- Who might know where to start or provide insight? How do leaders contact them?
- How and who can the unit help next time because of what it learned and knows?
- How can the unit apply what it learned to the next time?
- What information do leaders need to accomplish their goals?
- How does everyone else get the word?
- Where do leaders put their files, documents, agendas, minutes, reports, and information?
- How can leaders get what they need and not be lost in information overload?
- How can leaders get away from email dependency and isolation?

KNOWLEDGE TRANSFER CHARACTERISTICS

Knowledge transfer has four characteristics: *connect, collaborate, content*, and *context*. It can begin with either collaboration or knowledge acting as catalyst. All four are required for a successful knowledge transfer. The transfer of knowledge starts with ideas and or questions. These may be verbalized or written. Exchanging ideas or finding answers involves transferring a combination of tacit and explicit knowledge.

Connect is providing people with structure and networks—both technical and human—that facilitate allowing them to transfer knowledge. Since knowledge is social and used for the benefit of people, knowledge is usually taken from people known and trusted before asking from others or inanimate databases. This leads to collaboration.

Collaboration is interaction among personnel at two or more locations developing knowledge for a specific purpose. It may occur face to face in a one-on-one conversation, a small group exchange, or virtually through communities of practice, chat, or other online collaborative environments. Collaboration is an excellent means of transferring tacit knowledge as explicit knowledge. Knowledge is the purpose of the collaboration.

Content is the actual substance or material created or organized. Many means exist by which to transfer content. Examples of these means include a written document, a graphic representation, a tabular presentation, a video interview clip, or a decision game.

Finally, **context** is the meaning of knowledge within the specific environment. A lesson learned in Afghanistan might not apply to a similar problem in Iraq due to variance in culture, geography, or religion. Context identifies the variables and shows how they affect the outcome. If the specific context is not associated with the collaboration and knowledge, the meaning is lost. Inclusion of context provides knowledge that is actionable and relevant to the decision makers.

BATTLE COMMAND AND INFORMATION MANAGEMENT

Battle command, information management (IM), and KM are closely related. Information management actually feeds KM and the *development of knowledge*. KM develops from information management and evolves through situational understanding into battle command.

BATTLE COMMAND

Battle command is the art and science of understanding, visualizing, describing, directing, assessing, and leading forces in operations against a hostile, thinking, and adaptive enemy. Battle command applies leadership to translate decisions into actions- by synchronizing forces and warfighting functions in time, space, and purpose- to accomplish missions (FM 3-0). Battle command and KM were integrated long before the term "knowledge management" became well known.

The tacit knowledge of commanders, characterized in Army doctrine as intuition, drives the application of battle command. This tacit knowledge allows commanders to visualize an operation or battle. They combine their tacit knowledge with the explicit knowledge provided by staffs and create explicit knowledge in the form of commander's intent, commander's critical information requirements, and planning guidance. Applying that tacit knowledge—created, organized, and applied through KM—makes possible the art of battle command. Figure 3 also shows where knowledge and information management are focused to support the commander in battle command.

Creating knowledge starts with collecting data and people working to add meaning to it up through the commander applying judgment to knowledge and ultimately, taking action. While data, information, and knowledge are closely related and necessary for this process to be successful, they are different parts of the equation.

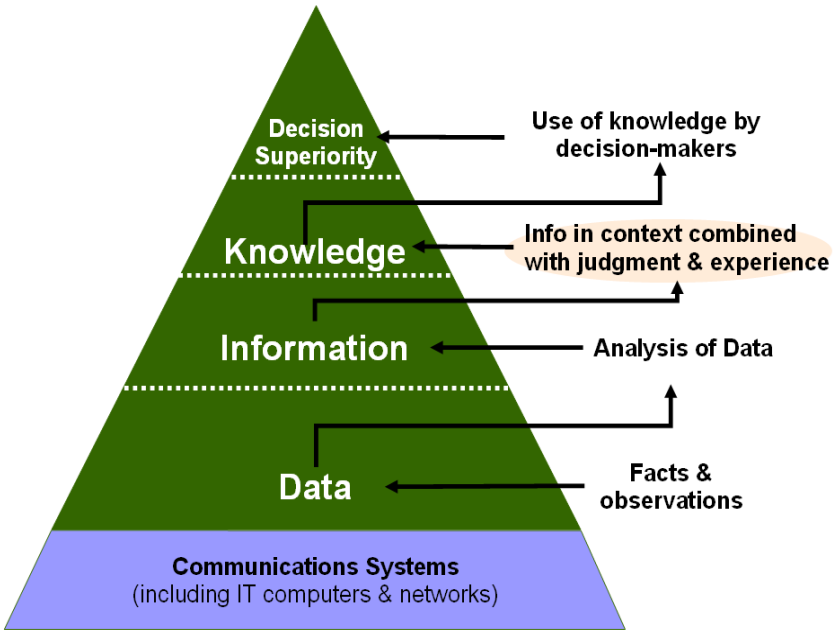

Figure 3. The KM Hierarchy

INFORMATION MANAGEMENT

Information management (IM) is the science of using of procedures and information systems to collect, process, store, display, disseminate, and protect knowledge products, data, and information (FM 3-0). IM provides the timely and protected dissemination of relevant information to commanders and key staff elements. IM supporting KM aids commanders in their development of situational understanding and in making and disseminating effective decisions faster than the adversary. IM includes lower-level mechanical and mechanistic procedures, such as organizing, collating, plotting, and arranging. This management is more than technical control of data flowing across networks. It uses both staff management and automatic processes to focus a vast array of information so that relevant information goes to the right person at the right time. IM centers on commanders and the information relevant to command and control. IM provides the structure necessary so commanders can process and communicate information leading to the creation of knowledge and can act on decisions. In some ways, information and knowledge management are inseparable; the two overlap. In some Army organizations, KM is included throughout all activities of the operations process as part of the information management plan.

IM actually feeds KM and the development of knowledge. Generally, IM relates to collection, processing, display, storage, dissemination, and protection of information and processing preliminary to knowledge. Conversely, KM (a commander's or an organization's "intellectual capital") uses the information to create, organize, apply, and transfer knowledge to support achieving understanding, decision making, and ultimately, effective actions by forces. Knowledge in the hands of a novice differs greatly from the same knowledge in the hands of an expert. Only through the understanding level of the cognitive hierarchy is the knowledge processed through the judgment of commanders who apply their experience, learning, and judgment toward a decision that leads to an action.

Chapter 2

Functions, Duties, and Responsibilities

The military staff was developed for the purpose of KM even before the term knowledge management (KM) and its concepts were developed. The KM Section has been developed to enable the staff to better accomplish its knowledge management responsibilities; it is not a shadow staff or a separate "brain trust." This chapter discusses the KM Section and its support, organization, functions, and Section member duties and responsibilities.

SECTION SUPPORT

Staff responsibility for KM begins with the **Chief of Operational Maneuver.** The KM Section provides people who advise USARCENT staff on KM processes and enabling technologies. These processes and technologies create, organize, apply, and transfer the unit's explicit and tacit knowledge, expertise and experiences that sustain an operational advantage against its adversaries. The Section helps USARCENT to create and apply KM processes supported by technology. Creating and applying these processes continuously improves the conduct of operations and the accomplishment of the unit's mission. The KM Section also supports learning—before, during, and after operations—by USARCENT through development and dissemination of techniques and procedures within the staff to create easily or transfer quickly knowledge and experience based on operations. The KM Section enhances battle command by helping organizations integrate battle command systems into the headquarters in a manner consistent with best KM practices and the unique aspects of military operations.

The KM Section helps USARCENT become network-enabled to take full advantage of automated command and control (C2) systems. It helps USARCENT identify knowledge gaps and apply KM principles to the operations process. Thus, the Section ensures the commander and staff receive the knowledge necessary to increase situational awareness and understanding and to shorten and improve the decision-making process while mitigating risk.

The KM Section must be capable of 24-hour coverage of operations. When deployed, it occupies two work stations in the current operations cell to maintain awareness of the operation—near the Chief of Operations in the COIC. The actual organization and manning of a KM Section will determine which of the following functions and responsibilities the Section and its individual members may accomplish.

KM SECTION FUNCTIONS

The KM Section has several functions. It—

- Employs knowledge of and extensive expertise in KM processes to advise commander and staff on KM solutions and enhances their support to the commander's exercise of battle command.
- Supports unit learning before, during, and after operations by developing procedures and techniques for the unit to apply in order to learn more effectively and efficiently.
- Provides a core KM team to resolve critical KM issues directly. This team gets support from a staff matrix team (KM Working Group) and is enabled by information systems.
- Recommends integrated applications, processes, and services that provide the capability for effective command post operations, are readily understandable, and get the right knowledge to the right people at the right time.

- Builds and sustains a knowledge network architecture that enables units to rapidly share tactics, techniques, and procedures; operational lessons learned; and validated, explicit knowledge products. This architecture connects subject matter experts and enables individual and organizational learning.

- Advises USARCENT on the use of KM tools that maximize the availability of relevant information.

- Coordinates with and integrates external knowledge sources into the organizational knowledge network.

- Coordinates constantly with the G-6 to enable maximally efficient battle command systems and network, database, and technical support.

- Analyzes new and future information systems and recommends acceptance and integration into the organizational Army Battle Command System (ABCS) architecture by the G-6.

- Aids the staff in common operational picture and briefing management.

- Tailors the unit's KM plan to develop and modify command standing operating procedures by—

    - Recommending changes to the KM plan as needed.

    - Coordinating the KM plan with the information management plan developed by G-6.

    - Developing file and data management procedures which incorporate most recent and effective standards to enhance search and retrieval capabilities.

- Supports 24-hour command post operations.

SECTION MEMBER DUTIES AND RESPONSIBILITIES

The KM Section reports directly to the Chief of Operational Maneuver and has a staff of officers and Soldiers. The Section contains the following positions: a battle command officer, a KM officer, a KM noncommissioned officer, and at least four content management specialists. In addition, each functional staff organization within USARCENT will designate a primary and alternate content specialist to assist the KM Section with transfer of information and knowledge.

KNOWLEDGE MANAGEMENT OFFICER

The KM officer (KMO) directs the KM Section. KMOs ensure KM processes and procedures are understood within the unit. They demonstrate how these processes and procedures can improve efficiency and common understanding during training and enhance operational effectiveness during operations. KMOs need not remain in the command post. Commanders may require their KMOs to move with them. The USARCENT KMO -

- Reports directly to the Chief of Operational Maneuver.

- Helps the staff perform internal and external knowledge gap analyses in support of the commander's requirements and creates techniques to bridge those gaps. Recommends creating KM network among personnel and provides metrics for evaluating effectiveness in coordinating with Operational Fires and Effects.

- Responsible for creating a KM plan and executing it within the unit's area of operations. Ensures the KM Section fully supports this plan. Continuously assesses KM as it applies to staff readiness, unit infrastructure, and unit performance.

- Advises the commander and staff on how to integrate KM practices and procedures across the organization. Monitors emerging trends in KM for inclusion into unit operations.

- Monitors formal and informal social networks that transfer knowledge (that is, who the subject matter experts are, who goes to them, and what connects seekers with subject matter experts).

- Facilitates a concerted effort toward achieving greater communication and knowledge creation and transfer across the organization. Seeks feedback from unit members to evaluate progress of the knowledge sharing initiatives.

- Shows staff teams how to develop appropriate knowledge sharing within a particular area of interest.

- Develops KM policies and procedures and ensures command-wide dissemination and compliance.

- Directs and develops effective techniques and procedures for the unit to capture, disseminate, and apply learning and best practices into the operations process, unit standing operating procedures, and training.

- Oversees planning and implementing KM activities across USARCENT by communicating with KM officers both horizontally and vertically.

- Establishes, supports, and chairs a KM working group made up of staff representatives, content managers, and KM officers from subordinate units.

- Ensures the creation of, management of, and active participation in a collaboration portal within the unit's network to facilitate operational synchronization.

- Coordinates and oversees the unit's KM training and certification process using Battle Command Knowledge System training assets.

- Oversees the unit's overall content management efforts.

- Serves as the chief advisor for the KM operational architecture; understands the functions of the information systems, and other networks and how to best use them to integrate their products into the common operational picture (COP).

- Coordinates with the G-6 so communications supports knowledge creation, organization, application, and transfer across the unit.

- Helps subordinate units without KM sections apply KM.

DEPUTY KNOWLEDGE MANAGEMENT OFFICER

The Deputy KM officer (DKMO) ensures Section members understand the processes and technology of a successful KM organization. The DKMO is responsible for understanding the Global Information Grid and the Army's KM Plan and applying them to USARCENT. The DKMO also helps the G-3 and G-6 to map out the C2 system that provides the commander with a COP. The DKMO—

- Reports to the KMO.
- Coordinates and integrates the COP.
- Executes the KM policies and plans within KM Section.
- Continuously assesses the unit's KM program, infrastructure, and readiness to improve knowledge sharing and overall unit effectiveness.
- Assists the staff in performing knowledge gap analysis in support of the commander's critical information requirements and creates solutions to close those gaps.
- Seeks techniques to incorporate experiential training to enhance organizational learning.
- Maps the unit's KM network among personnel and develops metrics for evaluating KM effectiveness.
- Identifies operationally relevant trends, lessons learned, and significant actions. Ensures they are distributed both vertically and horizontally.
- Ensures systems for directing requests for information work efficiently.
- Supervises the creation and organization of the unit's content management efforts.
- Applies the Global Information Grid and the Army Knowledge Management Plan to the unit's operations.
- Oversees KM-related roles and responsibilities as directed by the KMO.
- Reviews the unit's databases and web sites to determine appropriateness of content and reduction of redundant files.
- Develops the unit's KM training and certification program.
- In coordination with the G-6, recommends integration of KM processes in the C2 system structure to improve the information flow.

KNOWLEDGE MANAGEMENT NONCOMMISSIONED OFFICER

The KM noncommissioned officer (KMNCO) advises the KMO on techniques to improve the creation and sharing of knowledge within the staff. The KMNCO helps to integrate training concepts into the unit's individual and collective mission-essential tasks that encompass KM. The KMNCO supports the unit with the KM training and certification programs. As the senior enlisted member of the KM Section, the KMNCO—

- Coordinates with staff sections to assist in functional layout of the command post for best display of the COP.

- Coordinates appropriate audio-visual displays of the COP and other operationally relevant KM products in the command posts and other areas.

- Reviews various collaboration sites and knowledge networks, advises the staff on relevant information, and in coordination with the protection cell, addresses operations security issues.

- Advises, as appropriate, on design of briefings, written documents, templates, and materials that are habitually reproduced that can easily be reused (reduce redundancy).

- Participates in the KM working group.

- Ensures unit's content management plan meets Department of Defense requirements and is fully understood and implemented across the command.

- Reviews the unit's file management techniques and directs adjustments as needed.

- Remains abreast of current and future trends in knowledge and content management and integrates into the command as needed.

- Supervises training of knowledge transfer procedures.

- Serves as the unit expert on training, design, and use of KM tools and systems, and the architectural structure of the C2 system technology.

- Coordinates KM tools, systems, and the Army Battle Command System architecture with G-6 and G-3 to design the COP display.

- Coordinates with G-6 technical teams to identify and implement effective solutions to support KM initiatives.

CONTENT MANAGEMENT SPECIALISTS

The Content Manager (CM) serves as the headquarters' expert on content management and retrieval to ensure knowledge is available to Soldiers when they need it. This manager assists the KM Section in managing section SharePoint portals, databases, and web sites that provide Soldiers with tools to exchange explicit knowledge, collaborate, and connect with subject matter experts across the headquarters. The CM —

- Supports the implementation of the unit's KM policies and procedures.

- Searches for and captures tactics, techniques, and procedures; lessons learned; and relevant information from other units and individuals via Non-Secure and SECRET Internet Protocol Router Networks sites and forums. Facilitates knowledge transfer between units and leaders.

- Develops comprehensive document naming conventions for the unit.

- Trains staff on how to obtain explicit knowledge resident within knowledge networks, data bases and battle command systems.

- Assists in reviewing the unit's databases and web sites to determine appropriateness of content.

- Advises on the design of briefings, written documents, templates and materials that with minor adjustments can easily be reused (reduce redundancy).

- Assists the battle command and KM officers to provide expertise and training in the use of various tools, processes, and systems needed to implement KM across the unit.
- Remains abreast of current and future trends in knowledge and content management.
- Incorporates most current approved standards to improve information search and retrieval across various data sources.
- Supervises and conducts training of KM processes, including content management procedures for staff members.
- Coordinates with G-6 to identify and implement effective solutions in content management to support KM initiatives.

INDIVIDUAL AND TEAM CONTENT MANAGEMENT

What can individual USARCENT Soldiers and Civilians do to help with content management?

- Add your name and information to the contact lists on your SharePoint group's portal.
- Share your files on the SharePoint portal. Do not hoard it on your hard drive.
- Take written notes. Turn them into Adobe PDF files using your section's HP Digital Sender. Post the PDF file on your portal.
- Develop personal learning objectives for every meeting or conference.
- Build smart books, such as continuity books, for tasks. Post these on the SharePoint portal.
- Develop checklists for each duty and post them as continuity files.
- Send e-mail with links to Web sites or personal folders. Do not send e-mails with attached documents.

What can USARCENT Teams do to help with content management?

- Follow meeting management practices.
- Compile a team, unit, or group point of contact list on SharePoint.
- Incorporate a meeting review into all meetings. At the beginning of every meeting, state that someone will be asked to give the five-minute review or summary of the meeting at its end.
- Develop a SharePoint portal to organize files, tasks, and communications within the team.
- Develop content management processes and roles.
- Determine who tracks where everything is stored.
- Post meeting notes on the SharePoint portal.

SECTION TRAINING AND EDUCATION

Training for members of the KM Section needs to focus primarily on the art of KM and how it can improve battle command. However, commanders cannot overlook the science of information management. KM Section members must also understand the systems and technical architecture that provide Soldiers with and enable them to share knowledge. These members serve as the primary KM trainers in USARCENT.

KM training for individual Section members often occurs in special courses related to KM processes and tools outside the unit. Other training occurs in the organization, either by distance learning or by training teams. This training often applies to individual skills and knowledge.

KM Section collective training normally occurs in the organization. It focuses on collective skills to support commanders and staff members in their better use of knowledge in the operations process and in learning before, during, and after operations. The KM Section must be fully integrated into USARCENT's FSO Training Program to leverage the fielding of ABCS systems.

Chapter 3
Processes and Techniques

This chapter introduces the knowledge processes and techniques through which knowledge management (KM) and the KM Section contribute as an integrating process. It discusses the specific processes and techniques that the KM Section will use to help the organization staff provide more effective and efficient KM within its integrating processes and continuing activities.

GENERAL

Knowledge management does not have a single, explicit process by which it integrates directly in the operations process. Its "process" consists of several procedures. These procedures create, organize, apply, and transfer explicit knowledge—including tacit knowledge that emerges as explicit knowledge—from one entity to another entity. An entity can consist of an individual, group, team, or unit. Hence, knowledge can transfer from one individual to another as part of the other integrating processes and continuing activities. Determining which knowledge management process will provide the most operational advantage or improvement depends upon the knowledge needs of the organization, the operational environment, and the knowledge techniques available.

These KM processes are not ends in themselves. The KM Section uses them to improve KM within the organization and the operations process, more effectively managing knowledge as part of the headquarters activities. It also uses them within the organization's battle rhythm, the sequencing of command and control activities within a headquarters and throughout the force to facilitate effective command and control.

KNOWLEDGE MANAGEMENT PROCESSES

The KM Section may use the following knowledge management processes to fulfill its responsibilities:

Content management and associated techniques of—

- Process analysis.
- Report analysis.
- Technical systems analysis.
- Online collaborative spaces.
- Knowledge networks development.

Learning before, during, and after operations, and associated techniques of—

- Collaborative assistance.
- Knowledge coaching and peer and subject matter expert assists.
- Virtual right-seat ride.
- Situated learning.

CONTENT MANAGEMENT

Content management **is a process and associated techniques that focus on internal management of digital information.** This digital information is often referred to as content or, to be precise, digital content. Digital content may take the form of text (documents), multimedia files (audio or video files), or any other file type which requires management. The content managed includes that in computer files, image media, audio files, electronic documents, and web content. The KM Section provides policies and procedures to manage digital content from creation to destruction.

Content management focuses on how knowledge content is organized and transferred as it supports knowledge management through all four of its primary activities. It differs from similar activities in information management in that it deals with *finished knowledge products* rather than data or information.

A content management system provides users with immediate and secure access to trusted and relevant knowledge products through organization. Examples include signed orders, signed minutes of meetings, after action reviews, and trip reports. Content management organizes products for storing and transfer (Example: Turning an annotated paper document into a PDF document for storage). It also makes the content of knowledge more readily available for collaborative creation of knowledge. Content management of digital content includes all four activities of knowledge management.

Create: Content is created or generated from different sources. It has various forms: documents; papers; tactics, techniques, and procedures (TTPs); articles; notes; PDFs (known as Adobe portable document formats); photos; videos; and audio clips. Content management provides initial procedures for identifying content within the new knowledge as well as allowing collaboration by sharing files with ease and broadening file availability in creation. One or more authors create digital content. Over time that content may be edited. One or more individuals may provide editorial oversight and approve the content for publication. Content management during creation further includes moving an electronic document along either for approval or for adding to or revising content. Also, content is updated from its original.

A critical aspect of content management is the ability to manage versions of content as it evolves. Finally, content may be published. Publishing may take many forms. Publishing may be the act of pushing content out to others or granting digital access rights to certain content to a particular person or group of persons.

Organize: Content is organized or modified in a manner amenable for transfer and effective use. KM Section members will identify the requirement, make the adjustments, and move content if needed. Organizing includes archiving, labeling, and identifying. Archiving consists of moving outdated and irrelevant knowledge from active status to an inactive status based upon rules and policies. Labeling takes content that is no longer relevant, archives it, and keeps it separate. By identifying content that exceeds a specified date or does not meet usage benchmarks, subject matter experts review questionable items and determine whether to archive or dispose of contents. All electronic information generated by or contained in an information system or any organizational information technology source, or created during the conduct of electronic business/electronic commerce, must be preserved per retention schedules in AR 25-400-2. (See AR 25-1 for more on preservation of electronic information.) This requirement applies to information contained in any organizational information system, e-mail, command unique systems, and systems maintained in the organizational office environment. The disposition of electronic records must be determined as early as possible in the life cycle of the information system.

Apply: Making content accessible to those who need to apply it is the primary requirement of content management. Here content management focuses on the ability to publish the content to a repository to support access to it by staff members needing it for use. Content management further allows collaboration in applying knowledge.

Transfer: Content management incorporates enterprise search and retrieval in a repository that allows more effective and efficient transfer of knowledge. Effective content management allows users to share files with ease, further broadening knowledge transfer.

Further TTP and checklists for content management are in Chapter 4.

Process Analysis

Process analysis traces how information and knowledge move through an organization and what happens at each step. It includes taking inventory of the inputs, throughput, and outputs of any process to determine the critical activities, value added tasks, and bottlenecks.

Report Analysis

These analyze how reports are created, organized, and transferred. They identify who needs access and how to make the information available to the most people within the required security levels.

Technical Systems Analysis

Operational and functional analysis of the technical systems, their servers, storage, inputs, processing, outputs, formats, content, software, and capabilities constitute technical systems analysis. Often, the G-6 connects the systems to the net, while the KM Section integrates the systems among each other. The KM Section may be tasked with determining the requirement for new systems within the headquarters before they are given to the G-6 for connection to the network.

Online Collaborative Spaces

Building collaborative environments for online sharing, including chat rooms, white boarding, forums, and online virtual teams, are among the tasks associated with this knowledge management process.

Online professional forums maximize collaboration and productivity improvements across Army activities. Lessons from training or combat operations are now shared via online collaborative professional forums enabling those who need the information to learn and apply it in hours rather than months.

CAPTURING LESSONS

The effectiveness of any operation or mission can be increased through learning, and the USARCENT KM Section sees its role in facilitating learning throughout an operation as an important function.

Learning is the acquisition and development of skills, knowledge, understanding, values, and wisdom. It is the product of education and experience. Learning is a process to create or transfer quickly the knowledge and experience based on operations from one person or group to another.

Learning is capturing what happened, what was learned, and how to apply it to succeeding operations; it is based on the after action review (AAR) and lessons learned processes, which are covered in doctrine.

The goal is to improve unit performance in operations. The results of the learning processes should produce learning which—

- Is specific (clear, crisp and precise).
- Is actionable (something that can be done).

- Provides recommendations (future oriented).
- Shows where more support can be obtained.

The KM Section establishes techniques and procedures that allow for the creation of knowledge from the learning. They organize that knowledge so it is available to others when required, applied during the current operation and succeeding ones, and transferred when needed. The Section does these activities in coordination with the G-6. The KM Section is not the direct "doer." Instead it supports the staff and establishes the environment—technical and procedural—in which these tasks can be accomplished.

After Action Reviews

The doctrinal techniques of learning after operations are the after action review (AAR) and lessons learned. The KM Section probably will not perform either an AAR or lessons learned; its role lies in supporting their conduct and organizing the results so they are available.

The AAR is a technique of providing feedback to organizations by involving participants in the training diagnostic process to increase and reinforce learning. Although the AAR was developed originally for learning during training, it can also be applied effectively to learning after operations. The AAR leader guides participants in identifying deficiencies and seeking solutions. This structured review process allows participants to discover for themselves what happened, why it happened, and how it can be done better. The AAR is a professional discussion that requires the active participation of those participating. The AAR is not a critique. It has the following advantages over a critique:

- Focuses directly on key, operation order-derived objectives.
- Emphasizes meeting Army standards rather than pronouncing judgment of success or failure (AARs do not determine winners or losers).
- Uses leading questions to encourage participants to self-discover important lessons from the operation.
- Allows a large number of Soldiers and leaders to participate so that more of the operation can be recalled and more lessons learned can be shared.

Two types of AARs exist: formal and informal. A formal AAR is resource-intensive and involves the planning, coordination, and preparation of the AAR site; supporting training aids; and support personnel. Informal AARs require less preparation and planning. Normally, operations allow only the informal AAR.

Leaders plan formal AARs at the same time that they finalize the operation or otherwise realize they have the requirement, time, and resources to conduct one. Formal AARs require more planning and preparation than informal AARs. They require site reconnaissance and selection; coordination for aids (terrain models, map blow-ups and others); and selection, setup, and maintenance of the AAR site. During formal AARs, the AAR facilitator (unit leader or other facilitator) provides an operation overview and focuses the discussion of events on the learning objectives. At the end, the facilitator reviews key points and issues and summarizes strengths and weaknesses identified and discussed during the AAR.

Leaders use informal AARs as on-the-spot coaching tools while reviewing Soldier and unit performances during or immediately after operations. The informal AAR is extremely important, as all Soldiers are involved. Informal AARs provide immediate feedback to Soldiers, leaders, and units after operations. Ideas and solutions the leader gathers during informal AARs can be immediately put to use as the unit continues its operation.

The AAR for operations consists of the normal four parts of any AAR:

- Review what was supposed to happen (operation order or plan). The facilitator, along with the participants, reviews what was supposed to happen based on the commander's intent for the operation, unit operation order, mission, and concept of operation.

- Establish what happened. The facilitator and participants determine what actually happened during performance of the operation. A factual and indisputable account is vital to the effectiveness of the discussion that follows. The G-2 provides input about the operation from the enemy's perspective.

- Determine what was right or wrong with what happened. The participants establish the strong and weak points of their performance. The facilitator guides discussions so conclusions reached by participants are doctrinally sound, consistent with Army standards, and relevant to the operational environment.

- Determine how the task should be done differently next time. The facilitator assists the chain of command conducting the operation to lead the group in determining exactly how participants will perform differently the next time they perform the task. This results in organizational and individual motivation to conduct future operations to standard.

Leaders understand that not all tasks will be performed to standard and, in their initial planning, allocate time and other resources for retraining after operations or before the next operation. Retraining allows participants to apply the lessons learned during the AAR and implement corrective action. Retraining should be conducted at the earliest opportunity to translate observation and evaluation into execution to standard in operations. Commanders ensure that units understand that training is incomplete until the Army standard is achieved.

The AAR is often "tiered" as a multi-echelon leader development technique. Following an AAR with all participants, senior commanders may use the AAR for an extended professional discussion with selected leaders. These discussions usually include a more specific AAR of leader contributions to the observed operation results. Commanders use this opportunity to teach, coach, and mentor subordinate leaders to master current skills and to prepare them for future responsibilities.

During recovery after an operation, a final AAR is conducted. This AAR includes the facilitator (if used) and unit leaders to review the operation just conducted and to discuss its overall conduct. Weaknesses or shortcomings identified during AARs are identified in preparations for future operations; if time permits, the unit conducts training to correct such weaknesses or shortcomings or implement solutions.

The lessons from the AAR process have several uses. First, participants may make notes for themselves and use them for themselves and their sections or units. Second, facilitators may gather their own notes as well as notes from participants for collation and analysis before dissemination and storage for others to use. This would include forwarding them to other, similar units engaged in similar operations as well as proponents and external agencies for the Army as a whole. Finally, units should publicize future successful applications of lessons learned so participants can see the value of the AAR.

Lessons Learned

Lessons learned **are descriptions of operational problems encountered or opportunities missed that are directly related to the use or absence of particular technologies, methods, or standards.** In addition to using AARs, organizations may use lessons learned techniques. USARCENT may conduct its own lessons learned program, or it may use a collection and analysis team from the Center for Army Lessons Learned (CALL) to obtain it.

As the Army continues to grow and learn, it maintains doctrinal currency and relevancy. Maintaining currency and relevancy means collecting, assessing, sharing, and integrating into operations the observations, insights, lessons, and TTPs learned during operations. Commanders and other leaders, while

assessing operations or at the conclusion of any AAR, may note issues to share with the rest of the Army and incorporate into their own operations. The outputs from an AAR—what worked and what did not work—are lessons learned. In many cases, these lessons may be significant beyond just the unit involved in the training.

Conducting AARs and integrating TTPs and lessons learned from those AARs back into ongoing operations are an inherent command responsibility. Units share important or significant observations, insights, lessons, and TTPs with the rest of the Army by sending them to the Center for Army Lessons Learned (CALL) at Fort Leavenworth, Kansas. CALL shares this information with the Army through various electronic and paper-based products.

Although CALL has the lead to gather and disseminate lessons learned, CALL cannot cover every warfighting function or operation without help from commanders and units. Branch proponents work with in-theater commanders to gather lessons in general and lessons about warfighting in particular. They also make these available either as contributions to CALL's database and web site or through their own web sites and repositories.

In addition to acquiring lessons learned from AARs, units might use interviewing to obtain lessons learned. In this case, unit commanders will have to decide to commit resources to gather data by interviewing participants. Alternatively, they can obtain trained interviewers from an external agency, such as CALL. The gathering of lessons learned through interviewing may focus on the performance of an organization, such as the unit staff, command post, or a subordinate unit, during the entire operation. Also, it may focus on various levels of the unit during a particular phase or action of the operation. While such collection may focus on less successful parts of an operation, taking lessons from successful parts of the operation to determine what should be retained should not be overlooked. Appendix D also contains TTPs for interviewing.

Collaborative Assistance

Collaborative assistance consists of a meeting (face-to-face or virtual) in which an experienced team helps a commander, leader, or the team who requested assistance. The experienced team shares experience, insights, knowledge with the team that requested help. Collaborative assists are a powerful tool in intuition skills building, making sense of cues and patterns for upcoming missions, and resolving tactical problems. These collaborative assists support knowledge transfer.

Knowledge transfer includes articulating tacit knowledge in an individual's mind into the realm of explicit knowledge and transferring that explicit knowledge from one person or group to another. It is more than a communications problem. Tacit knowledge transfer is more complex because much knowledge resides in organizational members, tools, tasks, and their subnetworks. Organizing this tacit knowledge in individuals within the organizations is difficult. The key for collaborative assists lies in first articulating tacit knowledge as explicit knowledge. Transferring organizational knowledge—by routine or best practices—can be observed through changes in the knowledge or performance of recipient units. For example, articulating tacit knowledge and associated explicit knowledge transfer activities using facilitated, focused, small group workshops, brain storming sessions, interviews, digital storytelling, and cognitive task analysis.

Knowledge Coaching and Peer and Subject Matter Expert Assists

Knowledge coaching leverages the experience and expertise of peers with experience and subject matter experts during multiple repetitions of deliberate practice to improve learning outcomes. It uses the organizational and external experts as knowledge coaches to develop guided practice, observation, problem solving, and experimentation to help novices absorb long-acquired operational knowledge. In learning, peers and subject matter experts are invited from experienced units or organizations to a meeting or a workshop—live or virtual. These guests share their experience, insights, and knowledge with those who

may have a similar mission. Gathering participants brings significant, potential benefits to a unit facing an operation. Diverse views external to the organization often broadens the range of options considered.

The word *assist* is important. These assist meetings aim to help the organization, not to pick up on mistakes in planning. Peers work on the same level; sometimes they go by mates and colleagues. Knowledge coaching finds people with experiences in similar duties, at the same echelon, and who can share what they know. Finally, knowledge coaching incorporates subject matter experts regardless of where they come from—in or out of the hierarchy.

Units conduct peer or subject matter expert assists when—

- A unit is about to conduct an operation similar to one that another unit conducted earlier.
- The organization is new to a mission, about to tackle something difficult, and conducting what others have conducted.
- The organization hasn't conducted an operation recently, and it needs to know how things and processes have changed.
- The unit is early enough to make a difference.

A peer and subject matter expert assist does the following:

- Targets a specific technical or operational challenge.
- Gains assistance and insight from people outside the organization.
- Identifies possible approaches and new lines of thought.
- Promotes sharing of learning with each other.
- Develops strong networks among staff.

Both organizations—the assisting and assisted—learn from the effort. The assisting organization returns home with a broader knowledge base while the inviting organization uses the lessons learned.

Several requirements are followed during a peer or subject matter expert assist:

- Plan the peer or subject matter expert assist early to make use of the help to deliver the outcome. (The peer or subject matter expert assist is not just a step in the approval process; it is also effective in planning and execution stages.)
- Share plans for peer or subject matter expert assist with others. They may have similar needs. Share the design.
- Clearly articulate the problem or challenge to the group as well as the objective of the assist. (Be prepared for these to be reframed in the course of the assist. Give the team context via briefing material.)
- Assemble a group tailored to the objectives of the assist. Consider inviting people who have diverse skills and experience, who challenge mental models, and who offer options and new lines of thought. Invite people from other disciplines and organizations.
- Offer help, knowledge, and experience and to reduce the workload. Do not criticize and add to the workload.

- Design the event with time to build the peer or subject matter expert assist team early.
- Recommend what the host team should stop as well as extra they might do.
- Prepare an action list at the end of the meeting. Share progress against this with the participants afterwards.
- Ask participants to consider what they have learned and will apply from the event.
- Consider who else might benefit from the lessons learned and share them. Provide contact names for follow-up discussions.

Chapter 4
KM Section Tasks and Analysis

This chapter introduces specific KM Section tasks and analysis procedures. The contents of this chapter are critical for setting the conditions for a successful KM Campaign Plan.

Section 1: Content Management Tasks and Checklists

KEY CONTENT MANAGEMENT TASKS

Each staff section and B2C2WG will have a designated Content Manager to manage their respective dashboards. In short, they are engaged in content management (CM). CM is the term which describes the techniques and technologies used by USARCENT to capture, manage, store, and control headquarters-wide content, including documents, images, e-mail messages, instant messages, video, and more.

USARCENT uses Microsoft SharePoint as its content management system (CMS). CMS is software that enables one to add and/or manipulate content on our ARCENT portal. Content types can include text, graphics and photos, video or audio, and application code.

Key content management tasks include determining where content is located; who created it or is responsible for updating or deleting it, the format (structured and unstructured content), and the file types (defined by their file extension); and who uses it for what purpose.

These content management tasks include —

- Determine content outside of the KM Section and unit that is essential to the mission and objectives, SIPRNET, and NIPRNET (Non-Secure Internet Protocol Router Network).
- Determine the essential sources of knowledge transfer. Identify content needed, when it's needed, the desired format, and how it must be made available for the unit to accomplish its mission.
- Develop a structure for storing and managing content.
- Determine where and how content will be created, organized, applied, and transferred.
- Develop a process for organizing content so it can be discovered and managed throughout its lifecycle. This includes adding identifying features within the content to allow discovery and retrieval by users and tracking by managers.
- Determine workflow for content.
- Standardize content as much as possible using templates to ensure all data is entered properly.
- Determine roles and access rights for content.
- Establish physical security, operations security, and classified document and dissemination controls.
- Determine resources and develop processes for content management. Include the 'post-before-process' procedures.

CONTENT MANAGEMENT CHECKLISTS

Key content management considerations:

- Determine what documents are needed by your section or B2C2WG: Who needs what when, in what format, and how often.
- Determine location of documents on the USARCENT Portal – how do I find them?
- Determine where to store documents on the USARCENT Portal.
- Determine the categories and organization of the documents in the SharePoint library on your dashboard.
- Build or get a Word and PowerPoint document template from the KM Section.
- Determine who has access to documents through the KM Section and G6.
- Determine who manages the documents in your SharePoint library.
- Determine what technology is available for management of content. For example, can we turn documents and presentations into PDF documents? Can we post MSWord files as HTML or XML documents?
- Set up security for access through the KM Section.
- Determine timetable for content validity. For example, when does an announcement for a meeting expire?
- Determine if documents are needed across larger audience. Who should you be sharing them with?
- Determine if section or B2C2WG needs a distinctive label or properties statement to help manage and identify their documents. For example, under File and Properties in MSWord, there are a number of fields available to add information into. Filling these fields in will help during searches on SharePoint.
- Develop content management processes for internal management.

The checklist for individual Content Managers includes the following tasks:

- Compile point of contact list.
- Add your contact information to the KM SharePoint site.
- Create files and folders for every task, project, or topic.
- Design personal file structure for individual using a simple taxonomy.
- Take written notes; compile a log of every conversation and meeting. Use your section's HP Digital Sender to capture these paper notes into PDF files.
- Develop personal learning objectives for every meeting or conference.

- Build smart books such as continuity books for tasks. Consider using a wiki on your SharePoint site rather than a book.

- Develop checklists for each CM duty.

- Send email with links to Web sites or personal folders; do not send emails with attached documents.

The content management checklist for teams includes the following tasks:

- Utilize meeting management (See Section 2 below).

- Compile team, unit, or group point of contact list.

- Incorporate meeting review. At beginning of every meeting state that someone will be asked to give the five-minute review or briefing of the meeting at end of meeting.

- Develop rules for file structure and naming conventions.

- Refine USARCENT content management processes and roles.

- Determine who tracks where everything is stored.

- Develop templates for various teams, military occupational specialties, or units.

- Create fill-in forms.

- Utilize existing software tools and capabilities such as Adobe Connect, Ventrilo, and the MS Office Suite.

- Determine content validity timelines – when is something old?

Section 2: Process Analysis

As stated in Chapter 1, KM incorporates People, Processes, and Technology. This section provides some TTP to identify and improve processes in each section and B2C2WG.

The first step to improving a process is to analyze it in order to understand the activities, their relationships, and the values of relevant metrics. Process analysis generally involves the following tasks:

- Define the process inputs and the exit points of the process outputs.

- Construct a process flow diagram that illustrates the various process activities.

- Determine the duration of each step in the process. Calculate process performance measures (More on this later).

- Identify bottlenecks; that is, steps which slow the process down.

- Evaluate further limitations to quantify the impact of bottlenecks.

- Use the analysis to make operating decisions and to improve the process.

PROCESS FLOW DIAGRAM

Figure 1 illustrates the USARCENT method for determining process flow. In the graphic below, boxes represent processes and arrows represent flows. In our case, these represent the flow of data, information, and knowledge. Note: this flowchart was built using Microsoft Visio software.

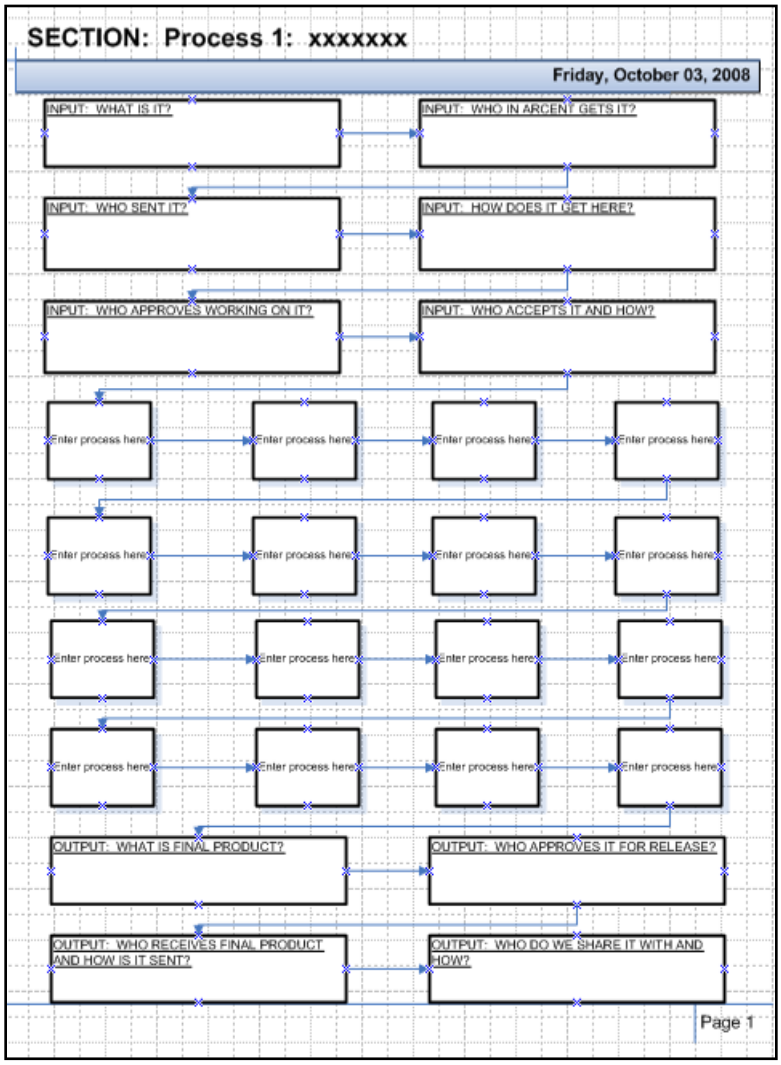

Figure 1. USARCENT Process Flowchart

HOW TO USE THE FLOWCHART

a. Input: What Is It? This identifies what is coming in… the stimulus. It can be a tasking, an Air Tasking Order (ATO), an Operational Needs Statement (ONS), or a SITREP from a subordinate unit. This starts the *data to information to knowledge* (D-TIKI) process.

b. Input: Who in ARCENT Gets It? This identifies who receives the input within the headquarters. For example, official orders and messages from CENTCOM should arrive at the COIC in the MCP.

c. Input: Who Sent It? Identify who sent it to you. This is normally external to USARCENT (i.e. CENTCOM).

d. Input: How Does It Get Here? Identify the system used to transmit the product. For example, it may be paper, regular mail, Email (SIPR/NIPR), or telephone.

e. Input: Who Approves Working On It? Once we determine what the stimulus is, where it goes, and who sent it, someone has to approve it being worked on. This is normally someone in the Command Group, the Chief of Staff, or a division chief.

f. Input: Who Accepts It and How? Once it is approved for work, it is transmitted to the "worker" for processing. This entry reflects the responsible organization for the action and how it is transmitted much like paragraph d. above.

g. Process: This is a detailed process audit of the tasks required to go from input to output. Each step represents a discrete event in the chain required to build the final product.

h. Output: What Is The Final Product? This is a description of what the final product is and how it is packaged. For example, the product may be a presentation, a KCI, or a FRAGO.

i. Output: Who Approves It For Release? This is the approval authority for releasing the product outside of the headquarters.

j. Output: Who Receives Final Product And How Is It Sent? This is a description of who gets the final product and how it is transmitted to them.

k. Output: Who Do We Share It With And How? This is a description of who in USARCENT and its downtrace units the action office shares the product with. The preferred method for sharing is to use the SharePoint site.

PROCESS PERFORMANCE MEASURES

There is a finite capacity in the B2C2WG process. There has to be prioritization because all actions cannot be completed concurrently. When completing a flowchart, CMs should consider the following aspects as they map the process:

- *Process capacity.* How many actions can the process handle simultaneously? For example, how many FRAGOs can the Effects Working Group work during the course of a week? The capacity of a series of tasks is determined by the lowest capacity task in the string.

- *Flow time.* The average time that a product requires to flow through the process from the entry point to the exit point. Flow time includes both processing time and any time the unit spends between steps.

- *Idle time*. The time when no activity is being performed. For example, after standard duty hours or a weekend.

- *Process time*. The average time that a task is worked on. *Process time* is *flow time* less *idle time*.

PROCESS ANALYSIS QUESTIONS

The process analysis answers several questions: what, why, who, when, how, and where. It also diagrams the process using a flow diagram.

What and Why:

- What is this process for?
- Why do you use it?
- How do you know if it completed correctly?
- What do you do if it is not completed correctly?
- What is the end result of the process? What is the product?

Who:

- Who uses this process?
- Who does not need to use this process?
- Are there different types of users? What is their level of usage?
- Who are the subject matter experts for this process?
- Are there any directorates that use this process more than others?
- Who are all the people involved in this process? What are their roles?

When:

- When is this process used?
- How often is this process used?
- When do you not use this process?
- Are there any exceptions?

How:

- How do you know if this process has been used correctly?
- Where does your process start? Where does it end?
- Where does your information come from?
- What do you do with it?
- Where does it go?
- What are the key steps to this process? Does this process support another process?

- What do people need to know in order to complete this process successfully?
- What are the things not to do?
- What do you know from your experience that would have been helpful when you started?
- What are some examples of proper ways to do process? Give examples and stories shots.
- What are some examples of incorrect ways to do process? Give examples and stories.

Where is this process used?

- Process picture. Diagram the process and work flow.

Section 3: Meetings

Meetings – the centerpiece of the B2C2WG -- are normally unpopular because they take up time of many people. However, there are good meetings and there are bad meetings. Meetings can be an excellent use of time when they are well-run. Unfortunately, the converse is also true, and it seems that time-wasting, poorly run meetings can be common.

This section describes six rules of meeting management that can help make meeting more productive and less frustrating. Each of the rules requires commitment from all participants.

Rule #1: Run your meetings as you would have others run the meetings that you attend.

This is the most fundamental rule. Running an effective meeting--or being a good meeting participant--is all about being considerate of others. All the other rules of meeting management flow from this principle.

Sidebar discussions, late arrival, BlackBerry usage, working on other projects, sleeping, excessive pontification, etc.. may identify you as a poor meeting participant.

Rule #2: Be prepared and ensure that all the participants can be as well.

Distribute the meeting agenda at least one day before the meeting and make sure everyone has access to any relevant background materials on your SharePoint site. Participants have the obligation of reviewing the agenda and background materials and arriving at the meeting prepared. If the meeting organizer has not provided adequate information about the objectives of the meeting, the participants should take the initiative to ask. No one should arrive at a meeting not knowing why they are there--and what is supposed to be accomplished.

If there is nothing to put on the agenda, the organizer should ask him/herself whether there really needs to be a meeting.

Rule #3: Stick to a schedule.

Start the meeting on time and end it on time (or even early). Starting on time requires discipline by the organizer and the participants. Arriving late shows a lack of consideration for all those who were on time. But if all participants know that the organizer is going to start the meeting right on time, there is a much greater likelihood that everyone else will make the effort to be punctual.

Finishing in a timely manner is also crucial. If everyone agreed that the meeting would last an hour, the meeting should not run any longer than that, particularly since there are so many engagements to keep. Keeping the agenda realistic is important, of course. Finally, if only 20 minutes are required to accomplish

the meeting objectives, the meeting should end after only 20 minutes. It would be a waste of everyone's time to let it go on any longer than that.

The time for which the meeting is scheduled is also important. Scheduling regular meetings for inconvenient times (e.g. after the end of the official work day) can have a very negative impact on productivity. Emergencies are a reality for most organizations and may necessitate meetings at odd times, but routine meetings should be scheduled at a time that is reasonably convenient for the participants in the MCP and OCP.

Rule #4: Stay on topic.

Most groups have at least one person who tends to go off on a tangent or tell stories during meetings. Whether this is the organizer or one of the participants, all meeting participants have the responsibility of gently guiding the meeting back to the substantive agenda items. This should not be done at the expense of all levity, of course, as that is an important ingredient for esprit de corps. Also, storytelling can be very useful if it is being used deliberately as a coaching or teaching tool. As a rule, however, someone needs to guide the discussion back to the agenda if the meeting becomes clearly off track.

Rule #5: Don't hold unnecessary meetings.

Carefully assess how often routine meetings really need to be held. For example, if there is a desire for a daily staff meeting, how productive is it? Can they be held less frequently? Or, perhaps, can they be held standing up someplace and kept to a few minutes? Staff meetings are crucial vehicles for maintaining good communication, but it is important to find the right balance between good communication and productive uses of time.

Rule #6: Wrap up meetings with a clear statement of the next steps and who is to take them.

If any decisions were made at the meeting (even if the decision was to "study the issue more") the meeting organizer should clearly summarize what needs to be done and who is going to do it. If the organizer fails to do this, one of the participants needs to speak up and request clarification of the next steps. This is crucial. If the participants leave the meeting and no one is accountable for taking action on the decisions that were made, then the meeting will have been a waste of everyone's time.

Within 24 hours after the meeting, the OIC is responsible for posting a summary on the SharePoint site where it can be easily found by the participants.

Below is a sample agenda for a KM Working Group Meeting:

Purpose/ Frequency	**Purpose**: Venue in which KM initiatives, tasks, concerns, and ideas are shared and spread throughout the unit. **Frequency**: Weekly	
Composition	**Chair**: Either Chief of Staff or KMO **Attendees**: • All subordinate KM and/or CMs • ABCS Contractors • Others by exception	
Inputs/Outputs	**Inputs**: • Bring emerging TTPs to the surface • Develop system and social network • Qualitative interviews (What's working for you?) • Mission Observation (Commonalities identified and reported) • AAR/Debrief attendance and reporting (team does not allow for airing of 'Dirty Laundry') • Identifying reporting procedures (this get units thinking about value of lessons to others "What did we learn this week?") • Leader Support – at every level • Unit Focal Point contact: If everyone is responsible – no one is responsible • Make it easy – 10 minutes or less to transfer new knowledge to site	**Outputs**: • Weekly "push" highlighting what is learned (electronic) – targeted (demonstrated value) • Leader postings – what is working for us – (*Building a Community of Practice*) • Lateral sharing of knowledge – leaders sharing with leaders • Clean up public sites on SIPR • Build public sites on CENTRIX • Submit Inputs/Outputs • Submit any recommendations to WG summary format • Submit recommendations on collaborative initiative • Schedule training
Agenda	• Inputs & Outputs • Team pages • Working group summary format: key discussion, briefs, actions, and POCs • Collaborative forums • IT Support Plan	

Appendix A

KM Section Reporting Requirements

The purpose of this appendix is to specify reports and periodic output of the KM Section for use by the staff.

This may include statistics on usage of certain sites and SharePoint portal destinations, as well as statistics on migration of files from certain server drives to archives. As the KM Section stands-up and builds tempo, reports – and their associated metrics – will help to change behavior, and ultimately the culture of the headquarters.

The KMO will post current metrics on the USARCENT SIPR SharePoint KM Site. These will be updated based on completed actions and emerging requirements.

Appendix B

KM Section Action Plan

The purpose of this appendix is to outline the KM Section Action Plan based on the work completed during Exercise Lucky Warrior 08-01, September 2008.

The Knowledge Management (KM) Framework and Lucky Warrior 08-01 KM Action Plan is attached as an appendix and will be updated with additional appendices.

The KMO posted the most current Action Plan on the USARCENT SIPR SharePoint KM Site. This plan will be updated 2nd QTR, FY 09.

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Glossary

The glossary lists most terms used in this publication that have joint or Army definitions. The proponent manual for Army terms follows the definition. The proponent manual for all joint terms is JP 1-02. The glossary shows the Army definition of terms for which the joint and Army definitions are different. These terms are designated by *(Army)*.

SECTION I – ACRONYMS AND ABBREVIATIONS

AAR	after action review
ABCS	Army Battle Command System
AKO	Army Knowledge Online
ARFORGEN	Army force generation
ARTEP	Army Training and Evaluation Program
BCKS	Battle Command Knowledge System
BCTC	Battle Command Training Center
C2	command and control
CALL	Center for Army Lessons Learned
CJTF	combined joint task force
COA	course of action
COP	common operational picture
DISA	Defense Information Systems Agency
ECM	Enterprise Content Management
FM	field manual
FMI	field manual–interim
G-2	assistant chief of staff, military intelligence
G-3	assistant chief of staff, operations
G-6	assistant chief of staff, command, control, communications, and computer
IDM	information dissemination management
JOA	joint operations area
KM	knowledge management
MCS	maneuver control system
MDMP	military decision-making process
MTP	mission training plan
OC	observer controller
OPORD	operation order
OT	observer trainer
RFI	request for information
S-3	operations staff officer
S-6	command, control, communications, and computer staff officer
SBCT	Stryker brigade combat team
SIPRNET	SECRET Internet Protocol Router Network
SOP	standing operating procedure
TTP	tactic, technique, and procedure

SECTION II – TERMS

assessment
(Army) The continuous monitoring and evaluation of the current situation and progress of an operation. (FM 3-0)

battle command
The art and science of understanding, visualizing, describing, directing, assessing, and leading forces in operations against a hostile, thinking, and adaptive enemy. Battle command applies leadership to translate decisions into actions—by synchronizing forces and warfighting functions in time, space, and purpose—to accomplish missions. (FM 3-0)

command and control
(Army) The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission. Commanders perform command and control functions through a command and control system. (FM 6-0)

commander's critical information requirement
(joint) An information requirement identified by the commander as being critical to facilitating timely decision making. The two key elements are friendly force information requirements and priority intelligence requirements. (JP 3-0)

common operational picture
(Army) A single display of relevant information within a commander's area of interest tailored to the user's requirements and based on common data and information shared by more than one command. (FM 3-0)

conduct
To perform the activities of the operations process: planning, preparing, executing, and continuously assessing. (FM 6-0)

content management
A process and associated techniques that focus on internal management of digital information.

data
Unprocessed signals communicated between any nodes in an information system or sensings from the environment detected by a collector of any kind (human, mechanical, or electronic). (FM 6-0)

decision making
Selecting a course of action as the one most favorable to accomplish the mission. (FM 6-0)

enemy
A party identified as hostile against which the use of force is authorized. (FM 3-0)

enterprise content management
The document management term which describes the technologies used by organizations to capture, manage, store, and control enterprise-wide content, including documents, images, e-mail messages, instant messages, video, and more.

information
The meaning humans assign to data. (FM 6-0)

information management
(Army) The science of using procedures and information systems to collect, process, store, display, disseminate, and protect knowledge products, data, and information. (FM 3-0)

information system includes computers—hardware and software—and communications, as well as policies and procedures for their use. (FM 3-0)

knowledge
Information analyzed or evaluated through explicit cognitive techniques, reflective experience, deliberate practice, and social interaction within a mental framework of patterns and facts to provide meaning or implications as the basis for understanding or decision in responding to a situation.

knowledge management
The art of creating, organizing, applying, and transferring knowledge to facilitate situational understanding and decision making. Knowledge management supports improving organizational learning, innovation, and performance. Knowledge management processes ensure that knowledge products and services are relevant, accurate, timely, and useable to commanders and decision makers. (FM 3-0)

knowledge transfer
The actual movement of explicit knowledge from one individual to another.

lessons learned
Descriptions of operational problems encountered or opportunities missed that are directly related to the use or absence of particular technologies, methods, or standards.

measure of effectiveness
(joint) A criterion used to assess changes in system behavior, capability, or operational environment that is tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect. (JP 3-0)

measure of performance
(joint) A criterion used to assess friendly actions that is tied to measuring task accomplishment. (JP 3-0)

mission command
The conduct of military operations through decentralized execution based on mission orders. Successful mission command demands that subordinate leaders at all echelons exercise disciplined initiative, acting aggressively and independently to accomplish the mission within the commander's intent. (FM 3-0)

operational environment
(joint) A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. (JP 3-0)

operations process
The major command and control activities performed during operations: planning, preparing, executing, and continuously assessing the operation. Battle command drives the operations process. (FM 3-0)

PMESII-PT
A memory aid for the variables used to describe the operational environment: political, military, economic, social, information, infrastructure, physical environment, time (operational variables). (FM 3-0)

relevant information
All information of importance to commanders and staffs in the exercise of command and control. (FM 3-0)

running estimate
A staff section's continuous assessment of current and future operations to determine if the current operation is proceeding according to the commander's intent and if future operations are supportable. (FM 3-0)

situational awareness
Immediate knowledge of the conditions of the operation, constrained geographically and in time. (FM 3-0)

situational understanding
The product of applying analysis and judgment to relevant information to determine the relationships among the mission variables to facilitate decision making. (FM 3-0)

system
(joint) A functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements; that group of elements forming a unified whole. (JP 3-0)

taxonomy
The science of categorization, or classification, of things based on a predetermined system. In reference to Web sites and portals, a site's taxonomy is the way it organizes its data into categories and subcategories, sometimes displayed in a site map.

virtual right-seat ride
A technique that uses collaborative tools to allow Soldiers at one location to participate with forces elsewhere.

warfighting function
A group of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish missions and training objectives. (FM 3-0)