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KNOWLEDGE MANAGEMENT

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KNOWLEDGE MANAGEMENT

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Preface

ATP 6-01.1, *Knowledge Management*, provides commanders and their staffs doctrinal principles, techniques, and core responsibilities necessary to integrate knowledge management (KM) into operations. This publication supersedes ATP 6-01.1, *Techniques for Effective Knowledge Management*, dated March 2015.

ATP 6-01.1 applies to KM activities in Army headquarters from divisions through Army Service component commands and institutional force organizations that support the Army. At the brigade combat team level there are no dedicated KM positions; however, the executive officer is responsible for directing the KM activities of each staff section and subordinate unit to capture and disseminate organizational knowledge. KM positions exist in multifunctional brigades and security force assistance brigades. (See FM 3-96 for more information on brigade combat teams.)

The principal audience for ATP 6-01.1 is all members of the Army profession (both Soldiers and Army Civilians). Commanders; Army, joint task force, and multinational headquarters staffs; trainers; and educators should also refer to applicable joint or multinational doctrine concerning the range of military operations and the conduct of joint or multinational forces.

Commanders, staffs, and subordinates ensure their decisions and actions comply with all applicable U.S., international, and host-nation laws and regulations. KM is a commander's program that is intrinsic to mission command. Commanders at all levels ensure their Soldiers operate in accordance with the law of armed conflict and the rules of engagement. (See FM 6-27 for more information on the law of war.)

ATP 6-01.1 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms for which ATP 6-01.1 is the proponent publication (the authority) are marked with an asterisk (*) in the glossary. When first defined in the text, terms for which ATP 6-01.1 is the proponent publication are boldfaced and italicized, and definitions are boldfaced. When first defining other proponent definitions in the text, the term is italicized, and the number of the proponent publication follows the definition. Following uses of the term are not italicized.

ATP 6-01.1 applies to all Active Army, Army National Guard/Army National Guard of the United States, and United States Army Reserve units and personnel unless otherwise stated.

The proponent of ATP 6-01.1 is Headquarters, U.S. Army Training and Doctrine Command. The preparing agencies are the Combined Arms Doctrine Directorate and the Army Knowledge Management Proponent, both subordinate to the U.S. Army Combined Arms Center. Send written comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) to Commander, U.S. Army Combined Arms Center and Fort Leavenworth, ATZL-MCK-D (ATP 6-01.1), 300 McPherson Avenue, Fort Leavenworth, KS 66027-2337; by email to usarmy.leavenworth.mccoe.mbx.cadd-org-mailbox@army.mil; or submit an electronic DA Form 2028.

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Introduction

The Army embraced knowledge management (KM) as a discipline in 2003. How the Army manages information and facilitates the movement of knowledge has changed dramatically since it became part of Army doctrine. This change includes the growth of KM in the Army and the refinement of associated technology—both hardware and software. The ability to manage and integrate data, information, and knowledge efficiently is essential to effective command and control (C2) and decision making at all echelons and to achieve an information advantage. The Army authorized the Army Knowledge Management Qualification Course with an additional skill identifier to prepare Soldiers for KM's complex challenges. KM sections at division through theater Army headquarters and at Army institutional organizations work with commanders and staffs to help manage knowledge in their organizations in support of C2.

Lastly, while the focus of this document is operations, KM is not limited to the operational force. Any organization or individuals in the Army can use KM to improve mission accomplishment. While doctrine does not address the workings of the institutional force, the link between the institutional force and operating force is critical to getting advanced knowledge sharing and collaborative capabilities to the field faster. Doctrine does play a role in several Army institutional activities and should be considered by the institutional force when executing those activities. (See ADP 1-01 for more information on the role of doctrine in the institutional force.)

This version of ATP 6-01.1 has changed from the previous version in several ways. First, it discusses the role KM plays to support the Army, and it articulates a framework for how KM is approached in the Army. It reflects new doctrine to support C2 as discussed in ADP 6-0. It also increases emphasis on four key topics: interoperability, change management, learning organizations, and sustaining a KM program.

ATP 6-01.1 has five chapters and ten appendixes. Chapters 1 and 2 discuss the foundational concepts. Chapters 3 and 4 provide the supporting information that a KM officer needs to know to understand the KM process, and Chapter 5 focuses on the sustainment of KM initiatives. Appendixes support the subject material addressed in the publication.

Chapter 1 explains KM support to the Army and how to implement a KM program. This chapter also includes foundational KM information, and it outlines the framework for how KM is approached by Army units. It includes information on the components of KM and the principles that focus thinking and action. Lastly, it provides information on the duties and functions of key players in the KM effort, and it then concludes with initial guidance on getting started on KM activities.

Chapter 2 discusses the KM process. It provides the five-step methodology to drive important and needed changes as they relate to improving information and knowledge flow. It concludes with a discussion of effective implementation and management of KM initiatives.

Chapter 3 provides assessment and solutions development for common focus areas. This chapter is a consolidation of key focus areas that a unit should strive to address. These focus areas identify improvements that are commonly needed by most units in the Army.

Chapter 4 defines and discusses learning organizations, interoperability, and change management. These three special focus areas were identified after over a decade of learning about effective strategies that make KM more effective. They are areas a KM officer should have expertise in.

Chapter 5 discusses sustaining a KM program. It discusses sustaining KM within a unit over the long term. KM strategies are introduced in this chapter to understand, benchmark, and track progress along a unit's path to becoming a more effective organization. It concludes with activities that a unit conducts to keep everyone in the organization informed and motivated to stay involved in the process.

Appendix A provides additional material and techniques for managing content.

Appendix B discusses KM tools used for improving knowledge flow.

Appendix C illustrates an example KM annex for use during the orders development process.

Appendix D includes a checklist for the KM officer to implement a KM program.

Appendix E provides a KM working group or steering committee charter example for use during the initiation of a KM program.

Appendix F discusses interviewing techniques for use during the assessment stage of the KM process.

Appendix G contains information on a KM standard operating procedure (SOP) format.

Appendix H provides information on the five dimensions of a learning organization and a completed graphic for the Army Learning Organization Maturity Model published by the Army Research Institute.

Appendix I illustrates an example KM continuity book for the onboarding process of new Soldiers or Army Civilians.

Appendix J provides information on different types of virtual forums and their purposes.

ATP 6-01.1 is the proponent for one new term, learning organization, and its definition.

Chapter 1
Knowledge Management Support to the Army

This chapter explains knowledge management (KM) support to the Army. It first covers KM foundations. It continues by describing KM roles that support the Army. The chapter concludes with the steps to implement a new KM program.

KNOWLEDGE MANAGEMENT FOUNDATIONS

1-1. In the exercise of mission command, KM enables command and control (C2) at all levels of the Army. *Knowledge management* is the process of enabling knowledge flow to enhance shared understanding, learning, and decision making (ADP 6-0). Knowledge flow refers to the ease of movement of knowledge in and among organizations. Knowledge must flow to be useful. The purpose of KM is to create shared understanding through the alignment of people, processes, and tools within an organizational structure and culture to increase collaboration and interaction between leaders and subordinates. By building a successful KM program, knowledge management officers (KMOs) facilitate shared understanding, create agile learning organizations, improve decision cycle effectiveness, and enhance mission and organizational performance. This results in actionable decisions and enables flexibility, adaptability, integration, and synchronization to achieve a position of relative advantage. Sound KM practices enhance—

- Collaboration among personnel at different places.
- Rapid knowledge transfer between units and individuals.
- Reach-back capability to Army schools, centers of excellence, and other resources.
- Leader and Soldier agility and adaptability during operations.
- Doctrine development.
- An organization's ability to capture lessons learned throughout each phase of the sustainable readiness cycle.
- Effective and efficient use of knowledge in conducting operations and supporting organizational learning.

1-2. KM is more than improved information technology and communications systems. KM requires multidisciplined skillsets and techniques. As an integrating process, KM supports all activities of the operations process—planning, preparing, executing, and assessing operations. KMOs integrate the KM process and its activities into all the processes and information systems of an organization to ensure that knowledge is shared. This integration helps to enable the flow of knowledge that resides in individuals and small elements across an organization so leaders can apply it to mission or operational requirements and use it to support organizational learning, innovation, and performance. (See ADP 5-0 for more information on integrating processes.)

TYPES OF KNOWLEDGE

1-3. Knowledge provides meaning or value for the operation. It is gained through study, experience, practice, and human interaction and is the basis for expertise and skilled judgment. (See FM 6-22 for a discussion on tactical knowledge, technical knowledge, and cultural and geopolitical knowledge.) This manual differentiates knowledge into tacit knowledge and explicit knowledge.

Tacit Knowledge

1-4. ***Tacit knowledge* is what individuals know; a unique, personal store of knowledge gained from life experiences, training, and networks of friends, acquaintances, and professional colleagues.** It

includes learned nuances, subtleties, and workarounds. Intuition, mental agility, and response to crises are also forms of tacit knowledge. Tacit knowledge has not been documented or codified.

Explicit Knowledge

1-5. ***Explicit knowledge*** **is codified or formally documented knowledge organized and transferred to others through digital or nondigital means.** Explicit knowledge has rules, limits, and precise meaning. Examples include computer files, dictionaries, textbooks, and Army and joint doctrinal publications.

KNOWLEDGE MANAGEMENT AND SUPPORTING DISCIPLINES

1-6. KM is a multidisciplined approach that draws on other supporting disciplines to improve organizational performance and learning. Organizations that actively seek out ways to improve learning, integrate new and innovative ideas, and share knowledge will perform better, improve situational understanding, make better decisions, and achieve better outcomes. For the Army, those outcomes have to result in success on the battlefield. Although not all-inclusive, Table 1-1 lists important disciplines and specialties that, when leveraged, contribute to the KM effort.

Table 1-1. Example disciplines and related specialties that support knowledge management

Collaborative technologies	Organizational science
Decision support systems	Information management
Project management	Library science
Systems science	Process improvement
Cognitive science	Change management
Technical writing	Artificial intelligence and machine learning
Web technologies	Data management

1-7. KM practitioners are trained Soldiers, Army Civilians, and leaders on staffs that have a role to play in executing KM. The KMO leads the KM section and oversees KM initiatives. Knowledge management representatives (KMRs) are from each staff section that work in a supporting role to implement necessary policies and procedures and provide feedback to the KM section. They are trained by the KM section to conduct their duties.

1-8. KM practitioners are not expected to be experts in all supporting disciplines listed in Table 1-1. All the disciplines listed in the table represent a sample of the many various disciplines or areas of specialization that can be leveraged, but they are not ranked by priority. Per Table 1-1, the most often used supporting key disciplines by Army KM practitioners are—

- Change management.
- Information management.
- Process improvement.
- Project management.

KNOWLEDGE MANAGEMENT FRAMEWORK

1-9. The Army's approach to KM uses a blend of organizational science and systems thinking as a framework. It then applies other aspects such as collaborative technologies, information management, and process improvement as enablers. Although the Army model is not strictly technology-based, the Army leverages highly sophisticated technical systems. Successful practitioners develop skills in information technology, systems science, and data technologies as those disciplines continue to mature. The Army's approach to KM emphasizes two primary disciplines:

- Organizational science.
- Systems science.

Organizational Science

1-10. First, the Army applies an aspect of organizational science, referred to as learning organizations, to gain knowledge and to modify or change behavior as a result of acquiring new experience. Over time, leaders aim to increase the stock of knowledge that members of a unit can apply, reuse, and share. By applying KM practices, a unit becomes a "learning organization." (See Chapter 4 for more information on learning organizations.)

1-11. Army personnel assigned to KM positions in a unit influence how an organization or unit learns, especially how an organization manages and shares knowledge. Three key KM enabling tasks contribute to a knowledge-sharing environment and a learning organization:

- Knowledge creation.
- Knowledge retention.
- Knowledge transfer.

Creating Knowledge

1-12. Knowledge creation is the process of developing and capturing new knowledge (both tacit and explicit) or combining, restructuring, or repurposing existing knowledge or information in response to identified knowledge gaps. Knowledge comes from a variety of sources, including new technology, answering the commander's critical information requirements (CCIRs), and the sharing of information that others need to know. Knowledge is also created when organizations learn, which in turn enables organizations to adapt. The output of collaborative planning from working groups is an example of creating knowledge.

1-13. Many factors go into how an organization creates new knowledge. The more diverse the experience level within the organization, the better. Experienced organizations generate more opportunities for more in-depth analysis and expand the variety of options available. After-action reviews are a great tool to bring together Soldiers after a training event or operation to determine what happened and then compare it to what should have happened. This then generates potential new ideas to improve performance. Other factors that affect creativity are—

- Daily routines and practices.
- Personal characteristics.
- Motivation.
- Social networks.
- Knowledge creation tools.

(See Chapter 4 for more information on after-action reviews.)

Retaining Knowledge

1-14. Knowledge retention focuses on the quantity of knowledge as well as the storage, organization, and application of that knowledge. Knowledge decays over time, is lost, or is forgotten. This is known as knowledge depreciation. The goal is to ensure knowledge and its availability persist over time. In many cases, this is referred to as organizational memory, which can be thought of as reservoirs or repositories where knowledge resides. Retaining knowledge requires managing the stock of knowledge and knowing where it resides in multiple repositories, including human experience, databases, routines, practices, and policies that govern operations. Knowledge managers must understand this dynamic and not rely on a specific tool or a single database to find and share knowledge.

1-15. A key aspect of knowledge retention is how units organize content. Key stakeholders in knowledge retention and records management include signal staff members, historians, lessons learned personnel, and KMOs. Organizing knowledge ensures that users can discover and retrieve knowledge that is relevant, and knowledge managers can track knowledge products throughout their life cycle. All content should be identified by purpose and labeled by category so that it can be easily retrieved. Archiving consists of moving outdated and irrelevant knowledge from active status to inactive status, based on rules and policies. Subject matter experts do this by reviewing content that exceeds a specified date or does not meet usage benchmarks. Based on this review, they determine whether regulations require retaining content or destroying it. The Army Records Information Management Systems (known as ARIMS) is captured in AR 25-1, which discusses

information management, and AR 25-400-2, which governs the maintenance and disposition of Army records information.

1-16. A second aspect of knowledge retention, once content is properly organized, is making it accessible to those who need to use it. Also, it refers to how effective the unit is in reusing the knowledge it has. KMOs seek to create conditions so users can retrieve and apply the knowledge they need. Applying knowledge begins with making information both visible and accessible to the user community. This is the primary purpose of content management, and it occurs during the implement step of the KM process. Ensuring that multiple users can easily retrieve knowledge products enables collaboration in applying knowledge. One example is posting the decision template on the unit portal so subordinate units can access it. (See Appendix A for more information on content management.)

Transferring Knowledge

1-17. Knowledge transfer is the movement of knowledge—including knowledge based on expertise or skilled judgment—from one person to another. It describes how units pass knowledge between individuals and groups. It includes knowledge developed within a unit and received from other sources. Effective knowledge transfer allows all involved to build on each other's knowledge in ways that strengthen not only individual Soldiers but also an entire organization. It is more than simply moving or transferring files and data. Since knowledge transfer occurs between people, KM includes creating techniques and procedures to develop knowledge skills in leaders, build experience, and transfer expertise.

1-18. Employing effective knowledge strategies increases knowledge transfer and learning. Knowledge transfer enables units and Soldiers to begin operations at a higher knowledge level than without knowledge transfer, raising knowledge and learning levels throughout an operation.

1-19. The terms knowledge transfer, knowledge flow, and knowledge sharing are similar ways to describe the practice of transferring knowledge for the benefit of others. This can be done on an individual, team, or organization-wide basis. Many factors play into how knowledge is transferred. KMOs need to understand the factors that both enhance knowledge transfer and those that inhibit it. KMOs work with the knowledge management working group (KMWG) to mitigate the factors that prevent or inhibit knowledge transfer. (See Chapter 5 for more information on knowledge sharing.)

1-20. Examples of knowledge transfer mechanisms used to aid in the process of knowledge transfer include—

- Collaborative tools (digital and nondigital).
- Routines.
- Social networks.
- Working groups and meetings.
- Training.

Within Army command posts, units rely on various technologies, processes, and procedures that are designed specifically for that type of unit and its mission. However, technology should not be the only consideration when transferring knowledge. Other nontechnical means exist to facilitate better knowledge transfer. (See Appendix B for more information on KM tools.)

Systems Science

1-21. Second, the Army's approach to KM is through the discipline of systems science, sometimes referred to as systems thinking. The *command and control warfighting function* is the related tasks and a system that enable commanders to synchronize and converge all elements of combat power (ADP 3-0). The *command and control system* is the arrangement of people, processes, networks, and command posts that enable commanders to conduct operations (ADP 6-0). When integrated, these components enable commanders to command forces and control operations. The four KM components described in paragraphs 1-28 through 1-36 are named similarly to the C2 components with a few exceptions: the term "networks" is referred to as "tools" which includes both digital and nondigital, and the "command post" is referred to as "organization" which includes the structure and culture of the organization.

1-22. The KM section thinks of the C2 system as a "system of systems." When one component is not functioning properly, it affects the rest of the system and degrades the commander's decision making. The KM section, working with other members of the staff, assists commanders in properly integrating the C2 system.

1-23. Systems science, or systems thinking, can be complex and involve multiple disciplines. Still, it requires the recognition that each component of the Army C2 system contributes to the larger effort—the whole is greater than the sum of its parts. Each component enables commanders to command forces, control operations, and drive the operations process.

1-24. Systems thinking approaches address feedback mechanisms that ensure an entire system can adjust to changes in the internal and external environment. For example, when critical processes are not effective in driving decision making, there needs to be a way to identify the gap and restore the system to health. Changes to the external operational environment, such as a new phase in an operation, may drive a change in how information is collected to refine the battlefield picture further. Emerging tools such as artificial intelligence (known as AI), machine learning, and data management applications may provide for faster analysis of information and improve understanding and decision making, which in turn may drive changes to other aspects of the C2 system. Feedback mechanisms play an important part in the Army's approach to KM.

1-25. The KM process is a step-by-step methodology used by Army KMOs to improve and integrate the C2 system. This requires assessing the complete C2 system to ensure data, information, and knowledge are aiding commanders and staffs in gaining an understanding of an operational environment and then improving the system through modifications of the four components. It further requires a thorough understanding of all the other key processes that occur within the command post: targeting, information collection, risk management, and intelligence preparation of the battlefield. KM also impacts the military decision-making process (MDMP) and battle rhythm management. (See Chapter 2 for a thorough discussion of the KM process.)

KNOWLEDGE MANAGEMENT APPROACH

1-26. The foundations of KM, organizational science and systems thinking, define and shape the Army's approach to KM. The components of KM—people, processes, tools, and organization—when aligned facilitate learning and knowledge sharing at all levels. Organizational learning and systems thinking, when applied to the components of KM, define how KM is approached by the Army.

1-27. Facilitating learning and knowledge sharing requires creating a knowledge sharing environment, wherein the people, processes, tools, and organization are aligned with the principles of KM. The Army achieves an information advantage when it is proficient at creating, retaining, and transferring knowledge. To do that, the C2 system has to be treated as a system of systems that must be optimized to ensure proficient use of operational data and dissemination of that data to best enhance decision making and drive action. (See paragraphs 1-37 through 1-43 for a discussion of the principles of KM.)

Knowledge Management Components

1-28. KM components are four common pillars that support the KM approach by focusing the KMO and the KM section on areas to address likely knowledge and information gaps. KM aligns the people, processes, and tools in an organizational structure and culture for leaders and subordinates to collaborate and reach shared understanding. The four components of KM are—

- People.
- Processes.
- Tools.
- Organization.

People

1-29. People are important to successful KM. Knowledge has meaning only in a human context. It includes individual experience, expertise, and insight. Leaders use tacit knowledge to solve problems and make

decisions. Leaders engage subordinates' tacit knowledge to improve organizational learning and enhance their unit's innovation and performance.

1-30. Knowledge managers connect people and build formal and informal networks to transfer knowledge. Knowledge managers find sources of knowledge, capture that knowledge, and facilitate its transfer to those who need it.

Processes

1-31. The operations process is the primary means to drive all military operations. The five-step KM process aligns people, processes, and tools in an organization and culture to create shared understanding. Organizations use KM and its associated activities to integrate all other staff and organizational processes into the operations process. This integration enables the transfer of knowledge between and among individuals and organizations. Knowledge transfer occurs formally through established processes and procedures and informally through collaboration and dialogue.

Note. Knowledge managers, depending on the echelon they are assigned, may hear the term "business processes," which is described in AR 5-1 as a set of logically related tasks performed to achieve a business outcome. Although similar in practice, the KM process described in this section is an integrating process, while the term business process is used primarily in project management, human resources, accounting, and finances at the theater strategic level.

Tools

1-32. People use KM tools to share and preserve knowledge. Various factors determine the tools used, including the mission, availability, and determination of the simplest or most effective tool for the required purpose. The tools are nondigital, digital, or a combination of both. Nondigital tools include transferring knowledge through manual, visual, or tactile means (Appendix B describes KM tools). Nondigital tools include, but are not limited to—

- Map boards.
- Sand tables.
- Butcher paper.
- Sticky notes.
- Bulletin boards.
- White boards.
- Black boards.
- Written publications

Digital tools include, but are not limited to—

- Information systems and the software, storage, inputs, processing, outputs, formats, content, software, and capabilities provide tools that knowledge managers use.
- Collaboration tools that include capabilities that make team development and collaboration possible. Examples include chat, white boarding, professional forums, communities of practice, and virtual teaming.
- Expertise-location tools that support finding subject matter experts.
- Search-and-discover tools that include search engines that look for topics, recommend similar topics or authors, and show relationships to other topics.
- Data analysis tools support data synthesis that identifies patterns and establishes relationships among data elements.
- Expertise-development tools that include simulations and experiential learning to support developing experience, expertise, and judgment.
- Artificial intelligence that consists of automated tools and techniques driven by algorithms to sort through large quantities of data and information to inform decision making.

Organization

1-33. An organization is a matrix where people, processes, and tools function to integrate individual and organizational knowledge. Individual knowledge includes acquired ideas, beliefs, values, and knowledge. Individual knowledge, organizational knowledge, and learning strategies contribute to a learning organization. Organizations such as staffs, squads, and larger groups bring these attitudes, feelings, values, and behaviors together. This creates a process facilitated by tools that characterize that group. These factors are its organizational culture. A second aspect is the structure of the organization which includes the unit's equipment, the personnel assigned to the unit, and how they are arranged to facilitate knowledge sharing. Command posts operate in dispersed environments and, in some cases, across different time zones which must be considered when conducting operations.

1-34. The structure and culture of an organization provides the perspectives, language, and physical arrangement by which members view information, goals, and motivations. This combined perspective allows rapport, knowledge sharing, and accurate interpretation to understand and acquire a broad view of a situation. Commanders and primary staff members must understand both their organization's culture and structure to affect organizational change and improve knowledge flow.

KNOWLEDGE MANAGEMENT PRINCIPLES

1-35. While the KM components aid KMOs in focusing their efforts, the KM principles provide common themes to use while working with staff members to effectively guide them toward a learning organization and integrate staff efforts. The principles of KM are the overarching, fundamental truths of functional effectiveness that apply at all levels to all organizations and are enduring, scalable, and equally applicable to an individual, team, organization, or community under all circumstances. They are not a checklist. Rather, they summarize the characteristics of successful KM efforts. Knowledge managers consider them in all situations; however, the principles apply differently based on the factors present. The principles described in paragraphs 1-36 through 1-41 represent the most important factors affecting the conduct of effective KM.

Understand

1-36. Through collaboration and dialogue, knowledge sharing enables an understanding of an operational environment, the problems to be solved, and the approaches to solving them. Shared understanding across, between, and through commanders, subordinate leaders, Soldiers, and organizations underpins mission command and the operations process (or the conduct of operations). Understanding also may include social and human factors and constraints within organizations. Informal dialogue that shares perspectives, issues, concerns, and abilities not only leads to shared understanding but also helps build trust and forms the basis for unity of effort. Through collaboration and dialogue, knowledge sharing enables an understanding of an operational environment, the problems to be solved, and the approaches to solving them. Effective KM practices enable commanders, subordinate leaders, Soldiers, and organizations to work together to achieve operational goals. KM facilitates the transfer of the "how" in the form of tacit and explicit knowledge. Understanding is primarily an individual process; therefore, its domain is the tacit knowledge that resides in individuals.

Share

1-37. Knowledge shared is power. Knowledge is a transferable asset that tends to grow with use and application. A strategy of linking the sources of tacit knowledge and encouraging interaction at all levels (individual to enterprise) helps the Army to acquire and share knowledge in support of operational objectives. The four components of KM—people, processes, tools, and organization—are interdependent, nested, and permeable. Getting the knowledge to those who need it, when they need it, is critical to successful knowledge transfer. Technology enables social interaction by providing access to people, storage, and online connections, but technology is not a requirement for knowledge transfer. Learning, teaching, coaching, and mentoring occur just as easily, and often more effectively, in face-to-face exchanges. The ability, engineered into the system of networks, for users at various levels to access the knowledge of others is an essential precondition to transfer. The concept of hoarding knowledge to make oneself indispensable benefits no one. Knowledge is of value only when it is available to use to improve and inform organizational effectiveness, operational processes, integrating processes, and decision making.

Integrate

1-38. Army forces do not operate independently, but as a part of a larger joint, interagency, and frequently multinational effort. Effective integration requires creating shared understanding and purpose through collaboration with all unified action partners. KM transcends hierarchy and boundaries by integrating the people and processes, enabled by KM tools, to create, organize, apply, and transfer knowledge. By enabling knowledge integration and improving collaboration, KM breaks down stovepipes and enhances shared understanding. When provided timely and accurately this shared understanding enables the commander's decision-making cycle to shorten and lead to an information advantage in operations. KM employs standard practices focused on organizational effectiveness and improved decision making. KM functions simultaneously on multiple planes of space, time, and social organization; the interactions across and between organizations enhance organizational effectiveness.

Connect

1-39. Knowledge creation depends on the transfer of that knowledge from those with experience, expertise, or insights. This requires connecting people and knowledge with others. KM focuses on transferring tacit knowledge between individuals, teams, and units through collaboration. Simultaneously, it makes stored explicit knowledge more easily and readily available to more people and organizations. It contributes to integrating lessons learned during all phases of the operations process.

Learn

1-40. Leader, Soldier, and Army Civilian organizational learning underpin adaptability—the ability to shape conditions and respond effectively to a changing operational environment with appropriate, flexible, and timely actions. KM enables learning by connecting leaders, subordinates, and organizations and by facilitating the sharing and integration of information and knowledge. KM fosters individual and collective learning and contributes to developing learning organizations by integrating informal learning, organizational learning strategies, and KM capabilities. Much learning comes from individuals' initiative in self-development and study. Thus, fostering learning begins with promoting initiative and innovation. It also involves required knowledge transfer during interaction and collaboration. Fostering learning produces organizations and Soldiers able to adapt faster than enemies and adversaries.

Trust

1-41. One of the principles of mission command is mutual trust. Trust not only provides the foundation for building cohesive teams, but it is also the glue that holds them together. KM fosters a willingness to share knowledge while providing effective ways to do so for the benefit of the organization. The positive results of sharing knowledge enhance trust and improve shared understanding, thus encouraging Soldiers to exercise disciplined initiative and accept risk to seize opportunities within the commander's intent.

KNOWLEDGE MANAGEMENT ROLES

1-42. The primary role of KM is to support commanders and staffs in the exercise of C2. *Command and control* is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission (JP 1, Volume 1). C2 is fundamental to the art and science of warfare. Commanders put C2 into action through the operations process—plan, prepare, execute, and assess operations. *Mission command* is the Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation (ADP 6-0). Mission command is based on the Army's view that operations are inherently chaotic and uncertain. No plan can account for every possibility, and most plans must change rapidly during execution to account for changes in the situation. No single person is ever sufficiently informed to make every important decision, nor can a single person keep up with the number of decisions that need to be made during combat. Subordinate leaders often have a better understanding of what is happening during a battle than higher echelon leaders. They are more likely to respond effectively to threats and fleeting opportunities if they are allowed to make decisions and act.

1-43. To support C2 and achieve an information advantage, commanders employ KM throughout the operations process. Information advantage is described as the operational benefit derived when friendly forces understand and exploit the information considerations of the operational environment to achieve information objectives while denying the threat's ability to do the same. Additionally, the side possessing better information and using that information more effectively to understand and make decisions has an information advantage. KM supports achieving an information advantage through four primary roles. They include—

- Enabling the C2 warfighting function.
- Organizing the C2 system.
- Optimizing the operations process.
- Creating a knowledge sharing environment.

(See FM 3-0 for a detailed discussion of information advantage.)

ENABLING THE COMMAND AND CONTROL WARFIGHTING FUNCTION

1-44. KM provides commanders the information and knowledge to create and maintain understanding and make decisions. Staff members study an operational environment, identify information gaps, and help commanders develop and answer information requirements. Staffs perform information management to organize and process collected data into information and apply analysis to develop information into knowledge.

1-45. The commander is the central figure in C2. Commanders drive operations through understanding, visualizing, describing, directing, leading, and assessing operations. Staffs support commanders by controlling operations. KM is integral to commanders and staffs as they perform these tasks. The KM role in the commander's task of driving operations is described in paragraph 1-51.

1-46. During operations, knowledge flows between individuals and organizations. Staffs manage this exchange and use KM practices to enable knowledge transfer to improve C2. Knowledge transfer occurs formally through processes and procedures and informally through collaboration and dialogue.

1-47. Army-wide KM implementation enables the Army, through mission command, to execute operations across the range of military operations. Shared understanding creates agile learning organizations. This helps commanders achieve a relative advantage on the battlefield.

1-48. Mission command establishes a mindset among leaders that the best understanding comes from a balance of bottom-up and top-down understanding. The foundation of this understanding is an individual's tacit knowledge acquired through operating in an environment and its circumstances. Leaders and Soldiers share their knowledge with other members of their unit. However, knowledge that remains only in a unit is limited. KM aligns people, processes, and tools in an organization and culture to capture and distribute knowledge and understanding across the force through communities and centers of excellence. KMOs seek to document and formalize tacit knowledge so that it can be shared internally and externally. KM enables the C2 warfighting function by—

- Supporting the commander's decision making throughout operations.
- Facilitating dialogue and interaction required for successful C2 through collaborative tools and processes.
- Facilitating the capture and transfer of tacit knowledge shared in the organization.
- Facilitating the transfer of explicit knowledge shared in the organization.
- Helping staff members provide timely and relevant information and knowledge.
- Enabling agile learning organizations.
- Supporting C2 warfighting function tasks.

1-49. The Signal Corps manages information and sets information management policy. This enables KM and provides relevant information to the right person at the right place and at the right time to improve decisions. Signal personnel enable KM by—

- Providing network architecture and the technological tools to support content management and knowledge sharing.
- Providing network operations and information management support through the signal staff officer.
- Serving in various positions in the KM section. This includes providing software developer and data analytics support, if available.

(See FM 6-02 for more information on signal support to operations.)

Supporting Commander's Decision Making

1-50. The KM staff helps units implement processes and practices to provide commanders with the knowledge and understanding to make decisions. Staffs use various information and KM practices to help commanders process data and information. They piece together data and information and produce knowledge through analysis and evaluation. Knowledge and information managers assist commanders with progressively adding meaning at each level of processing and analyzing to help build and maintain situational understanding. *Data* is, in the context of decision making, unprocessed observations detected by a collector of any kind (human, mechanical, or electronic) (ADP 6-0). *Information* is, in the context of decision making, data that has been organized and processed in order to provide context for further analysis (ADP 6-0). *Knowledge* is, in the context of decision making, information that has been analyzed and evaluated for operational implications (ADP 6-0). *Understanding* is, in the context of decision making, knowledge that has been synthesized and had judgement applied to comprehend the situation's inner relationships, enable decision making, and drive action (ADP 6-0). Staffs provide collective knowledge to the commander. Commanders apply judgment to data and information to transform knowledge into understanding. (See ADP 6-0 for more information on data, information, knowledge, and understanding. See Table 1-2 for a listing of how KM enhances decision making.)

Table 1-2. How knowledge management enhances decision-making

Enabling the unit to focus and direct	
Element	***Examples***
The right data, information, and knowledge	• Commander's critical information requirements • Commander's common operational picture • Significant activity reports • Situation reports • Medical evacuation • Requests
To the right person	• Commanders • Staffs • Action officers
At the right time	• Latest time information of value • Battle rhythm
In the right form	• Significant activities • Spot reports • Ground intelligence summaries • Size, activity, location, unit, time, equipment (See Appendix C for information on attachments and decision support products.)
In the right place	• Command posts • Boards (for example, targeting and plans) • Battlefield update briefs • Commander's updates • Situation reports
To enable informed decision making based on situational understanding	

Facilitating Dialogue and Interaction

1-51. Units employ KM to facilitate dialogue and interaction through the numerous collaborative tools and processes which KM develops and maintains for the organization. These include tools to help units perform and record virtual meetings, share documents and presentations, brainstorm via white boarding, and collaborate through tools such as Army 365, SharePoint, and a variety of Army professional forums, communities of purpose, and knowledge networks. The KMWG enables collaboration in units, sets up processes, and facilitates training so organizations collaborate and interact. The resulting dialogue enhances critical and creative thinking essential to successful mission command.

Facilitating the Capture and Transfer of Knowledge

1-52. Knowledge is a transferable asset that grows with use and application. Linking sources of tacit knowledge and encouraging interaction at all levels (from individual to enterprise) helps the Army acquire and share knowledge to support the mission. KM tools that facilitate collaboration and the exchange of knowledge enable staffs to capture tacit knowledge. Tacit knowledge provides part of the foundation for intuition. It is a component of knowledge commanders use to exercise mission command. Commanders combine their tacit and explicit knowledge to visualize an operation or battle. When commanders have tacit and explicit knowledge, their situational understanding improves, and they make more effective decisions. Effective KM makes both tacit and explicit knowledge from a wide range of sources available to those who need it, and when they need it, so they can operate more effectively.

Providing Timely and Relevant Information and Knowledge

1-53. Effective KM identifies the information the unit needs and its importance. Staffs use processes to produce information from data and analyze and evaluate that information to produce knowledge. Staffs seek to apply experience and judgement to collective knowledge to help commanders achieve understanding. KM, supported by information management, helps do this more effectively. Information management helps staffs extract relevant information from the vast amounts of data and available information so they can provide timely and relevant information and analysis to help commanders build and maintain situational understanding. Through analysis, staffs develop and provide knowledge to commanders by preparing running estimates and providing recommendations to help commanders understand situations, make and implement decisions, control operations, collaborate with peers, and assess progress on an operation.

Enabling Agile Learning Organizations

1-54. KM helps Soldiers and organizations learn, improve, and become agile. The increased collaboration and interaction between commanders and Soldiers across the force improves flexibility, adaptability, and integration of the warfighting functions. KM connects leaders, subordinates, and organizations and facilitates sharing and integration of data, information, and knowledge. It integrates informal and organizational learning strategies to foster learning. Together, these contribute to developing agile learning organizations. Leaders who promote initiative and innovation foster learning and agility. Organizations and Soldiers adapt faster than enemies and adversaries when Army units foster learning. (See Chapter 4 for more on learning organizations.)

Supporting the Command and Control Warfighting Function Tasks

1-55. The C2 warfighting function consist of the following tasks: command forces, control operations, drive the operations process, and establish the C2 system. The KM staff provides processes for shared understanding and supports the commander and staff's role in executing warfighting function tasks. KM supports the execution of these tasks by—

- Enhancing collaboration among staff members and subordinate commanders to develop the knowledge commanders need to make good decisions.
- Establishing processes and means to collaborate across the organization and among unified action partners.
- Organizing knowledge for commanders.
- Eliminating unnecessary information.
- Producing knowledge products to support activities such as informing and influencing audiences or products based on answering the CCIRs.
- Conducting KM gap assessments and analysis.
- Providing input into information management policy.

Organizing the Command and Control System

1-56. Commanders cannot exercise C2 alone. At every echelon of command, each commander has a C2 system to provide that support. The C2 system is the arrangement of people, processes, networks, and command posts that enable commanders to conduct operations. Commanders organize a C2 system to—

- Support the commander's decision making.
- Collect, create, and maintain relevant information and prepare products which support the commander's and leaders' understanding and visualization.
- Prepare and communicate directives.

1-57. To provide these three overlapping functions, commanders arrange the four components of their C2 system. The four components are—

- People (for example, staff members, trained systems operators, subordinate commanders and leaders, and Soldiers who know their jobs and understand the commander's intent).

- Networks, including informal and leader networks (for example, S1Net and Team Ignite) and technical networks (for example Command Post Computing Environment, Joint Worldwide Intelligence Communication Systems, and Non-classified Internet Protocol Router Network).
- Processes such as significant activity reporting; targeting, battle update and assessment briefs, and request for information management.
- Command posts, including required static facilities and equipment, operations centers, and transport vehicles necessary for mobile command and control operations.

1-58. The components of the C2 system and the components of KM (people, processes, tools, and organization) are similar. The two concepts and their components, although separate and distinct, form a nested framework. Regardless of the framework used to describe it, both constructs are mutually supporting and provide a logical basis from which to think about and properly align the components of mission command.

1-59. The KMO, with the working group and section, helps commanders organize the components of their C2 system by aligning people, processes, and tools in the organizational structure and culture to optimize the integration and functioning of those components. The KM assessment provides a baseline to direct the organization's KM effort and help commanders organize the elements of the C2 system. (Chapter 2 describes the KM assessment.) To affect this alignment, KM personnel—

- Work effectively with all personnel dedicated to C2. These include deputy commanders, executive officers (XOs), command sergeants major, and staffs.
- Understand the networks (both informal and technical).
- Understand the information systems the unit uses and their limitations.
- Have a clear understanding of the networks that comprise the C2 system.
- Understand the processes the unit uses and how they relate to the information systems they interact with, for example, significant activities within each warfighting function and how they feed the common operational picture (COP).
- Identify areas where command post layout and structure obstruct communication and recommend ways to improve their arrangement so people can share their information, ideas, and knowledge (in coordination with the operations section), especially in a joint, intergovernmental, and multinational environment.

1-60. The KMO considers the interaction of user audiences with the tools available, level of training, and other factors to determine ways to align people, processes, and tools to integrate the components of the C2 system. The audience is internal, higher echelon, subordinate, lateral, joint, intergovernmental, multinational, or other. Each type of audience has different requirements and connectivity. Considerations for these audiences include, but are not limited to—

- Tools they use to interact, collaborate, and share knowledge.
- Networks they use to communicate.
- Processes and procedures, commonalities and differences, and methods to best integrate.
- Organizational position match-up. For example, a civil-military operations center director coordinates with personnel from the United Nations refugee agency that work in an area of operations.
- Civil affairs staff officer coordinates with personnel from indigenous populations and institutions, unified action partners, and from host-nation security forces as necessary.
- Classification of material and security clearances of personnel. (See Chapter 4 for more information on interoperability and foreign disclosure.)
- Policies for handling personal and health information and command sensitive data such as AR 15-6 investigations.

The KMO analyzes the information systems' effectiveness. This analysis is part of the KM assessment. It—

- Identifies the systems used to communicate in organizational elements (for example, subordinate, internal, higher echelon headquarters, lateral, Army Service component command, corps, and division).
- Identifies how effective each system is in that category and echelon.

- Prioritizes which information system provides primary, alternate, contingency, and emergency (PACE) functions at an echelon (in coordination with the signal section).

Based on this analysis, the KM officer develops recommendations on better ways to integrate KM tool usage, so the organization maximizes the capabilities of each system.

OPTIMIZING THE OPERATIONS PROCESS

1-61. The Army's framework for organizing and putting command and control into action is the *operations process*—the major command and control activities performed during operations: planning, preparing, executing, and continuously assessing the operation (ADP 5-0). Commanders use the operations process to drive the conceptual and detailed planning necessary to understand their operational environment; visualize and describe the operation's end state and operational approach; make and articulate decisions; and direct, lead, and assess operations. The KMO, as part of the staff, supports operations throughout all phases by assessing and employing practices to improve on each of the phases. The operations process includes identifying knowledge and performance gaps and working with each of the staff sections to ensure information is getting to the right place at the right time. Other ways KM optimizes the operations process are by—

- Facilitating the transitions between planning, preparing, executing, and assessing (knowledge transfer between plans, future operations, and current operations).
- Assessing and refining the battle rhythm in a logic that best facilitates decision making across the various planning horizons.
- Creating knowledge sharing environment and a current COP.

Knowledge Management and Planning

1-62. Although KM is part of all operations activities, its role in "plan" and "assess" are the most visible. In addition to improving the planning process, knowledge managers must write an annex to support the operation. The KMO's role in the prepare and execute phases is ensuring staff members are prepared and effectively implementing KM practices and procedures developed during planning. (See Chapter 2 for a description of KM and assessment. See Appendix C for a discussion on annex format.)

1-63. Army leaders employ three methodologies for planning. Commanders and staffs determine the appropriate mix of these methodologies based on the scope of the problem, their familiarity with it, the time available, and staff members available. Methodologies that help commanders and staffs plan include—

- Army design methodology.
- The MDMP.
- Troop leading procedures.

(See ADP 5-0 for more information on planning methodologies.)

Knowledge Management and Army Design Methodology

1-64. Commanders and their staffs use Army design methodology to help them with the conceptual aspects of planning. Effective KM helps commanders and their staffs apply critical and creative thinking to understand, visualize, and describe unfamiliar problems and envision approaches to solving them. The understanding developed through Army design methodology continues through preparation and execution as continuous assessment and is communicated with staff and subordinates to build shared understanding.

Knowledge Management and the MDMP Process

1-65. The Army's *military decision-making process* is an iterative planning methodology to understand the situation and mission, develop a course of action, and produce an operation plan or order (ADP 5-0). Through the seven-step process that leads to the development of a plan or order, commanders and staffs share understanding of the operational context and commander's intent. KM practices applied to the MDMP help Soldiers and organizations learn and adapt as they plan and operate and validate assumptions. Figure 1-1 shows that by effectively aligning the people, processes, tools, and organizational components (as described in paragraphs 1-28 through 1-36), leaders and subordinates can improve their understanding and visualization

of the battlefield through the MDMP which then improves flexibility, adaptability, integration, and synchronization.

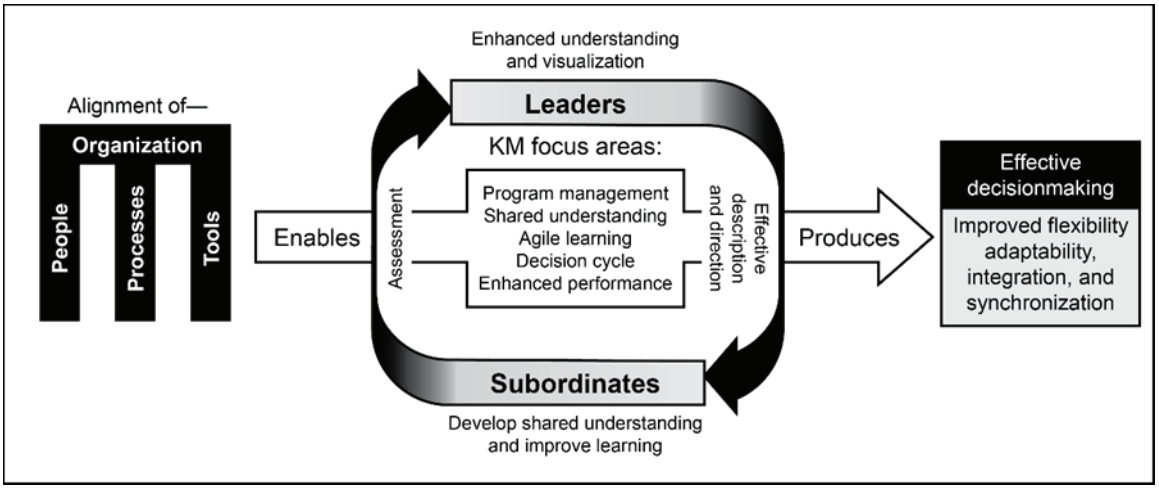


Figure 1-1. Aligning the knowledge management components to improve decision making

1-66. KMOs, through continual professional training and experience, use KM core competencies within five focus areas to better facilitate the integration and alignment of the KM components within the command post. KM contribution to the MDMP results in a completed KM annex in operation plans and orders. (See chapter 5 for more information on KM training.)

Knowledge Management and Troop Leading Procedures

1-67. *Troop leading procedures* are a dynamic process used by small-unit leaders to analyze a mission, develop a plan, and prepare for an operation (ADP 5-0). KM practices help small-unit leaders achieve and share understanding with members of their unit to optimize the mission analysis, planning, and preparation for operations.

Knowledge Management Support to the Operations Process Principles

1-68. The principles of operations include —

- Driving the operations process.
- Building and maintaining situational understanding.
- Applying critical and creative thinking.

These principles highlight the important role of KM. The relationship of KM to these principles is described in paragraphs 1-69 through 1-73.

Driving the Operations Process

1-69. Commanders are the central figure in mission command. They drive operations through execution of their tasks of understand, visualize, describe, direct, lead, and assess. The KM staff supports the commander's understanding and visualization by facilitating access to sources of knowledge, including those that support the staffs in preparing running estimates for commanders. KM collaboration tools help commanders share their own understanding as they describe their visualization and direct actions of staffs and subordinate commanders. Collaboration and dialogue lead to shared understanding of the commander's intent and enables commanders to effectively lead.

Building and Maintaining Situational Understanding

1-70. Staffs perform KM and information management to find relevant information from large amounts of data and available information. They provide timely and relevant information and analysis to help commanders build and maintain situational understanding. Through analysis, staffs develop knowledge for

commanders and prepare estimates and recommendations to help commanders understand situations, make and implement decisions, control operations, and assess progress.

1-71. KM tools and processes facilitate the commander's situational understanding of an operational environment and the effects on their C2 system. Staffs execute KM and information management to enable commanders' situational understanding, and make and implement decisions, control operations, and assess progress. KM enhances a staff's ability to help subordinate units (commanders and staffs) and keep units and organizations outside the headquarters informed throughout an operation. This requires connecting people and knowledge. KM transfers tacit knowledge between individuals, teams, and units through collaboration.

1-72. The product of shared understanding is effective decision-making at every level. Collaboration and interaction help subordinate leaders understand the commander's guidance and intent. This enables them to make appropriate decisions when circumstances change. They communicate and reinforce the commander's intent to Soldiers whose individual decisions and actions reflect their understanding of it.

Applying Critical and Creative Thinking

1-73. Collaboration and dialogue enable critical and creative thinking as participants share knowledge and insights. Those involved question each other's assumptions and exchange ideas through various lenses–individual, peers, leadership, and doctrine. This exchange helps commanders and staffs understand situations, make decisions, and direct action. When commanders encourage a collaborative environment where knowledge and ideas are freely shared, the resulting creative thinking leads to new insights, novel approaches, fresh perspectives, and new ways to understand and conceive situations.

CREATING A KNOWLEDGE-SHARING ENVIRONMENT

1-74. A knowledge-sharing environment contains the cultural values, norms, and practices as influenced by the various members of that environment. In a knowledge-sharing environment, individual members of an organization share what they know with others because they understand everyone will benefit. This environment facilitates knowledge sharing by removing barriers to knowledge flow and using simple processes and procedures. This type of environment facilitates both individual and organizational learning.

1-75. Commanders create positive command climates that foster mutual trust and understanding in their command and with unified action partners. They establish a culture of collaboration. Successful commanders invest time and effort to visit with Soldiers, subordinate leaders, and partners to understand issues and concerns. Commanders and staffs build and maintain shared understanding in the force and with unified action partners by collaborating during operations.

1-76. KM supports Army units as part of joint, intergovernmental, and multinational operations by creating an environment of open collaboration, knowledge, and information sharing. Commanders, leaders, staff, Soldiers, and partners all play a role in creating this environment. Leaders who excel at all echelons encourage, teach, and promote an environment where Soldiers exchange knowledge in and out of the chain of command. Those in KM positions show other leaders and Soldiers ways to share knowledge and employ good KM practices. This enhances unit performance and helps individuals. Leaders set the example by sharing their own knowledge, experience, and insight and pass on information of value to others.

Knowledge Management Responsibilities

1-77. KM involves bringing people together to share ideas and knowledge, solve problems, and improve operations. KM relies heavily on the team concept. Those personnel involved in KM and related activities that underpin the organization's C2 processes comprise the KM team. The exact composition varies depending upon echelon and the commander's experience with KM.

1-78. Everyone in the organization is responsible for aspects of KM. Personnel and teams with specifically assigned or implied KM responsibilities include—

- Commanders.
- The chief of staff (COS) or XO.
- Chief knowledge officer.
- KMO.

- Unit staff.
- Operations officer.
- Signal officer.
- Digital master gunner.
- KMWG.
- KM representatives.
- KM section (when assigned).
- Leaders.
- Soldiers.
- Partners.

Commanders and Subordinate Commanders

1-79. Commanders are the formal "knowledge leaders" in their units. Commanders provide clear intent, set policies, establish procedures, and make decisions. Their support and involvement are important for a KM program. They establish a command climate that encourages a culture of collaboration that fosters shared understanding through both the informal and formal leaders and networks.

1-80. Commanders are central to mission command, and they must have open collaboration and dialogue with multiple stakeholders, staffs, and subordinate commanders. Collaboration, dialogue, and other forms of interaction occur with commanders and staffs; with subordinate commanders; in working groups; during update briefings; and in communities of purpose via Army professional forums, centers of excellence, or other means. Through collaboration and dialogue, participants share their knowledge, perspectives, and understanding of a situation. This exchange increases shared understanding of enemy forces and an operational environment, problems to be solved, and approaches to solving them while retaining a relative advantage. This exchange contributes to the overall Army knowledge base.

1-81. Commanders leverage lines of communication that are both omnidirectional and hierarchical in Army organizations. KM staffs ensure adequate processes and tools are available to make knowledge transfer rapid and efficient. Commanders at all echelons understand the difference between the transfer of reports and information in the hierarchical chain of command and the transfer of knowledge among people and organizations based on function and relationship. (See Figure 1-2 on page 1-18 for a depiction of multiple lines of communication.)

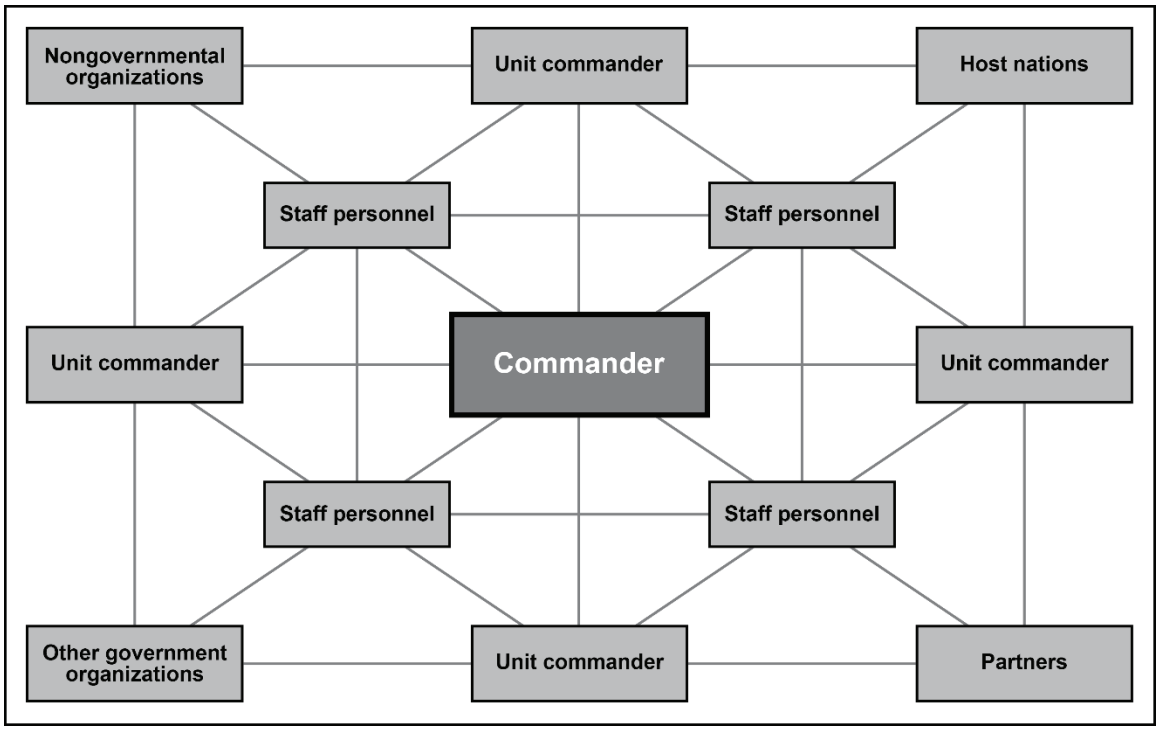


Figure 1-2. Multiple lines of communication

1-82. Subordinate commanders support and execute higher commanders' vision and intent, including supporting and contributing to shared understanding. They understand the interrelationships between people, processes, and tools and how they help their units and higher echelon organizations work effectively, intelligently, and quickly.

Chief of Staff or Executive Officer

1-83. The COS or XO is the senior KM officer in an organization and advises the commander on KM policy and implementation. The COS or XO directs the activities of each staff section and subordinate units to capture and disseminate organizational knowledge.

1-84. The COS or XO provides leadership, enforcement, and program focus. The COS or XO supervises the KM officer in developing KM processes and integrating those processes into the plans, operations, and training of the unit. The COS or XO integrates a KM plan that supports all plans and orders, tactical standard operating procedures (SOPs), command and staff updates, capture of lessons learned, after action reviews, and other activities that capture and use knowledge. The COS or XO—

- Provides direction to the KM officer.
- Provides staff authority to the actions of the KMWG (this may or may not include major subordinate commands and is situationally dependent). The COS or XO may chair the group or designate the KM officer to do so.
- Focuses on reducing organizational costs and administrative redundancy while increasing the opportunities to share knowledge vertically and horizontally.

Chief Knowledge Officer

1-85. The chief knowledge officer (known as the CKO) operates at the enterprise level and differs from the KMO position described in paragraph 1-86 due to the types of commands where chief knowledge officers work. They are usually led by a general officer. The chief knowledge officer designation is primarily used in higher institutional force commands—such as Army Commands, the Combined Arms Center, and centers of excellence. The KMO position applies primarily to operational-level commands such as division, corps, and

Army Service component commands (there are some exceptions). Duties for the chief knowledge officer are budget planning, setting KM policy, and oversight of other supporting programs (such as the management of the Continuous Process Improvement Program). Chief knowledge officer responsibilities include—

- Creating an organizational knowledge network and metrics for evaluating its effectiveness.
- Developing KM techniques, policies, and procedures and ensuring command-wide dissemination.
- Advising commanders and staffs on integrating KM practices throughout their organizations.
- Writing the KM annex to plans and orders and updating as necessary.
- Developing records and content management plans.
- Performing staff planning and coordination of KM functions and activities to improve shared understanding, learning, and decision making.
- Leading efforts to identify gaps in organizational processes.
- Leading the staff in assessing unit knowledge processes.
- Synchronizing KM functions and activities with higher echelon and subordinate commands.
- Monitoring emerging KM trends for incorporation into unit operations.
- Directing KMWG efforts and facilitating its meetings.
- Approving the use of enterprise technology solutions.

Knowledge Management Officer

1-86. The KMO directs the KM section. They report to the COS or XO and advise commanders and staffs on KM. The KMO ensures the KM process and procedures are understood in the unit. They demonstrate how these processes and procedures improve efficiency and shared understanding during training and enhance operational effectiveness during operations, especially in time-constrained environments. During operations, the KMO moves with the commander, or remains in the command post, as required. The KMO duties and responsibilities are the like those listed in paragraph 1-87 minus the executive oriented tasks listed. (See FM 6-0 for additional information about KMO duties and responsibilities).

Unit Staff

1-87. Unit staffs are integral to the success of KM. Their understanding and support of KM enables it to function effectively; therefore, KMOs communicate, coordinate, and seek staff input and educate staff members on KM practices. All staff members collaborate, interact, share knowledge, and ensure they understand the commander's intent (and other key knowledge and information) and share it with their subordinates.

1-88. Staffs use KM to provide commanders the information needed to create and maintain their understanding and make effective decisions. All staff elements and subordinate commands share the responsibility of implementing and integrating KM activities into their organizations.

1-89. The COS or XO must integrate staff expertise to optimize effectiveness. Effective staff integration brings functional experts together from across staff sections and outside organizations to support the commander's ability to make sound decisions. (See FM 6-0 for more information on the duties of all coordinating, special, and personal staff officers). KM responsibilities common to all staff members include—

- Ensuring their portion of the information system provides visible, accessible, understandable, linked, trustworthy, interoperable, and secure data to the COP.
- Continuously updating information for the commander's update brief, update assessment, and the commander's dashboard for real-time organizational awareness.
- Continuously assessing processes and looking for ways to eliminate gaps in information flow.
- Collaborating with other staff elements to share knowledge.
- Creating and managing information according to established SOPs.
- Ensuring content is accessible through existing collaborative and information systems.
- Ensuring content is stored and managed in a structure that is easy to understand and facilitates easy search and retrieval of information and files.

- Incorporating blogs, discussion boards, document libraries, surveys and polls, and databases (asynchronous tools) into the daily work environment to improve cross organizational collaboration.
- Implementing audio, web, and video conferencing, chat, instant messaging, white boarding, and application-sharing capabilities to improve synchronous communication.
- Developing a working relationship with similar staff sections from other organizations to improve horizontal knowledge sharing.
- Performing comprehensive after-action reviews and capturing observations, insights, and lessons learned to add to the unit's and the Army's institutional knowledge base.
- Providing input through the KMWG or KM section to the command's KM plan and activities as it affects their section.
- Creating an atmosphere of innovation and creativity in the section, focused on identifying and publicizing best practices; tactics, techniques, and procedures; and lessons learned.
- Training their personnel on procedures that support effective KM, including the use of SharePoint, communities of purpose, information systems, and other KM tools— both digital and nondigital.
- Enabling subordinate headquarters by being responsive to their knowledge needs and supporting their efforts to integrate KM.
- Using social and informal leader networks (for example, Microsoft Teams) to collaborate.
- Developing, following, and enforcing the staff section SOPs.
- Ensuring content is easily accessible by other staffs and commanders.
- Ensuring file structure and naming conventions are easily understood.
- Establishing and enforcing content management in their staff section.

Although all staff members perform KM as part of C2, the operations staff officer, the signal staff officer, and the digital master gunner (if available or applicable) play critical roles in KM.

Operations Officer

1-90. The operations staff officer is the principal staff officer responsible for training, operations, and plans and integrates and synchronizes the operation as a whole for the commander. The operations officer has the broadest responsibility of all staff officers. With regard to KM, the operations officer—

- Ensures KM is integrated into the plans, operations, and training of the unit.
- Coordinates the after-action review and lessons learned effort with the Center for Army Lessons Learned.
- Ensures that knowledge produced in the unit is captured and sorted for retrieval.
- Works with the KMO and signal staff officer to verify that databases and other information sources are integrated to eliminate stovepipes and improve organizational knowledge sharing.
- Ensures that training plans address proficiency and efficient use of all applicable information systems and networks of the C2 system.
- Establishes requirements for information to be included in the unit COP.
- Integrates training requirements stemming from KM solutions into the overall training plan.

Signal Officer

1-91. The signal officer provides the knowledge and expertise to develop the technology architecture of the C2 system and focuses on technical aspects to support KM. The signal officer provides input to the organization's KM plan and develops and implements information management policies and procedures with the KMO. The signal staff officer ensures adequate support for KM from other signal staff personnel, such as the network operations officer, who provides expertise and support for KM initiatives requiring the use of information systems, network communications, or computer operations. This includes developing the PACE plan to ensure communication redundancy.

1-92. Signal officers establish information management officers to act as a layer between the signal section and the operational staff to focus on effective operator integration with the information systems and an understanding of information management policies and content storage requirements. Information

management is a core competency of the signal community. (See FM 6-02 for more information on signal support to operations.)

Digital Master Gunner

1-93. Many units at divisions and higher echelons employ specially trained digital master gunners. The digital master gunner is the commander's primary assistant for the unit's digital training readiness and certification programs. The digital master gunner is the designated subject matter expert that aligns the digital systems with the operations process across all warfighting functions to generate a COP for the commander and staff. This enables the commander to make decisions, increase situational awareness, and create shared understanding. The digital master gunner is an important participant in the KMWG. The primary tasks the digital master gunner performs are—

- Operate, maintain, and train others on C2 information systems.
- Generate a COP for commanders and staffs.
- Integrate, visualize, and troubleshoot the system.
- Employ the command post computing environment.
- Assist with management of mission command data.
- Support qualification on mission command gunnery tables during command post exercises.

Knowledge Management Section

1-94. The KM section provides advice and recommendations to commanders, through the XO or COS regarding how KM improves shared understanding throughout the organization, including that of other staff sections. Commanders then direct the implementation of KM improvements per priorities, considering the recommendations of the KMO and with consultation from their staffs.

1-95. KM section members advise the unit's staff on KM and KM tools. These help the staff to manage explicit and tacit knowledge. The section uses available tools to help the unit create and apply KM. The KM section supports unit learning before, during, and after operations and helps the staff develop and disseminate techniques and activities that create or transfer knowledge gained from operations. The KM section enhances C2 by helping organizations integrate information systems in the headquarters in a manner consistent with best KM practices and operational requirements.

1-96. The KM section, in conjunction with the signal section, builds and sustains the knowledge and information management architecture to connect people and help them to collaborate and rapidly share techniques, procedures, operational observations, insights, lessons, and knowledge products. Elements of this architecture include a KMWG, collaboration methods, processes critical to operations and information, and other sources of information and knowledge, for example, the Center for Army Lessons Learned.

1-97. Knowledge networks are an important part of knowledge architecture. These include social networks like Microsoft TEAMS, interpersonal networks like KMWGs, and technical networks like the Secure Internet Protocol Router network. Commanders, staffs, and leaders establish social and interpersonal networks, while the signal staff officer establishes the technical network architecture. The KMO and the KM section facilitate collaboration among each of these networks and help connect subject matter experts to enable individual and organizational learning. The KM section's responsibilities include—

- Executing the five steps of the KM process. (See Chapter 2 for a discussion of the five steps of the KM process.)
- Identifying and resolving knowledge gaps.
- Providing a core team to resolve KM issues. This team forms the basis of the multifunctional KMWG drawn from all staff sections.
- Advising commanders and staffs on KM solutions.
- Developing techniques and procedures to support unit learning throughout all phases of the operations process.
- Advising the unit on using KM processes and tools.
- Coordinating with external knowledge sources to make them available to the organization.
- Developing and modifying SOPs for KM.

- Analyzing newly recommended information technology for KM utility and recommend acceptance and integration by signal staff as appropriate.
- Coordinating with the signal staff officer for technical network, database, and other support.
- Ensuring after action reviews are collected, documented, and disseminated internally and externally as required.
- Conduct KM training in accordance with the unit training plan.

1-98. In forming a KM section, commanders determine who among their staffs are most suited for the duties of the KM. Potential members of a KM section must be able to understand how the unit's people, processes, tools, and organizational structure contribute to operations. Commanders identify those individuals who—

- Best understand the organization's people and their operational and training requirements (skills often resident in operations officers and noncommissioned officers).
- Have a solid understanding of the processes used to transfer knowledge in the organization and effectively communicate their understanding of the processes.
- Know of subject matter experts on the information systems that support the C2 systems and processes of the organization (for example, the information systems master gunner).
- Understand the available tools, including information systems and how they are networked.

1-99. Section member duties and responsibilities depend on personnel assigned to the section. Not every echelon has a KM section, and its composition may vary. The number of personnel determines how many functions the section can accomplish. Not all positions described here are authorized or required at a given echelon. In units where a KM section is not a part of the modified table of organization and equipment (MTOE) or table of distribution and allowances (TDA), select individuals within key staff sections can attend the Army's three-week Knowledge Management Qualification Course and obtain the additional skill identifier of 1E as a qualified KM professional. The KM section may also contain the following MTOE positions:

- Deputy KMO.
- KM noncommissioned officer (NCO).
- Content management specialists.

Deputy Knowledge Management Officer

1-100. The deputy KMO ensures section members understand the KM process and tools. Deputy KMOs understand the major processes used in the unit and the functions of the information systems that support those processes. Deputy KMOs help the operations officer and signal staff officer map the processes and information systems that produce the COP. The deputy KMO reports to the KM office. Deputy KMO responsibilities include—

- Understanding the supporting information systems and knowing the subject-matter experts that support those systems.
- Coordinating with the battle staff section and the operations section to clearly understand how the operations process applies to unit's battle rhythm.
- Executing KM policies and plans in the KM section.
- Developing, organizing, and supervising implementation of the unit's content management effort.
- Assisting staff sections in answering CCIRs.
- Seeking techniques to incorporate effective knowledge transfer and learning techniques into organizational learning.
- Mapping the unit's KM network.
- Developing metrics for evaluating KM effectiveness.
- Identifying operationally relevant trends, observations, insights, lessons, and significant actions.
- Ensuring efficient processes for directing requests for information.
- Coordinating with the signal staff officer to ensure connectivity to relevant information systems and networks.
- Overseeing KM-related roles and responsibilities as directed by the KMO.

- Establishing procedures to monitor the appropriateness of a unit's content.
- Developing the unit's KM training and certification program.

Knowledge Management Noncommissioned Officer

1-101. As the senior enlisted member of the KM section, the KM NCO advises the KMO on ways to facilitate knowledge sharing in the staff and ways to improve knowledge transfer, knowledge tools, processes, and other KM matters. KM NCOs help integrate KM training concepts into the unit's individual and collective mission-essential tasks. They oversee KM training certification programs. KM NCO responsibilities include—

- Assisting staff sections in organizing the command post's layout to best facilitate staff interaction.
- Coordinating appropriate audiovisual displays of the COP and other operationally relevant KM products in command posts and other areas.
- Planning, supervising, and leading training in knowledge transfer procedures for subordinate unit leaders.
- Monitoring collaboration sites and knowledge networks and advising staff on relevant content.
- Addressing KM aspects of operations security in coordination with the protection staff section.
- Collaborating with unit command sergeants major, battle staff NCOs, staff section NCOs in charge, network and information systems subject matter experts, and C2 system subject matter experts to gain a clear understanding of critical processes in the C2 system.
- Helping to design templates and formats for recurring knowledge products to increase standardization and reduce redundancy.
- Participating in the KMWG.
- Ensuring the unit's content management plan meets requirements and is implemented across the unit.
- Reviewing the unit's file management techniques and directing adjustments as needed.
- Remaining abreast of current and future trends in KM and content management and integrating them into unit operations as needed.
- Supervising training in knowledge transfer procedures.
- Serving as the unit's expert for KM tool and system training, design, and use.
- Coordinating with the operations officer and signal staff officer to incorporate KM tools, systems, and information system architecture into the COP input design and display.
- Coordinating with signal staff officer technical teams to identify and implement KM initiatives.
- Ensuring after action reviews from previous events is considered in any new missions.
- Monitoring KM policies and procedures for compliance.

Content Management Specialist

1-102. Content management specialists are experts on content management and retrieval. They ensure knowledge is available to Soldiers when they need it. These specialists help the signal staff section manage digital content with tools that allow users to exchange explicit knowledge, collaborate, and connect with subject matter experts across the organization and the Army. They implement content management in the four task areas of creating, organizing, applying, and transferring knowledge. Each task area is associated with steps of KM. Content management specialists' responsibilities include—

- Supporting implementation of the unit's KM policies and procedures.
- Searching for and capturing observations, insights, and lessons from other units and individuals via various networks and forums, as related to content management.
- Facilitating knowledge transfer between units, Soldiers, and leaders.
- Reviewing the unit's file management techniques and directing adjustments as needed.
- Developing comprehensive document naming conventions, data-tagging policies, and data organization for the unit consistent with Army policies.
- Training staff members to organize and obtain explicit knowledge stored in knowledge networks, databases, and information systems.

- Helping review databases and web sites to determine the security and relevance of content.
- Helping the KM NCO design briefings, documents, templates, and other knowledge products.
- Helping the KMO and the Deputy KMO provide expertise and training in using KM tools, processes, and systems.
- Helping the battle staff exercise content management, specifically in the C2 system.
- Understanding current and future trends in KM and content management.
- Coordinating with the signal staff (through the KMO) on incorporating current standards to improve information search and retrieval across various data sources.
- Coordinating with the signal staff for information assurance and information security matters as related to content management.
- Supervising and performing KM training, including content management procedures.

1-103. In some situations, the KM section is augmented with civilian contractors. These personnel become integral contributors to KM efforts and expanding the capabilities of the KM section by performing duties as information system integrators, developers, and trainers.

Leaders

1-104. Leaders drive KM and determine how successful a program will be. Leaders embrace and enforce KM standards. They support efforts of the KM section, KMRs, and KMWG. Lastly, they support KM training and activities such as performing assessments and enforcing content management.

1-105. Leaders understand the people, processes, tools, and organizational culture in their section and mentor subordinates. They understand the commander's intent and communicate it and the CCIRs to their subordinates.

1-106. Effective leaders set the example by sharing their own knowledge with others. Leaders support their commanders and establish a culture of collaboration and contribute to collaborative efforts through informal networking, collaboration sites such as SharePoint, and Army forums such as S-3 and XO net or Noncommissioned Officer Net. Leaders know understanding comes from the bottom-up, not the top-down, and are open to ideas, innovations, and insights that come from the lowest echelons. Leaders empower their subordinates by ensuring they can access knowledge resources of all types and know how to use them. Leaders build trust in subordinates.

1-107. Leaders develop teams that share knowledge to carry out the commander's intent. They effectively collaborate with each other and with those outside the team that affect their ability to execute their mission. Leaders understand KM so they can effectively support their teams' ability to collaborate effectively. The trust and respect in teams facilitates knowledge sharing in the team. Leaders show Soldiers the value of applying the KM components (people, processes, tools, and organization) to collaborate and share what they know, and they understand the consequences of failing to share knowledge.

1-108. Teams execute collective tasks to accomplish their mission. Army leaders collaborate with subordinate, lateral, and higher echelon elements to ensure they gain knowledge and understanding as possible. They collaborate with other leaders to share their knowledge, increase their own knowledge, and apply that knowledge to make their teams better.

1-109. As they build their own teams, leaders support their higher commander's team building tasks. This brings together teams that work toward a common goal with unity of purpose, even in the absence of unity of command. Leaders recognize that shared understanding is critical to act according to the commander's intent and to complete a mission. Leaders perform or support activities to facilitate the creation and transfer of knowledge, such as after-action reviews, post-mission debriefings, and rapid dissemination of knowledge and information.

Soldiers

1-110. Soldiers are an integral component of a knowledge-sharing environment, and every Soldier understands and practices KM. This enables Army commands at every level to be learning organizations. Soldiers perform KM as part of daily business. Specifically, all Soldiers—

- Understand their expertise is valuable if shared with other Soldiers, organizations, and the Army.
- Understand critical processes used in their section.
- Share what they know with others.
- Become proficient on critical individual and unit information systems.
- Learn before, during, and after operations.
- Use search-and-discover and expertise-location tools to find knowledge and information they need.
- Know the capabilities and ways to use tools and systems available to them.
- Know proper reporting procedures.
- Participate in post-mission debriefings and after-action reviews.
- Learn to access additional knowledge resources, such as those found in the Center for Army Lessons Learned and centers of excellence.
- Know the CCIRs.
- Exercise initiative and share lessons learned.

Note. Army Civilians play an equally important role when operating as part of an institutional organization. Army operational units have a defined MTOE. TDAs do not. They are commander and unit driven. Readers can assume that if their organization employs Army civilian professionals instead of Soldiers, these terms and duties may be interchangeable. TDA units can create other KM titles, such as KM specialist, KM information technology project lead, or business process improvement specialist.

Partners

1-111. Partners working with U.S. forces depend on information and knowledge sharing and are critical to creating a knowledge sharing environment. Knowledge managers work with joint and coalition partners to improve interoperability through technical and human processes and procedures. When possible, they should be included in KMWG discussions. (See Chapter 4 for more on information on interoperability.)

Knowledge Management Working Group

1-112. The KMWG is the organization's primary means of implementing KM. It also acts as a key feedback mechanism to the KM section. The KMWG works collectively to eliminate obstructions to knowledge flow and contributes to shared understanding. The working group is how the KMO assesses and improves the transfer of knowledge in an organization. It also helps the COS or XO improve knowledge flow. The group's ability to mitigate bottlenecks and improve C2 determines success. At higher echelons, some organizations report to an executive board to ensure KM initiatives (which may require funding or additional resourcing) are in alignment with the strategic objectives of the unit. Depending on the unit, some may conduct a separate KMWG with their major subordinate commands to focus on issues external to the headquarters.

1-113. The KMO facilitates the working group, which includes representatives from each of the major staff sections, known as KMRs, plus other subject matter experts as required. The COS or XO chairs the group unless delegated to the KMO. Meetings are held according to the unit's mission and tempo and integrated into the organization's existing battle rhythm. This promotes regular attendance and improves the group's productivity.

1-114. Since the KMWG's duties involve analyzing knowledge gaps throughout an organization, inviting a wider representation from time to time to take part in the working group provides a broader perspective to guide further investigation and problem solving. Considerations when establishing a KMWG include—

- Identifying the commander's intent and COS or XO guidance for the KM program.
- Determining who is responsible for what information to address knowledge flow issues.
- Understanding how the organization is structured and the challenges and benefits that structure presents to the integration of knowledge in the organization.

- Understanding how cross-functional teams (such as the current operations cell) function, and how they affect knowledge flow in the organization.

1-115. The KMWG's members understand KM, what it can do for their section, and what it can do for the organization as a whole. They understand that KM is not specifically digital tools, but how people work with the most appropriate tools to enhance shared understanding. The analysis they perform during KM identifies the appropriate tools (analog, digital, and others) for the organization's decision-making processes. (See Chapter 3 for a discussion of focus areas for performing assessments.)

1-116. The KMWG's responsibilities and expectations are established early. This includes participants, report procedures, and priorities, with guidance and input from the COS or XO. This information is shared with the entire staff in an initial report or similar document.

Knowledge Management Representatives

1-117. KMRs are staff section personnel designated as the agent of the staff principal to coordinate with the KM staff section. They are usually the first responders to KM issues, and they understand their organization's collaborative processes. They have technical skills or special training in KM, and they seek to improve the organization and be creative and critical thinkers.

1-118. KMRs are agents of the commander or staff principal to coordinate KM efforts in each primary staff section or at the company level. Operationally focused and specialists in their own warfighting function, these representatives understand the collaborative processes of their sections. If the organization has a KM section, the KMRs work closely with it to mitigate any gaps that prevent information and knowledge transfer. These representatives are in all organizations from brigade level to major commands.

1-119. KMRs implement approved changes and improvements in their staff section or organization. KMR functions do not include updating information management systems or updating collaborative sites; however, if their primary duties include updating these systems, they update them. In either case, KMRs understand how content is managed, and they understand the requirements for effective collaborative sites.

1-120. There are three main areas where KMRs contribute to implementing KM in their organizations. These areas are advocacy, support, and knowledge brokering.

Advocacy

1-121. Advocacy includes raising KM awareness and educating and emphasizing the importance of sound KM practices. For example, advocates demonstrate to coworkers ways to share knowledge using available KM tools. Some advocacy actions include—

- Transmitting communications from the KMO to their section.
- Encouraging and setting the example in knowledge sharing and learning.
- Leading KM awareness training at staff section professional development training.
- Collecting and sharing feedback from the staff section to the KMO, KM section, and KMWG.

Support

1-122. KMRs are internal staff section representatives for KM initiatives. In their support role, KMRs attend KM meetings and seek out projects and processes to streamline and automate. They help identify gaps in the processes used in their staff section. In addition to representing KM initiatives to their staff sections, they provide their own staff section's perspective to enable them to understand the needs of the organization. Support actions include—

- Identifying gaps in staff element processes.
- Acting as liaison between the KMO or KM section and their staff section.
- Planning, coordinating, and delegating KM activities for their staff section.
- Providing feedback to staff section leaders on the impact of KM initiatives.
- Providing suggestions for new KM initiatives or improvements.
- Providing KM-specific training.

Knowledge Brokering

1-123. As knowledge brokers, KMRs link their colleagues to knowledge and information sources outside their immediate context. Specific ways KMRs act as a knowledge broker include—

- Facilitating knowledge sharing during meetings, activities, and operations.
- Networking with other KMRs and building contacts with experts.
- Responding quickly to staff section requests for support with timely push to the KMO and KM section.

1-124. Key attributes for a KMR to be successful include a willingness to learn, excellent communication skills, and ability to overcome resistance to change. KMRs influence others to be open to KM initiatives and implement new processes and tools. KMRs and alternates are appointed in writing and attend training prior conducting their duties.

IMPLEMENTING A KNOWLEDGE MANAGEMENT PROGRAM

1-125. KMOs build KM programs to improve organizational performance. A KM program is described as a team or section of people with a plan of action, the authority, and necessary the resources to improve knowledge sharing and performance for an Army organization.

1-126. Once assigned, knowledge managers implement KM practices as part of an overall effort to develop a fully functioning program of support for an organization. Depending on the level and type or organization, a KM program office may be established. New KMOs (or chief knowledge officers) and units without a KM program establish the initial conditions and requirements for the unit they are assigned and recommend action items for the commander's approval. Although KM is embedded in mission command, the term program is used extensively to describe all the activities that encompass what KM sections do for Army units. KMOs ensure they have a clearly defined plan of action and the right people involved in the process. A graduate of the Army Knowledge Management Qualification Course leads the effort to build the team. In addition to the Soldiers assigned to the KM section, the unit establishes a functioning KMWG to ensure staff involvement. To initiate a KM program, a unit requires the following:

- Appointed and trained KMRs from each staff section.
- Initial guidance from the commander, COS, or XO on the unit's priorities and long-range objectives.
- A baseline assessment of the unit's strengths and weaknesses as determined by a KM assessment (as it relates to data, information, and knowledge flow).
- A regularly scheduled battle rhythm event for the KMWG to meet and conduct business.
- KM charter that provides initial direction on the purpose and function of the group. (A KM charter is optional, and depending on the unit, may not be used.)

(See Appendix D for new program checklist. See Appendix E for an example KM charter.)

1-127. Operating forces are either training for the next exercise or deployment or just returning from a deployment. The recommended time to initiate a new program for operating forces is at least six months before deployment. This gives the unit the necessary time to form the team, conduct a thorough assessment, and then identify and solve KM issues before deploying. Waiting until the mission rehearsal exercise is generally insufficient time to fully establish a KM program. Other considerations which may negatively impact establishing a new program are—

- Leader turnover.
- Availability of contractor funding and support (if required).
- Operating tempo (OPTEMPO).
- Change in leader priorities.

FORMING AN INITIAL IMPRESSION

1-128. The KM effort starts by conducting a brief initial assessment. Assessments come in several forms. Minimally, the KMO should initially conduct an informal assessment by meeting with key staff members, the command team, and other Soldiers to get a sense of the organization's climate. The focus at this point is

to establish initial impressions of the key factors that may be hindering knowledge sharing. (See Chapter 2 for more information on assessments.)

1-129. The KM section provides initial training to key staff to raise awareness of the roles and responsibilities of the KM section, including the KMO and key staff. It also performs other key activities and events that impact the unit.

Assembling and Training the Team

1-130. Implementing effective KM requires resources, especially people with expertise to contribute, and this requires building a team. Once the team exists, members determine how to get work done, especially operational challenges specific to sharing information and knowledge.

1-131. The KMRs, as part of the KM team (including subordinate unit KMRs), are key players. At any echelon, the primary purpose for KM is to create a knowledge-sharing environment and improve the processes that rely on data, information, and knowledge in support of mission command in the command post and major subordinate commands. Within a command post, staffs optimize multiple efforts within the operations process to conduct operations. These can include targeting, intelligence preparation of the battlefield, training management, CCIRs, and COP management. (See ADP 6-0 for definitions of data, information, and knowledge.)

1-132. The commander or COS submits a simple memorandum or publishes an Annex Q to establish a KM program. The memo requires a directive that establishes the requirement for the program. It also includes a tasking to the staff identifying the KM team KMRs. (See paragraphs 1-99 through 1-106 for discussion of KMRs.)

1-133. Newly appointed KMRs require training. The initial memo states that the KMRs are expected to participate in and complete minimal training. Training includes roles and responsibilities for the KM section, the staff, and KMRs. When the leader sends this memorandum, it implicitly endorses the program. A best practice is to have the KMRs and the alternates appointed in writing.

Developing Enabling Documents

1-134. Once the authority to operate is established, and KMRs are appointed, other documentation is developed to support the program. Depending on staffing levels, some of the enabling documentation can take several weeks or months to research, write, and staff. However, it is important to note that most KM documents, if not all, are developed in conjunction with the KMWG. The COS (or XO if at battalions or below) or commander approves and sanctions priorities and workload. Documents developed over time to fully operationalize the program include the following:

- Knowledge management strategy (including a formal KM assessment).
- Knowledge map. (See Chapter 2 for more information on knowledge mapping.)
- Knowledge management action plan and implementation plan.
- Knowledge management SOPs and policies.
- Knowledge management operation order (depending on the unit and operational environments).

1-135. Another method for implementing a new program is through the operation order process. Depending on echelon and unit mission, operation orders can be written to establish the program. Either way is effective. For an operating force, as part of the planning process, mission orders are developed for a specific operation. Appendix C in this manual describes the KM Annex (referred to as Annex Q) where KM directives are published for staff and subordinate units.

Overcoming Resistance and Gaining Support

1-136. The KMO, as the primary KM spokesperson, has the task of building confidence in the program and obtaining “buy-in.” KMOs can expect having to overcome initial. Without some level of buy-in, making the necessary changes are more difficult. A key mechanism in the initial stages is to begin the process of building relationships with other staff members. Those relationships will pay dividends when it comes time to implementing solutions.

1-137. A new KMO can quickly gain buy-in with a small success. It is very important, and especially when dealing with the leaders, to have some initial successes up front to generate confidence in the program. What is often referred to as "quick wins" (also described as going after the low-hanging fruit), these small wins go a long way to show value for the organization and the more wins, the better. A corollary to the idea of quick wins is the idea of "real wins." A better and more meaningful method is accomplishment of something that is highly impactful for the organization as a whole. The most important task for the KM section is to show progress. Either way, all the wins need to be visible so that staff and leaders see progress. As this program takes shape, the KM team needs to promote its the activities.

PROMOTING THE PROGRAM

1-138. A KMO makes sure the staff understands the KM program capabilities and key points of contact. There are multiple ways to promote the program. Although not a complete list, some best practices can include the following:

- KM trifold.
- Quarterly newsletter.
- Social media (such as Facebook, Twitter, and YouTube).
- Professional Forums (Microsoft Teams)
- KM minute (short "how to" discussion of a KM tool before a staff meeting).
- Elevator speech.

(See Chapter 5 for more information on sustaining a KM program When using social media, follow U.S. Army social media guidance at https://www.army.mil/socialmedia/.)

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Chapter 2

The Knowledge Management Process

This chapter discusses the five phases of the KM process. It starts with an overview of KM as an iterative process. It then describes how to conduct an assessment of the unit's people, processes, and tools within the organizational structure and culture. The chapter demonstrates how to assess, design, develop, and pilot solutions to common problems that most organizations face regarding sharing knowledge. It concludes with a strategy on implementing the solutions identified in the assessment.

KNOWLEDGE MANAGEMENT: AN ITERATIVE CYCLE

2-1. KM uses a five-phase iterative process to drive organizational improvements and create shared understanding. The phases of the KM process are assess, design, develop, pilot, and implement. (See Figure 2-1 for a depiction of the KM process.)

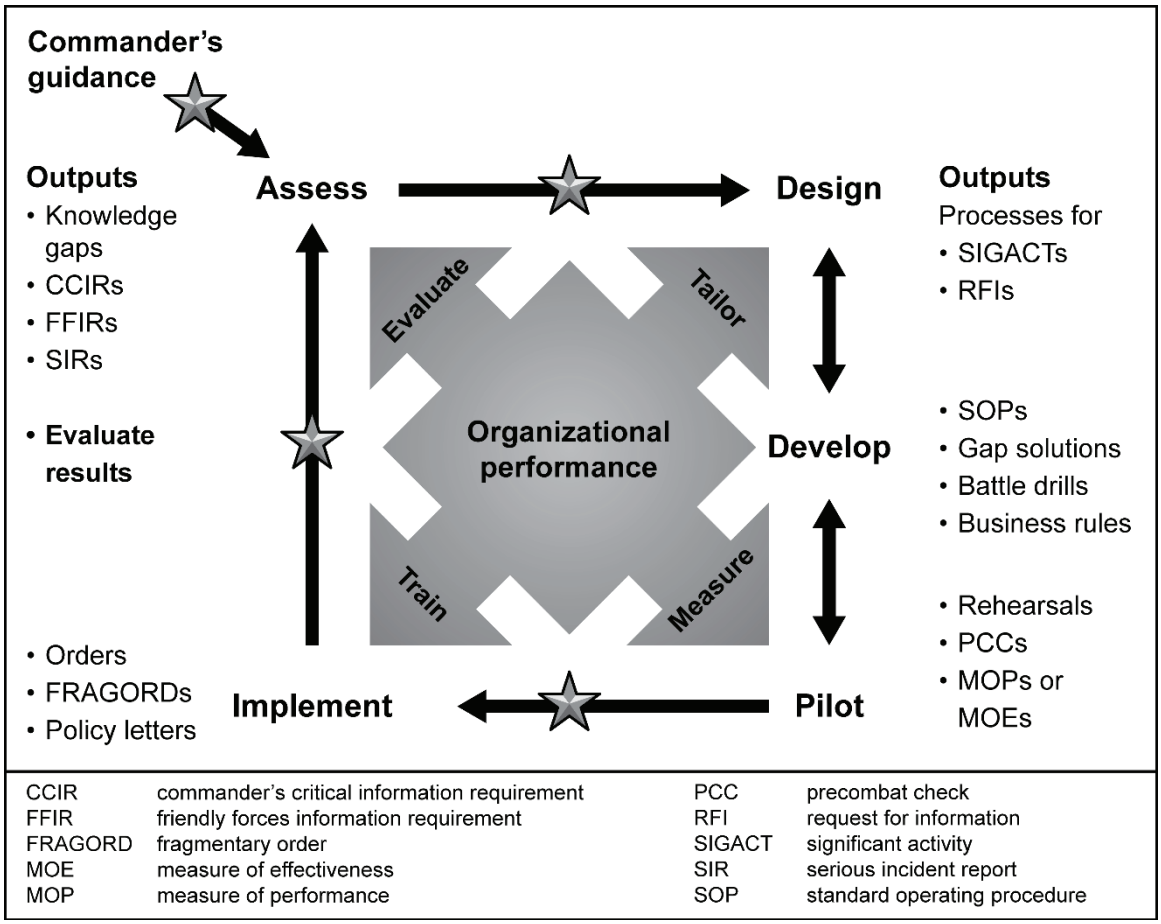


Figure 2-1. Knowledge management—an iterative cycle

2-2. The phases of the KM process are sequential, normally beginning with assessment, but knowledge managers revisit phases as needed. Figure 2-1 on page 2-1 illustrates the KM process. Each phase normally includes subordinate activities that are not necessarily limited to a given phase. Examples of subordinate activities are discussed under the phase with which they are commonly associated. The KM section considers and selects the most appropriate activities for the unit. The KM section can modify the process according to the needs of the unit. Each phase of the KM process has inputs and outputs. Table 2-1 lists the key inputs and outputs.

ASSESS

2-3. Assessment is the first phase in the KM process. This section describes assessments as a continuous activity of operations and identifies common areas for conducting assessments. It also describes the steps to perform a KM assessment. The KMO presents the determined outcome and recommendations in this phase to the COS or XO for approval and guidance.

ASSESSMENT

2-4. *Assessment* is the determination of the progress toward accomplishing a task, creating a condition, or achieving an objective (JP 3-0). With KM, an assessment is conducted to determine the condition of a unit's information and knowledge sharing to achieve shared understanding. Together with the other operations process activities of plan, prepare, and execute, continuous assessment is one of the major activities that promotes shared understanding during military operations and in train-up, deployment, exercises, and garrison (this includes activities within the institutional force that support operating forces). Assessment precedes and guides the other activities of the operations process. Assessment involves comparing forecasted outcomes with actual events to determine the overall effectiveness of force employment. It also involves continuously monitoring and evaluating the environment to determine what changes affect the conduct of operations. Assessment helps commanders determine progress toward a desired end state, achieving objectives, and performing tasks.

2-5. All staff sections assess progress towards shared understanding; it is not the purview of any one staff section or command post cell. Each staff section assesses its information and knowledge sharing from its area of expertise towards success of the mission. However, these staff sections coordinate and integrate their individual assessments and associated recommendations across the warfighting functions to produce comprehensive assessments for commanders. They do this in the KMWG or an assessment working group (if one is established). Within the assessment working group, the KM staff assesses ongoing activities and the overall operation from a KM perspective. This informs the broader assessment activities of the operations process.

2-6. During operations, commanders and staffs assess the situation to understand current conditions and determine how the operation is progressing. In the context of the operations process, assessment includes, but is not limited to, these three activities:

- Monitoring the current situation to collect relevant information.
- Evaluating progress toward desired end state conditions, objectives, and tasks.
- Recommending or directing action for improvement.

Table 2-1. The knowledge management process and key inputs and outputs

Key inputs	*Phase*	*Key outputs*
• Unit organization and task organization • Unit knowledge management standard operating procedures and policies • Commander's critical information requirements • Results of interviews • Applicable military decision-making process	**Phase 1: Assess** • Define • Describe • Analyze • Depict	• Knowledge management map • Gap chart and priorities chart • Battle update briefing chart • Recommendations to chief of staff • Knowledge management strategy and outcomes
• Knowledge management strategy and outcomes • Knowledge management map • Gap chart and priorities • Battle update briefing chart • Guidance from chief of staff	**Phase 2: Design** • Conceptualize • Refine • Prepare	• Knowledge management action plan (can be produced individually or a consolidated list of gaps) • Draft measures of effectiveness and measures of performance
• Draft knowledge management action plan • Refined measures of effectiveness and measures of performance	**Phase 3: Develop** • Confirm • Outline • Build	• Briefing to chief of staff (if required) • Approved knowledge management action and evaluation plan
• Approved knowledge management action and evaluation plan • Approved measures of effectiveness and measures of performance	**Phase 4: Pilot** • Plan • Prepare • Execute • Assess	• Pilot after-action review • Go or no-go decision (chief of staff) • Implementation plan guidance • Collaborative and team peer assistance (with feedback)
• Refined action plan	**Phase 5: Implement** • Produce • Synchronize • Assess	• Fielded knowledge management solutions
Note. Depending on unit requirements and operational environments, the implementation plan may be expressed in the form of a knowledge management annex to the operation order.		

2-7. Assessment, as the first phase of the KM process, analyzes the unit's knowledge needs and establishes approaches that improve shared understanding, decision making, and organizational learning. Sharing knowledge and information often results in the creation of new knowledge and improves unit performance. KM assessment involves monitoring unit performance to evaluate how the unit manages time and information and what is considered critical for its leaders to make decisions. The KM staff assesses how knowledge and information move through the organization, noting the interaction of the people, processes, and tools involved.

2-8. During operations, the KM staff focuses on the operation and monitors operations and unit performance to determine how KM helps the organization learn and improve. Understanding the unit's

operations and mission provide focus for completing the KM assessment. Commander's guidance and priorities guide the KM staff in determining how to best support the organization.

2-9. The assessment helps the staff to understand current and desired conditions. It examines all four KM components of people, processes, tools, and organization—in the context of the organization's mission. The assessment also gives a baseline of the organization's current KM techniques and practices by depicting the connections between them. The KM assessment accomplishes the following:

- Graphically depicts the organization's KM status.
- Identifies impediments to knowledge flow in the organization and with unified action partners.
- Identifies knowledge and performance gaps and determines their causes or contributing factors.
- Assesses the impact each gap has on the organization.
- Determines measures of performance and effectiveness as well as priorities for addressing the gaps.
- Provides the basis for recommendations to close identified knowledge gaps and reduce impediments to knowledge transfer.

2-10. The KMO helps the KMWG perform the assessment. KMOs leverage staff expertise and collaborate with stakeholders to inform the analysis and create recommendations. KMRs from various staff sections contribute insight in their functional specialties. Content management specialists, if assigned, provide analysis in this key area. The operations sections expertise in C2 processes and the signal staff section's expertise in network operations and information management are also important contributors. In completing the assessment, the KMWG examines various sources, including but not limited to—

- Commander's intent and guidance.
- CCIRs.
- Orders and task organization.
- After action reviews.
- Post-mission debriefs, particularly leader-focused debriefs.
- Lessons learned development.
- Interviews. (See Appendix F for more information on interviewing techniques.)
- Subject matter experts on information systems and foreign disclosure.

Depending upon factors such as time and personnel available, the OPTEMPO, the commander's guidance, and areas identified as priorities to assess, the KM assessment may be deliberate or abbreviated.

Deliberate

2-11. A deliberate KM assessment identifies all people, process, and tools and places them in their context for the entire organization. It is ideally suited for creating operating force and training base units such as the U.S. Army Corps of Engineers, schools and centers of excellence, and installation management.

Abbreviated

2-12. Abbreviated KM assessments focus on needs or identified problems. The commander, XO, or COS directs an assessment focused on those identified areas. This type of assessment focuses on a single topic, unit, process, or tool. An abbreviated KM assessment is done when a gap has been identified to determine if a KM solution will improve performance. In this case, the scope is well defined, and a need for change is already present. However, abbreviated KM assessment can lead to a decision to conduct a more deliberate assessment.

Performance of Knowledge Management Assessment

2-13. A KM assessment has four steps:

- Step 1: Define the organization and its components (people, processes, tools, and organization).
- Step 2: Describe the organization's internal and external links and dependencies.

- Step 3: Analyze and evaluate the organization, its knowledge and performance, and the gaps in its knowledge and performance.
- Step 4: Depict the connectivity and alignment of the organization's KM components in easily understood graphic representations.

The steps are not executed in isolation. Relationships and dependencies are identified at every step. Depicting the organization begins early and helps the KMWG visualize what it defines, describes, and analyzes. (Table 2-2 shows the KM assessment steps and its key inputs and outputs.)

Table 2-2. Steps of assess—key inputs and outputs

Step 1: Assess		
The purpose is to accurately capture the current arrangement of people, processes, technology, and organization including knowledge management gaps, across the organization, using— • Inputs derived from multiple sources as needed. • Outputs from the assess phase form the basis of inputs for design.		
Key Inputs	***Steps***	***Key Outputs***
• Unit organization and task organization • Unit and knowledge management standard operating procedures • Commander's critical information requirements • Unit policies • Results of key personnel interviews • Military decision-making process (as applicable)	**Define** Define the organization and its people, process, tools, and organization environment	• Draft knowledge management map depicting the initial arrangement of people, processes, technology, and organization
• Draft knowledge management map	**Describe** Describe the organization's internal and external links and dependencies	• Refined knowledge management map depicting a more informed arrangement of people, processes, technology, and organization
• Refined knowledge management map	**Analyze** Analyze the organization's knowledge throughput	• Draft gap chart depicting shortfalls in people, processes, technology, and organization • Draft recommended priorities chart based on commander's critical information requirements, priority intelligence requirements, and initial guidance
• Refined knowledge management map • Draft gap chart • Draft recommended priorities chart	**Depict** Depict the organizational knowledge matrix	• Assessment update to chief of staff • Approved knowledge management strategy that includes the knowledge management map, gaps, and priorities chart • Battle update briefing chart

Define

2-14. The first step of a KM assessment is to define the organization within the dynamic and changing environment with the ongoing missions and activities of the organization. The KMWG defines the organization and its components (people, processes, tools, and organization). The KMO, with the aid of the KMWG, during the assess phase, defines the makeup of the people, processes, and tools within the organization. This requires deliberate effort to gather relevant information. This may include information about Soldiers and their assignments, key processes, and types of information management technology used to share information and knowledge.

People

2-15. The KMWG identifies individuals with key KM roles in the organization. These are individuals in positions important to the movement of knowledge and information through the organization. They include the commander, command sergeant major, coordinating and special staff, subordinate commanders, and staffs. It may also include others, such as liaison officers and those who communicate with unified action partners, and interagency and joint stakeholders. It can also include individuals outside the organization, such as the ambassador, agency head, or others.

Processes

2-16. The KMWG identifies all knowledge-based processes in the organization (such as the orders process, targeting cycle, intelligence preparation of the battlefield, battle update briefings and assessments, and reporting). In the case of garrison environments, knowledge-based processes can include training management, recruiting, retention, and command information programs.

Tools

2-17. The KMWG defines all knowledge systems (digital and nondigital) of the organization, including organic (fielded) and nonorganic systems (not specifically fielded) that feed directly into the organization's knowledge processes. These include, but are not limited to, key landing pages and sites, the COP, the components of the C2 system, external networks, and links with unified action partners.

Organization

2-18. An organization is defined as a consolidated group of Soldiers and civilians with issued equipment to complete a specified mission or set of missions. Organizations can develop unique organizational cultures. The first step is to define an organization and its components. The KMWG defines its organization in terms of the higher echelon, subordinate units, elements, and components of the organization. For example, a division KMWG defines its organization for all levels, from company to division. A center of excellence may identify the activities, components, and conditions necessary to modernize its warfighting function.

2-19. To define the organization and its environment adequately, the KMWG monitors the current situation and progress toward accomplishing objectives. It gathers the tools and data needed to perform KM assessments. These include, but are not limited to—

- The higher headquarters' plan or order, including the KM and assessment annexes if available.
- Post-deployment after action reviews and reports.
- Access to subject matter experts, both internal and external to the unit.
- If replacing a unit in an area of operations (such as a relief in place or transfer of authority), any current KM assessments, and assessment results.
- Relevant assessment results (classified, controlled, or open source) produced by civilian and military organizations.
- The identification of potential data sources, including academic institutions and civilian subject matter experts.

Describe

2-20. The second step of a KM assessment is to describe the organization's internal and external links and dependencies. This includes—

- Defining and describing links between key individuals and stakeholders in the organization (such as direct and indirect, superior and subordinate, regular and intermittent, and formal and informal).
- Defining and describing links and dependencies between all subordinate units, elements, and components of the organization.
- Subdividing and grouping staff sections by warfighting function, task organization, or geographic location.
- Defining and describing links and dependencies among the knowledge-based operational processes in the organization.
- Defining and describing significant characteristics, links, and dependencies among the knowledge systems and their associated organizational databases.

Analyze

2-21. The third step is of a KM assessment is to analyze and evaluate the organization's knowledge and information flow. This is sometimes referred to information exchange requirements. Flow is the ability of knowledge and information to move freely throughout the organization and all its interrelated processes. This evaluation is at the heart of the assessment process. Initially, this step examines the frequency and volume of knowledge flow between each of the key individuals, units, elements, processes, and systems defined and described in the first two steps. It identifies interruptions and bottlenecks—factors impeding effective knowledge transfer. This analysis provides a baseline of the unit's current knowledge matrix. Its results are shown in the next step (depict) and inform a critical part of analysis that examines knowledge links to unit performance called gap analysis.

2-22. Based on its analysis, the KMWG determines the priority in which identified problems should be addressed. (See the discussion on determining priorities in paragraphs 2-48 through 2-50.)

Gap Analysis

2-23. Gap analysis identifies shortfalls in knowledge flow and creation that hinder organizational performance. It analyzes the linkage and determines how knowledge-based solutions help fill the gaps. The KM staff's primary concern is to recommend solutions to knowledge and performance gaps that affect the unit's performance and ability to accomplish its missions.

2-24. The KMWG uses various methods to gather information and feedback to inform its analysis. These include facilitated discussions, interviews (one-on-one or small group), observations, feedback from working groups, and surveys. The KMWG plans and prepares these activities with great care to avoid wasting the time of those involved and to ensure that it collects the information it needs. (See Appendix F for more on interviewing techniques. See Table 2-3 for a list of potential questions to ask.)

Table 2-3. Sample interview questions

• What are some key areas of information or knowledge sharing concerns within your staff section that need improvement? For example, does the section lack adequate technology or effective collaboration skills. Can you describe them?
• What do you think is the cause of this—resources, training, technology, other? What is the impact, in your opinion, on the mission if this does not get resolved?
• Are there any efforts underway to resolve them? What are they?
• If you could prioritize them, what order of priority would you give each?
• What timeline would you like to have the issues resolved by?

2-25. Gap analysis considers knowledge gaps and performance gaps, the current state, and the desired end state. Fundamentally, assessment is about measuring progress toward the desired end state; therefore, the KMWG determines the current situation and desired end states of knowledge flow in the organization.

Knowledge Gaps

2-26. Knowledge gaps are the difference between what the force knows and what it needs to know to complete the mission. A knowledge gap also can be viewed as the gap between relevant information commanders require and that which they already have. Knowledge gaps—

- Are linked to the factors that impede knowledge transfer (interruptions and bottlenecks).
- Occur when there are disconnects between organizational knowledge requirements.
- Adversely affect unit performance.

2-27. The outcome of knowledge gap analysis is recommended processes and procedures to improve knowledge transfer and close the knowledge gaps. KM staff aim to prevent unknown gaps in information from occurring within the staff. An effective commander and chief of staff have total awareness of where the knowledge and information for problem solving resides within their staff sections.

Performance Gaps

2-28. The staff analyzes relevant information collected through monitoring to evaluate the operation's progress. This reveals performance gaps. Performance gap analysis compares actual, current performance against potential or required performance. The gaps between current and potential performance are targeted to improve overall unit effectiveness as it relates to improving C2.

2-29. The performance gap analysis determines tasks that the force cannot perform now, but that it should be able to perform to reach the desired end state. Some of the tasks are not clear at this point because of knowledge gaps, but this provides a general sense of what the force needs to perform at the desired level. Performance gaps within a staff section often involve a process, and improvement within this process will increase organizational performance.

Current State

2-30. Gap analysis begins with an assessment of the unit's current state. The primary sources of the current state analysis are derived from monitoring facilitated discussions in meetings and by interviewing staff members. Facilitated discussions and interviews identify gaps as perceived by key leaders. The KMO seeks feedback on knowledge that leaders believe they need the most or have difficulty obtaining, and the KMO discusses the different methods available to correct the gaps. The facilitated discussions or interviews return to the question, "If we are successful, what will you know, have, or be able to do?" These discussions include—

- The organization or unit's vision, mission, goals, structure, and key stakeholders.
- The organization's strengths, weaknesses, opportunities, and threats.
- The social and information networks, feedback loop mechanisms, communication, collaboration, knowledge flow, and technologies used.
- The operational environments, including garrison, training, and deployment.

Desired State

2-31. Desired end state analysis identifies and describes the organization's desired end state. Much of this is defined by doctrine and institutional requirements, but other elements are tied to a commander's vision or other requirements specific to the organization. The commander seeks to answer the question, "What must our organization do that it cannot currently do?" The answers to this question are the performance gaps to address to reach the unit's desired end state. Desired end state analysis understands the impact of future conditions and how they impact the vision and goals and envisioned changes in—

- Stakeholders.
- Organizational structure.
- Social and information networks.
- Feedback mechanisms.
- Communication and collaboration.
- Knowledge and information movement in the organization.

- Ways change occurs in the organization.
- Reasons the organization needs to change.

2-32. The discussion identifies the major KM activities the organization will perform as part of its future state. This thematic approach helps leaders and staff organize and focus. Naming activities is flexible and reflects what the organization believes it is or needs to do. There are usually multiple gaps in each activity. Examples of knowledge activities include the following:

- Knowledge transfer.
- Collaboration over social networks.
- Use of collaborative cloud technologies.
- Team development.
- Staff processes and oversight.
- Expertise development.
- Integration of KM into learning.
- Information management.
- Records management.
- File management.
- Use of expertise development tools.

Additional Focus Areas for Assessing Gaps

2-33. KMOs further refine their assessments by reviewing additional areas of common concern to most units, and they are central to how information and knowledge moves in organizations These six common areas are—

- Standards.
- Time management.
- Meetings and battle rhythm.
- Reporting.
- Technical systems.
- Content management.

(See Chapter 3 for more information on these areas.)

Knowledge Maps

2-34. Knowledge maps are graphic representations of the organization that aid in identifying knowledge gaps. Knowledge maps are helpful tools in assessments. Knowledge maps are roadmaps to locate the information, resources, knowledge centers, and other knowledge assets and pathways. Knowledge maps provide the "what" and the "where."

2-35. Knowledge mapping begins early during assessment and continues throughout. The maps become important tools to inform current state analysis. Knowledge maps display the organization's current KM status by identifying and placing in context with one another the people, processes, and tools.

2-36. Knowledge maps range from simple to complex. Simple maps are as simple as hand-drawn matrices on a white board. Complex maps include those developed with specialized knowledge mapping software applications. Fully developed knowledge maps allow staff members to identify critical pathways and gaps quickly. Knowledge maps help organizations become aware of what they know, where that knowledge is created, and how it flows throughout their organizations. These maps help KM practitioners visualize links and relationships among components in the context of the organization and operational environments, and they enable practitioners recognize critical information and knowledge. These maps also help recognize knowledge dependencies and identify knowledge gaps and bottlenecks. The KMWG analyzes and identifies knowledge gaps.

Essential Elements of a Knowledge Map

2-37. Knowledge maps have essential elements that they should include. These elements include—

- Answer a question (major theme).
- Have a logical progression of ideas and pathways that show knowledge flow.
- Show the available process by which knowledge and information flow.
- Show gaps in knowledge, knowledge flow, and processes or systems.
- Be understood and relevant.
- Include critical cross-link relationships.
- Achieve a clear, precise description of the knowledge flow process.

Types of Knowledge Maps

2-38. Staffs at various levels can use knowledge maps. The different types of knowledge maps include—

- Theater strategic- or operational-level knowledge map. This map is used to depict knowledge flow at the army, corps, or division level to gauge the level of knowledge flow within the headquarters to meet its theater strategic or operational mission.
- Technical or functional knowledge map. This knowledge map helps units such as military police, medical, and military intelligence brigades map knowledge flow within their respective technical or functional domains.
- Process-based knowledge map. This knowledge map helps identify specific information and knowledge needed with a process or domain. (See Figure 2-2 for a sample process-based knowledge map.)
- Task- or job-based knowledge map. This map illustrates the knowledge required for individual and collective tasks associated with occupational specialties or organizational missions.

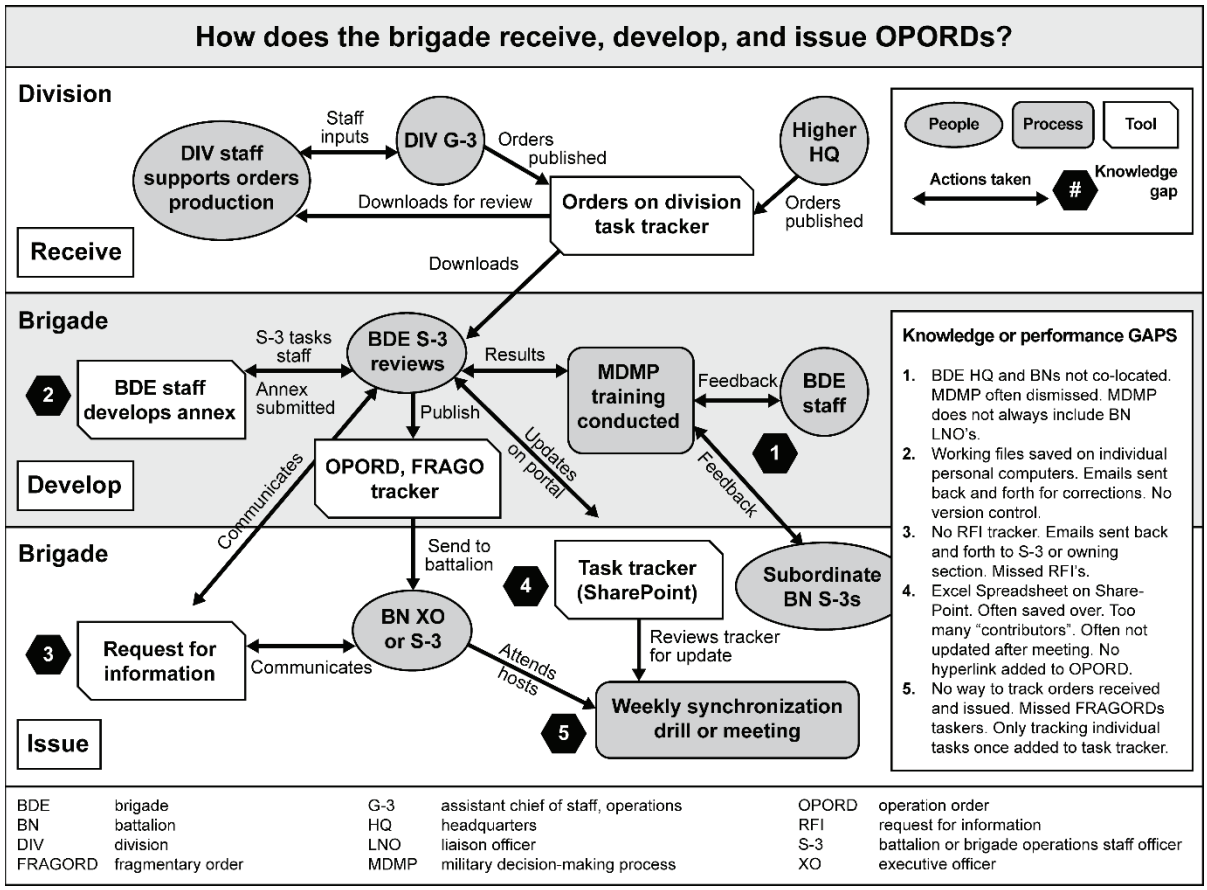


Figure 2-2. Example of a brigade process-based knowledge map

Building Knowledge Maps

2-39. Building a knowledge map takes place in five phases. These phases are—

- The brainstorming phase: The builder writes down all items the working group thinks are important.
- The organizing phase: The builder creates groups and subgroups.
- The layout phase: The builder arranges elements that represent collective understanding and interrelationships.
- The linking phase: The builder uses lines with arrows to connect and show the relationships between connecting items.
- The finalization phase: The builder converts the map into a permanent form and incorporates the knowledge map into the concept map where and if appropriate.

2-40. The knowledge map must be revisited by the KMO and revised to reflect changes in the KM components of people, processes, and tools in the organizational context. The effective commander uses the KMWG to develop knowledge maps.

Gap Analysis Steps

2-41. A gap analysis has seven steps. The steps to perform a gap analysis include—

- Step 1: Analyze the current state; what the force knows now and what it does now. (For example, know the situation report [SITREP] formats, know how to operate the radio, and submit SITREPs by radio.)

- Step 2: Compare the current state to the desired end state and know what the force knows and what it does. (For example, know how to use information systems. This includes command post computing environment, how to enter SITREP information into systems, and how systems integrate and submit SITREPs.)
- Step 3: Identify the knowledge gap between what the force knows now and what it needs to know. What it needs to know will enable it to do what it needs to do. (For example, staff members and Soldiers do not know the capabilities of or how to use the digital information systems.)
- Step 4: Identify the performance gap between what is missing in what the force can do now and what it needs to do. (For example, staff members and Soldiers cannot submit SITREPs or other reports using the digital information systems; they cannot integrate the systems to take advantage of their full capabilities; or they must be able to perform these things to populate the common operational picture with accurate, updated information.)
- Step 5: Analyze how the force learns and innovates now and enables it to perform in its current state. (For example, communications training is performed in sections and subordinate units for new personnel.)
- Step 6: Analyze how the force learns and innovates to improve operations. (For example, the unit performs centralized refresher training on the digital systems and perform collective training with battle drills with the digital systems.)
- Step 7: Determine the types of improvements that can help close the gaps. (For example, unit-wide training is conducted for all new personnel who will use the digital systems, regularly scheduled refresher training, and battle drills on the systems in collective training events.)

2-42. Identify contributing factors for each gap. Contributing factors are those things in an operational environment that cause or contribute to knowledge or performance gaps. Common contributing factors include—

- Lack of a COP across the organization.
- Lack of understanding of the commander's intent.
- Use of multiple calendars instead of a common, synchronized calendar.
- Soldiers unable to find information they need.
- Content management misunderstood or not practiced (no naming conventions, multiple documents posting in different formats, or associated problems).
- Collaborative tools absent, misused, misunderstood, or viewed as a hindrance.
- Email used as a primary collaborative tool and often used to convey complex messages better communicated face-to-face.
- Opportunities for face-to-face interaction to exchange knowledge are missed or mismanaged.
- Too many meetings, many meetings are not well organized, many lack the right attendees.
- Knowledge lost with personnel turnover and lack of effective handover to transfer knowledge to incoming personnel.

Depict

2-43. The results of the gap analysis are added to a two-part assessment matrix: Part 1—knowledge management gaps and Part 2—proposed solutions. The gap analysis chart identifies performance and knowledge gaps and identifies which of the knowledge management components are affected. The KMO, after identifying the specific knowledge and performance gaps, establishes an initial set of metrics that are used to define success and measure performance. This can be as simple as setting a timeframe for when the solution to the gap will be completed. During this step the KMO also evaluates the list of proposed solutions in terms of their effort and impact to aid in establishing priorities of work for the KM section. Determining priorities ensures that the work being done is consistent with the needs of the unit and the COS or XO's direction. (See Table 2-4 for examples of identified gaps for an assessment matrix.)

Table 2-4. Example of completed gap chart

Knowledge and performance gaps					
Operational issues	**Performance or knowledge gap**	**Knowledge management components**			
		People	Process	Tools	Organization
Lack of content management	Time management, wasted time looking for key information	X	X	X	X
Talent management or personnel continuity	Loss of knowledge base or capability	X	X	X	X
Timelines or details in operation order	Reduced reaction time	X	X		X
Cross staff communication	Lack of shared critical information across staff sections	X	X		
Training tempo	Lack of reset and assessment time, inability to integrate after-action reviews before deploying again	X	X	X	X
Integration, coordination, and cooperation	Insufficient interagency interface and degraded shared understanding	X	X		

Measuring Performance and Effectiveness

2-44. To assess progress toward the desired end state, the KMWG develops assessment measures. At this stage, the goal is only to establish a working list of measures of effectiveness (MOEs) and measures of performance (MOPs).

2-45. MOPs are criteria used to measure completion of the required action in support of the proposed solution. MOEs are criteria used to identify changes in system behavior and capability that are tied to the achievement of an end state, as well as quantitative criterion to assess task accomplishment. They will need to be further refined throughout the process for each solution and are measured during the pilot step of the KM process to determine if the solution is adequate. Staffs develop these indicators to provide a mechanism to assess progress toward a desired end state. Staffs include both quantitative (observation based) and qualitative (opinion or judgment based) indicators. (See paragraph 2-96 for more information on MOPs and MOEs.)

Determining Priorities and Potential Solutions

2-46. The KM team develops proposed solutions based on the analysis of the identified knowledge and performance gaps. With input from the members of the KMWG, the KM section outlines a proposed list of solutions, then it evaluates the level of effort, time, and resources to resolve each gap. This requires critical analysis and collaboration with all stakeholders. There may be more than one solution or approach to address the gap.

2-47. The KMWG seeks input from stakeholders to determine and recommend priorities of effort for the next phase in the KM process which is designing solutions to improve knowledge transfer and bridge the identified gaps. A useful tool is the KM priorities chart. The KMWG builds the KM priorities chart based on results of preceding assessment steps.

2-48. Figure 2-3 on page 2-14 shows an example of a KM priorities chart. It shows areas that need improvement, and it shows impact and effort along a continuum. The line of effort is the sum of the amount of time, development, and personnel involved in creating the solution. The greater the line of effort, the more resources will be required to be successful. On the other hand, the line on impact is the effect of the solution on the organization. Higher line on impact solutions will affect more parts of the organization, while lower line on impact solutions may only impact a single section. The KMO shows this to key leaders to seek their

input on where the priority efforts should be among the identified KM issues. The goal is to obtain key leader consensus on priorities. The KMO includes recommendations for priorities in briefing the recommended approach and methodology to the COS or XO for decision. (See Figure 2-4 for a depiction of an example KM priorities chart.)

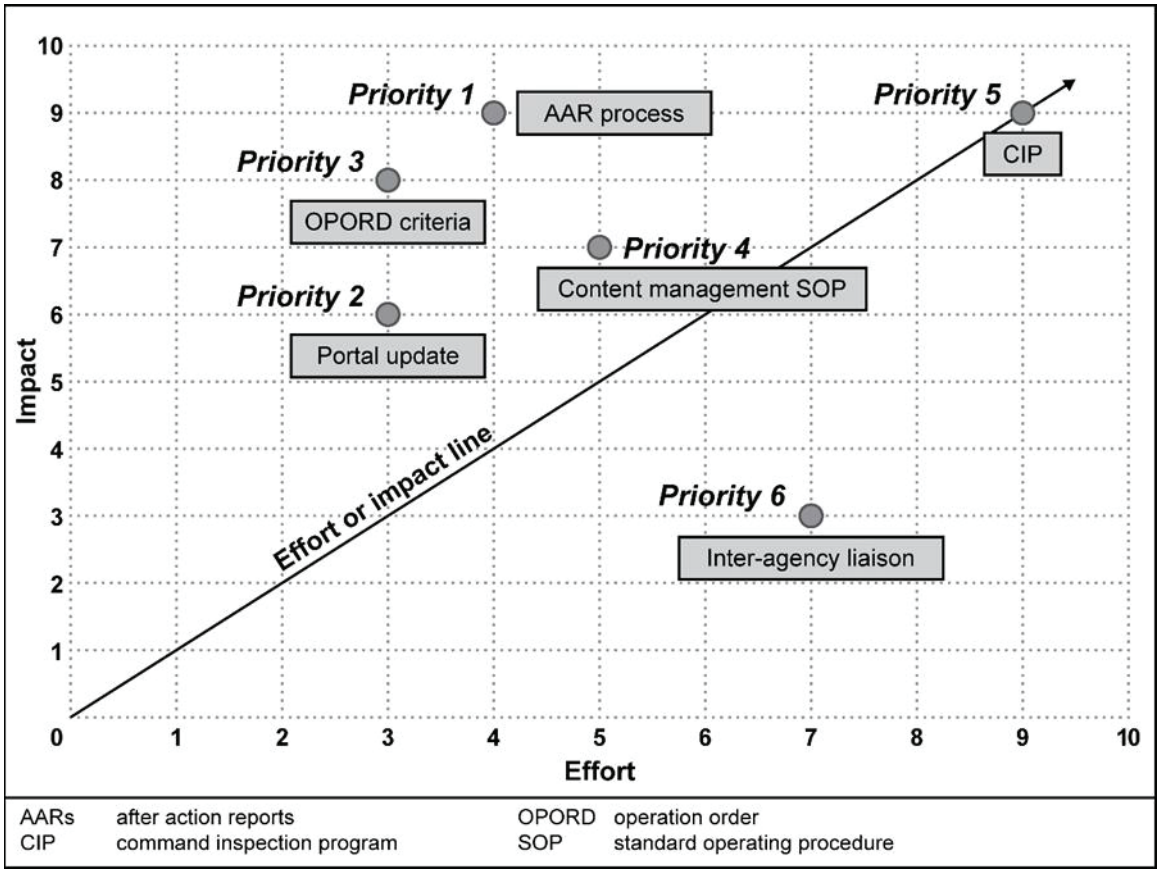


Figure 2-3. Example of knowledge management priorities chart

ASSESSMENT OUTCOME AND RECOMMENDATIONS

2-49. The KMO delivers the assessment report and briefs the COS or XO on assessment results. The assessment report can include the results of gap analysis, key leader approval on priorities of effort, the unit knowledge map, and interview and survey results. The report and briefing recommend broad actions for improving and developing KM strategies to close the gaps. The COS or XO approves or modifies the priorities list as needed and provides additional guidance. The KM strategy aligns efforts across the four components. The approved priorities list is ready to be further developed into an action plan during the design phase of the KM process.

2-50. Table 2-5 is a recommended list of proposed solutions and their corresponding rankings in terms of the level of effort required and the impact it will have on the unit performance. The COS or XO may decide to re-prioritize this list based on available time, resources, and the immediate needs of the unit.

Table 2-5. Example of a proposed solutions matrix

Proposed solutions to mitigate gaps					
Solution	**Required action**	**Measure of performance (MOP) Measure of effectiveness (MOE)**	**Impact**	**Effort**	**Priority**
Create and enforce content management standard operating procedure	Conduct required training for content managers to create and disseminate templates	MOPs—100 percent of content managers trained in 60 days, template created and disseminated. MOE—increased accuracy in information	7	7	4
Leverage command inspection program and modified table of organization and equipment	Update battle rosters	MOP—battle rosters updated within 30 days of inspection MOE—increased proficiency in mission essential task list tasks	9	9	5
Establish minimum criteria before publishing operation order	Publish operation order checklist	MOP—Operation order checklist published in 30 days MOE—reduced requests for information	8	3	3
Create centralized continuity books	Create continuity books and make them available to all staff members	MOP—continuity books created and available to all staff members MOEs—all echelons and staff members understand how to find information for shared understanding, reduced search time for information	6	3	2
Integrate lessons learned	Add reset and assessment time to training schedule	MOP—reset and assessment time added to training schedule MOEs—improvement in readiness, better integration of lessons learned into operations	9	4	1
Improve communication and information sharing	Add interagency partners to meetings, grant access to specific information channels (for example, email and Sharepoint)	MOPs—invite partners to meetings, add to email threads and Sharepoint sites MOEs—partner attendance at meetings, positive after-action review comments from partners	3	7	6

DESIGN

2-51. This section provides information about the second phase of the KM process—designing solutions for problem areas identified during the assessment. It begins with an overview of the design phase, and it continues by describing solutions to the common problem areas of standards, time management, meetings and battle rhythm, reporting, technical systems, and content management.

DESIGNING

2-52. In the context of the KM process, design is identifying and conceptualizing solutions to close and mitigate the gaps or problems identified during assessment. This could be refinements of existing processes or tools, training and educating people, changes to organizational structure or culture, and aligning all of these to achieve the best results with a viable solution. Design starts with the approved commander or chief of staff's guidance from the assessment phase and through the three-step process. It results in an action plan with a methodology, a way to evaluate results of the piloted solutions, and a timeline. Before transitioning to the design phase, the KMO focuses only on the requirements list from the assess phase to prevent scope creep. Design focuses on the KM products and processes to improve knowledge flow—the free movement of knowledge and information.

COLLABORATIVE NATURE OF DESIGN

2-53. KM is collaborative effort. The KMWG collaborates with experts and unit members with insight into the nature of the unit's needs to determine how to approach the design phase. For example, unit leaders

provide their perspective on types of social networks (both formal and informal) that help them in different situations. Soldiers describe what they need to find out about their jobs and confronting challenges. Individuals provide their expertise as required. The KMWG leverages the experience of staff members, leaders, and Soldiers so they understand the organization's needs and can design solutions that best align the people, processes, and tools with the organizational culture. Much of this information and insight is gained from facilitated meetings, interviews, and surveys performed during the assessment phase. The working group reviews the proposed designs with stakeholders. This collaborative process enables the working group to align the people, processes, and tools in the organizational culture so that the solution meets the needs of the unit.

2-54. Army units work within joint, interagency, and multinational command posts. In many cases, designed solutions must account for other stakeholders outside the Army environment, including unified action partners. International standards for designing solutions in this environment for improving information sharing exists. (See American, British, Canadian, Australian, and New Zealand [ABCANZ] Standard 2134 and FM 3-16 for more on multinational information sharing.) Fundamentals of collaborative design include partners who—

- Focus on achieving mission-oriented results.
- Treat collaboration as a capability.
- Align authority, knowledge, information, and data with decision making.

In an operational environment, authority for decision making rests with the commander, but the nature of knowledge, information, and data may change as they flow through the operations process. Staffs properly vet big data and reduce information overload so that commanders use only critical knowledge for problem solving and decision making.

Considerations for Designing Knowledge Management Solutions

2-55. KMs foremost consideration is that it is human-centric. Knowledge transfer and collaboration occur between individual human beings and not units. This is true whether the interaction occurs online, via telephone, radio, email, or face-to-face. Although solutions consist of combinations of people, processes, and tools in the organizational structure and culture, solutions always take people to implement.

2-56. In designing solutions, the KMWG asks what approach will best create shared understanding to improve the unit's mission command performance. This maintains focus on the KM objective to get the right information, to the right people, in the right format, at the right time, and to arrive at the right decision. The design phase ensures that solutions—

- Fit the problem identified and will remedy the problem.
- Are satisfactory to stakeholders and do not increase their workload.
- Can be developed, piloted, and implemented within the resource constraints of the organization with the means available and a reasonable level of effort.
- Continue to be effective over time in meeting their purpose. Often this quality is a result of meeting the first three criteria.

Also, designing training to accompany solutions helps solutions to meet this characteristic. Other design considerations include—

- Taking advantage of existing processes, tools, networks, and systems rather than expending resources designing new ones if existing systems can fill the knowledge or performance gap through standardization or training.
- Designing solutions to be intuitive. Units never use a complex process or technique when a simpler one will work.
- Ensuring that the solutions support operational requirements and the commander's priorities, objectives, and goals.
- Drawing upon expertise from across staff sections; higher echelon, subordinate, and adjacent formations; and centers of excellence to design potential knowledge solutions.
- Tailoring solutions to the organization. Although there may be common elements in many solutions, one size does not fit all. The KMWG must consider—

- Existing systems or established processes that can fit the need.
- The needs of the unit's leaders.
- The needs of the unit's staff members.
- The needs of Soldiers who are not leaders or staff members. All individuals need enough knowledge and experience to be able to successfully complete a mission, task, or function.
- Training, education, and mentoring that will pilot and implement the solution.
- Resource limitations that define what can be accomplished.

2-57. The KMWG ensures that potential solutions are supportable in terms of resources. This includes—

- The time required and available to design, develop, pilot, and implement the solution.
- The personnel involved to design, develop, pilot, and implement the solution.
- Monetary cost and determining if the organization's budget supports the design, development, piloting, and implementation of the solution (budgeting).
- Capability of implementing the solution or if an alternative should be considered (organizational capabilities).
- The technology required and if nontechnical means are better suited as a solution.
- The expertise required and available to design, pilot, and implement the solution.

DESIGN STEPS

2-58. KM design consists of three steps. These steps are—

- Conceptualize an organizational approach to mitigate the gaps in the KM components (people, processes, tools, and organization).
- Refine the details of the ways to solve the problem and the means available.
- Prepare an action plan to guide the development step. (Table 2-6 on page 2-18 shows the three design steps and their key inputs and outputs.)

Conceptualize

2-59. An approach takes the broad actions presented in the KM gap mitigation strategy and develops the main ideas for a set of actions that target one or more of the KM components. The gap analysis chart used during assessment initially matched identified problems to people, processes, tools, and organization and indicated corresponding very broad approaches. The KM gap mitigation strategy further described the approaches by identifying ends, ways, and means. For design, conceptualizing the approach provides a blueprint of the actions needed, aligning this with corresponding people, processes, tools, and organization. For example, if problems are identified in reporting, the approach provides actions to target processes and tools used in reporting and targets people by developing training to overcome shortfalls.

2-60. An approach could be as complex as designing a knowledge network or as simple as redesigning reports to provide the information the commander needs for decision making. It is tailored to the unit's needs and addresses problems.

Table 2-6. Steps of design—key inputs and outputs

Step 2: Design		
Purpose: To produce an actionable plan from which viable knowledge management solutions can be built. • Design inputs are derived largely from assess outputs. • Design outputs form the basis of develop inputs.		
Key Inputs	***Steps***	***Key Outputs***
• Guidance from chief of staff • Approved knowledge management map and gaps and priorities charts • Battle update briefing chart • Other requirements as directed (These are only sample inputs and other inputs can be directed.)	**Conceptualize** Conceptualize an organizational approach to mitigate the people, processes, tools, and organization gaps	The main ideas that inform design of detailed organizational approaches include— • Meeting management. • Time management. • Reporting solutions. • Technical systems.
• The main ideas in terms of organizational approaches	**Refine** Refine the problem in terms of the organization and its people, processes, tools, and organization structure and culture	Detailed ways and means to close knowledge management gaps (For example, the knowledge management working group begins developing specific methodology [ways] to achieve the desired result.) • List of resources required • Tentative timeline • Tentative identification of who performs the actions • Assessment measures
• Identified approaches (ways) • Resources available (means) • Draft action plan that includes methodology, timeline, resources, responsibilities, and assessment measures	**Prepare** Prepare the knowledge management action plan	• Update to chief of staff (as required) • Approved action plan that includes methodology, resources required, timeline, responsibilities, and assessment measures • Updated Assessment Matrix

Refine

2-61. The KMWG refines the precise nature of the problem in terms of the people, processes, and tools in the organizational context. The KMWG refines the approach into a methodology—ways and means—to correct the problem. This methodology describes the actions to take, establishes a tentative timeline, and identifies resources required to solve the problem. It also refines assessment measures (measures of performance, measures of effectiveness, and indicators), and tentatively identifies what staff section (or other entity) is responsible for actions.

Prepare

2-62. Based upon the refined approach, the KMO prepares an action plan. The action plan assigns or recommends responsibilities. This is done for design and again for the remaining steps of the KM process (develop, pilot, and implement). The COS or XO reviews and approves or modifies the action plan. In areas where the KMO does not have authority to assign responsibilities, the COS or XO approves and signs the

action plan. For example, the KMO cannot task the other staff sections to help design or develop solutions or task personnel from subordinate units to prepare and perform training as part of the knowledge solution. The approved action plan includes—

- Methodology.
- Resources required.
- Timeline.
- Responsibilities.
- Detailed assessment measures for piloting.
- Implementation considerations.

Train

2-63. Designing solutions to improve standardizing procedures involves training users. Designing the training solution includes context because every unit and section will use the tool differently and have its own challenges. The gap analysis performed during assessment identifies gaps in capabilities of the different elements in the organization and proposes broad approaches to fill those gaps. Design focuses even more closely on building solution sets, which include training specific to the unit using the tools. Today's training approaches include online self-help training modules when possible so users can also train themselves. Training begins as early as possible in the process and may start as early as the pilot phase.

2-64. The KMO has a close working relationship with the information management or information assurance officer, information systems managers, digital systems engineers, and field service representatives when developing solutions for C2 information system gaps. The KMO determines the technical challenges that hinder knowledge and information flow. The KMO collaborates and coordinates with the unit training team, web portal administrators, and web developers to develop a training plan that meets the requirements of each staff section or subordinate command.

2-65. KMOs ensure that the content management training program includes required elements of the analysis, design, development, implementation, and evaluation training model. (See chapter 5 for more information on training.) KMOs work with the operations section to develop and provide KM training that is consistent with the Army training standards (known as ADDIE) which include five parts:

- Analysis, which includes—
  - Required training frequency.
  - Task, conditions, and standards of required training.
  - Personnel who require training.
- Design, which includes—
  - When the training takes place.
  - Where the training takes place.
  - Delivery methodology.
  - Instructional methodology.
  - Expected training outcomes.
  - Description of the assessment methodology.
  - Resource requirements.
- Development, which includes—
  - Training plans written according to training development capability standards.
  - Validating training tests.
  - Identifying delivery methodology.
  - Identifying instructional methodology.
  - Describing instructor train up.
- Implementation, which includes—
  - Ensuring the right people attend training.
  - Maintaining training records.

- Evaluation, which includes—
  - Formative evaluation (evaluation of a course of training or instruction that typically takes place during its development or improvement).
  - Summative evaluation (evaluation or judgments about a course made at its conclusion).

DEVELOP

2-66. This section provides the guidelines for developing KM solutions. Following the overview, it provides steps to developing solutions. This activity is the physical aspect of solving the issues identified in the assessment, and in some cases it requires special expertise in creating the solution (for example, personnel with advanced skills in SharePoint).

SOLUTIONS

2-67. The develop phase of the KM process builds the solutions derived from the assessment and design steps. The KMO communicates regularly with the COS or XO to verify if the solutions as designed are on the right track to fill the knowledge and performance gaps. Continuous assessment also reveals if any changes are necessary before actual development begins. Development is a detailed, building process that results in a completed solution, ready to be tested and validated in the pilot phase. It typically requires close collaboration between the KMWG, the signal staff, and information management personnel.

2-68. When there is more than one solution under development, the working group identifies where there are areas of crossover (for example, between meeting management and time management, standards and reporting, and others as applicable) to coordinate efforts and avoid unnecessary redundancy. Close coordination is particularly valuable in the development of training that typically must accompany new solutions. The KMO also confirms priorities to ensure the correct focus of development efforts.

DEVELOPING SOLUTIONS

2-69. There are three steps to developing solutions will help ensure the solution developed will be adequate and ready to pilot. (Table 2-7 shows the develop steps and the key inputs and outputs.) Each of these three steps ensure that the solutions are refined and can be implemented as necessary. These steps are—

- Confirm unit priorities, CCIRs, and unit status.
- Outline each action required to build the solution.
- Build the solution.

Table 2-7. Steps of develop—key inputs and outputs

Step 3: Develop		
The purpose is to develop actual knowledge management solutions that are feasible and suitable to proceed to validation on a small scale, including— • Develop inputs are derived largely from design outputs. • Develop outputs form the basis of pilot inputs.		
Key Inputs	***Steps***	***Key Outputs***
Guidance from chief of staff • Approved action plan that includes methodology, resources required, timeline, responsibilities, and assessment measures	**Confirm** Confirm unit priorities, commander's critical information requirements, and unit status	• Updated knowledge map • Shared understanding of the organization's status and current capabilities • Updated assessment matrix
Updated knowledge map • Knowledge management officer and knowledge management section with knowledge management working group input. It details the required actions in each focus area. The outline of actions may include resource requirements, training requirements, and standard operating procedures revisions • A complete and fully staffed outline of each required action by organizational approach • Updated action plan	**Outline** Outline each action required **Build** Build the solutions	• A complete and fully staffed outline of each required action for each knowledge gap • An updated action plan • Fully built knowledge management solutions ready to be piloted • Examples include new standard operating procedures, a revised change management plan, a restructured working group, and a new significant activity reporting process • The chief of staff approves solutions for movement to pilot

Confirm

2-70. The KMWG confirms the priorities of effort for development with the COS and XO. Priorities may have changed based on the unit's current situation. Each solution for development requires effort and resources; therefore, it is important to place priority of effort on the solution that will help the unit the most in its current circumstances.

2-71. During operations, CCIRs focus knowledge and information management efforts. The KMWG confirms that it has the most current CCIRs; and the proposed solution focuses on these. The KMWG also confirms that it understands the unit's current capabilities for the areas targeted to develop. This requires reviewing the assessment results. The concept maps and knowledge maps from the depict step are important sources of understanding.

Outline

2-72. The KMWG outlines the solution. This includes preparing a fully staffed outline of each required action. It also involves coordinating with those elements assigned responsibilities for development actions. This step requires updating the previously developed action plan.

Build

2-73. The KMWG, in conjunction with other subject matter experts, builds the solution to the point that it is ready to be piloted. Individuals who build the solution may be from outside the KMWG or KM section. The COS or XO provides oversight assisted by the KMO.

PILOT

2-74. Piloting the KM solution is the fourth phase in the KM process performed before full-scale implementation of a solution. This section explains the role of piloting in the KM process, and it describes the four main steps in KM piloting. It also offers consideration for planning, preparing, executing, and assessing a KM pilot.

PILOTING

2-75. In general, piloting refers to performing a small-scale preliminary test to evaluate and validate the feasibility, time, cost, and effects of a KM solution. A knowledge manager performs pilot tests before units fully implement the designed solution. Such pilot tests are often an incremental test of a modification to an existing process or procedure.

2-76. A KM pilot uses the walk-then-run method of deploying the potential KM solution and testing it in application in the unit context to validate it. Piloting a KM solution can be a single event or a series of pilots consisting of the same solution applied to different organizations or echelons.

2-77. Piloting is a key phase of the KM process. A pilot is carefully observed by the KMO (and, when necessary, the KMWG) to gauge its effectiveness in delivering measurable results. A pilot serves as a proving ground for a KM solution that was designed to address a gap but may have broader applicability in or outside an organization.

PILOTING TECHNIQUES

2-78. The first step in validating the efficacy of the proposed solution is by implementing it on a small scale and then testing it with the people, process, and tools that will use it on a larger scale. Piloting a KM solution is the same whether the solution is a standards solution, a time management solution, a meeting management solution, a reporting solution, a technical solution, a content management solution, or any other solution dealing with the alignment of the people, processes, tools, and organization.

2-79. The pilot of a KM solution will enable the KMO to identify and correct problems and prepare it for full implementation in the organization. A limited pilot run can be performed, modifying the proposed solution as needed, based on qualitative and quantitative analysis, participant feedback, and KM professional judgment. KM pilot activities act as a seed for the culture and behaviors and spread into other activities in the organization.

2-80. Piloting and implementing KM-based changes and establishing a training program to support these changes requires careful consideration. The main objective is to capitalize on the trust built during the previous phases to start building improved capability and capacity within the organization. Before piloting a solution, the KMWG assesses, designs, and develops initial solutions for many of the gaps in the organization. Now will be the time to pilot many of the solutions to ascertain their feasibility. Piloting is an incremental test intended to validate the usefulness of the solutions. This is the phase where many of the solutions will need to be modified based on testing them. This is critical to ensure solutions are suitable, feasible, and acceptable. The steps to an effective KM pilot effort are plan, prepare, execute, and assess. Table 2-8 discusses each pilot step.

Table 2-8. Steps of pilot—key inputs and outputs

Step 4: Pilot		
The purpose is to validate approved knowledge management solutions on a small scale prior to implementation across the enterprise: • Pilot inputs are derived largely from develop outputs. • Pilot outputs form the basis for implement inputs.		
Key Inputs	***Steps***	***Key Outputs***
• Fully built knowledge management solutions ready to be piloted • Examples include new standard operating procedures, a revised content management plan, a restructured working group, and a new significant activity reporting process	**Plan** Plan the details of the pilot	Piloting approach consisting of— • Objectives • Communication plan • Timeframe • Required resources and training • Sample size/scale and scope • Measurements and evaluation methodology
• Completed pilot approach • Feedback from participants • Rehearsal schedule	**Prepare** Prepare all elements of people, processes, tools, and organization for the pilot	After action review from rehearsals
• Piloting approach (informed by after action reviews)	**Execute** Execute the pilot as briefed	• Collected data • After action review from execution
• Analyzed monitoring and evaluation data which indicates the efficacy of the piloted solution	**Assess** Evaluate the pilot to determine if ready for implementation	• Brief chain-of-command and knowledge management working group • Approval from chief of staff to implement knowledge management solution on an enterprise level

PLAN

2-81. Planning the pilot of a KM solution is the critical first step upon which all effort that follows is dependent. Planning for a pilot requires the same level of detailed preparation as a full-scale implementation of a solution.

2-82. The pilot plan should be based upon a discrete KM solution designed to address an identified KM gap. The solution's functioning should be isolatable in application.

2-83. Important considerations of the pilot phase include communicating the proposed KM solution to the commander and staff and ensuring acceptance or discussing alternatives as needed. The KMWG, KMRs (and KM section, when assigned) train and coach unit personnel as needed to deploy and test the solution. Key activities of the pilot step are collaborative assistance and team-peer assistance.

2-84. The pilot plan contains several items. It includes the—

- Pilot project objective.
- Communication plan or something similar.
- Pilot timeframe.
- Training.

- Resource requirements.
- Sample size, scale, and scope.
- Assessment measures.

2-85. The KMO establishes an observation, collection, and analysis of the methodology and tool set designed to carefully monitor, collect, and analyze the results derived from the pilot. The KMO also establishes a framework for on-going analysis of improvement, and it includes a feedback mechanism for people to share their input about the pilot and provide expectation management for users.

2-86. An important and critical aspect of the pilot phase is to identify the variables necessary to evaluate and develop good assessment measures. The collection of relevant data allows verification and validation of the original solution proposed by the pilot project. These variables are discussed in Table 2-9. Collectors plan to measure both quantitative and qualitative aspects of performance if possible. The development of meaningful assessment measures is a critical component in effective pilot projects. MOPs and MOEs provide the quantifiable metrics from which the KMO determines the utility of the solution and meets the needs of the unit.

2-87. A *measure of performance* is an indicator used to measure a friendly action that is tied to measuring task accomplishment (JP 5-0). Several measures of performance may be related to the achievement of a particular measure of effectiveness.

2-88. A *measure of effectiveness* is an indicator used to measure a current system state, with change indicated by comparing multiple observations over time (JP 5-0). Measures of effectiveness are quantitative measures that give some insight into how effectively a unit is performing a function or activity. Indicators inform measures of effectiveness to observe progress toward a desired end state. They should include both quantitative and qualitative measures.

Table 2-9. Assessment measures and variables

Measure of performance	***Measure of effectiveness***
Used to measure task accomplishments Example: 100 percent of operations center personnel are trained in Command Post Computing Environment operations level two prior to deployment	Used to measure attainment of an end state condition, achievement of an objective, or creation of an effect Example: Digital crews can execute battle management for current and future operations
Answers the question, “Are we doing things right?”	Answers the question, “Are we doing the right things?”
Measures what (tasks completion) in the mission statement	Measures why (purpose) in the mission statement
Often formally tracked in execution matrices	Often formally tracked in formal assessment plans
Typically simple to choose the appropriate ones	Typically challenging to choose the appropriate ones

2-89. KMOs consider the resources needed for the pilot, including time available for the pilot effort, and carefully consider the potential impact the pilot may have on other ongoing processes within the organization. At a minimum, KMOs consider the people, processes, tools, and organization. Wherever possible, KMOs use existing networks and systems for the pilot run. KM is human-centric. KMOs remember the importance of the human factor.

PREPARE

2-90. KMOs communicate the designed solution and develop buy-in from key participants. KMOs explain the steps needed to prepare, execute, and either wind down the pilot or roll it into a more permanent program should it become successful. KMOs pay special attention to communicating the feedback mechanisms and expectations to all participants. It is essential that people understand that their feedback is necessary, valued, and used.

2-91. KMOs communicate the desired outcome of the pilot effort to those directly involved, and they ensure shared understanding of their roles and expectations. The KMWG and KMRs (and KM section, when

assigned) are prepared to train and coach unit personnel as needed to deploy and test the solution. Key activities of the pilot phase are collaborative assistance and team-peer assistance. The preparation phase of the pilot run generally includes—

- Set-up.
- Presentation of pilot project to participants.
- Participant training, as required.
- Rehearsal.

EXECUTE

2-92. Execution is the heart of this phase. During execution of the KM pilot project, KM practitioners put the designed solution into operation and monitor its proper execution. The pilot is executed and observed. The evaluation measures are populated while the pilot is in progress. The execution phase of the pilot includes the execution component and before, during, and after-action reviews.

ASSESS

2-93. Assessment of the pilot project results is the crucial final step in the piloting phase. This evaluation allows the KM team to gauge the progress toward accomplishing the task, creating an effect, or achieving an objective as intended for the designed KM pilot solution.

2-94. Four types of data collection are typically employed in evaluating a KM pilot. A blend of these techniques is considered the best approach:

- Automatic: Automatic tools can be designed to collect numeric data (for example, the hours a system was in use, when it was used, and by whom). This data does not have to be collected from users directly.
- External: One or several observers, who may be part of the KMWG, can be present and observe during the pilot run.
- Subjective: Participants are asked to document their impressions and experiences through several tools like blogs, chats, questionnaires, surveys, or forms. The frequency of participant documenting must be predefined.
- Environmental: Data is gathered by questioning participants about the pilot results and their perceptions both during and after the pilot run.

2-95. Careful analysis of the collected quantitative and qualitative data from the assessment measures helps determine the efficacy of the piloted solution. The personnel designated to perform the pilot assessment provide the results to the KMWG. The KMO presents the findings to the chain of command. The chain of command elects to—

- Refine or adjust the KM solution as needed, based upon the data gathered during the pilot run.
- Execute the transition plan to institute the solution on a larger scale.
- Shut down the pilot and pursue alternative solutions.

The assessment of the KM pilot results in a proposed approach to implementing, refining, or abandoning the KM pilot solution.

IMPLEMENT

2-96. This section provides the guidelines for effective implementation of validated KM solutions. It provides an overview of the implementation phase of the KM process and then outlines the steps to implement KM solutions. The section then describes implementation and documentation of the implemented solutions.

IMPLEMENTATION

2-97. Implementation, or the execution of an action plan, is the culminating phase in the KM process, and it focuses on functional improvements (depending on the time and resources of the organization, the implementation plan can be a part of the written action plan or as a separate document). Implementation is

the phase where the solution is finalized, presented for acceptance, and applied on a large scale. Implementation puts a plan into action and relies on shared understanding to assess progress and make execution and adjustment decisions. This phase takes the user validated KM solution or refinements and implements them into existing organizational processes and systems. In the implementation phase of the KM process, the KMOs use the KMWG to facilitate and focus the organization's efforts on the KM solution or solutions put into place.

2-98. Before organizations consider investing time and resources into an enterprise-level KM initiative, they must have performed a detailed analysis of a particular issue through the lens of the people, process, tools, and organization.

2-99. Once a pilot run of a KM solution has demonstrated the value of the designed solution, the next phase is to fully implement the solution. Full implementation of a solution requires both user involvement and management support. Implementation of a validated solution across multiple organizations or echelons must be carefully synchronized.

2-100. There are two ways to implement a solution: staged or direct. A staged implementation is done by identifying a select group (or groups) or a specific staff section to incorporate the solution first. This includes a training component to ensure the selected group members understand their roles and how to use the new solution. This is followed by incorporating the fielded solution to the rest of the unit later, or in phases. A direct implementation is simply conducting an enterprise- or unit-wide effort all at the same time. The complexity of solution will determine which approach to use.

IMPLEMENTATION STEPS

2-101. There are three implementation steps in the KM process. They are —

- Produce a plan that addresses all elements of people, processes, tools, and organization.
- Synchronize to ensure all elements of the enterprise are implemented as intended, at the time intended, and according to the original intent. This means the solution addresses all four KM components of people, processes, tools, and organization.
- Assess the implemented solution.

(See Table 2-10 for a listing of the implementation steps and their key inputs and outputs.)

Table 2-10. Steps of implement—key inputs and outputs

Step 2: Implement		
The purpose is to close known knowledge management gaps to enable command and control and— • Implement inputs are derived largely from pilot outputs. • Monitor and assess results.		
Key Inputs	***Steps***	***Key Outputs***
• Results of piloting • Refined action plan	**Produce** Produce a thorough plan that addresses all elements of people, processes, tools, and organization	• Updated action plan if it includes an implementation component (or separate implementation plan)
• Results of piloting • Refined action plan ***Note.*** Depending on unit requirements and operational environments, implementation may be expressed in the form of a knowledge management annex to an operation order	**Synchronize** Ensure all elements of the enterprise implement the solution as intended, at the time intended, and in accordance with the original intent	• The knowledge management officer (and knowledge management representatives) assists and synchronizes the plan across the enterprise • Update the knowledge management working group • Update the chief of staff (as required)
• Feedback from users and staff members • Implementation tracking data (such as 50 percent of staff trained and using the new solution)	**Assess** Monitor, evaluate, and recommend	• Periodic informal monitoring of the knowledge management solution to evaluate effectiveness • Update to the chief of staff (as required) ***Note.*** The knowledge management officer now re-enters the knowledge management assessment process at step 1 (assessment) to continuously monitor and assess.

Produce

2-102. The implementation plan (action plan) is the roadmap used by the KMWG and others to deliver validated KM solutions. The plan outlines the responsibilities of the working group and key organizational stakeholders. The document articulates the planned KM implementation and enables those completing the KM tasks and activities in the project to deliver the expected results, as per the validated KM solution. The implementation plan focuses on scaling up the pilot-validated KM solution. It includes considerations for the day-to-day management and control activities to be undertaken by the working group and the unit members.

2-103. The fully developed KM solution implementation plan contains a timeline, quality control plans, resource scheduling, and risk management. *Risk management* is the process to identify, assess, and control risks and make decisions that balance risk cost with mission benefits (JP 3-0). The implementation plan is approved by the COS or XO.

Synchronize

2-104. During the implementation step of the KM process, the COS or XO integrates the efforts of the whole staff by synchronizing their activities toward the achievement of the planned KM process improvement and placing a high priority on the achievement of shared understanding through better KM.

Assess

2-105. KM solutions are continuously assessed, even after full implementation. Feedback from users is important to make sure the fully implemented solution is continuing to provide improvements to the mission. KMOs do not need to conduct as detailed an assessment as required earlier in phase one of the full KM process. The assessment during the assess phase is mainly to ensure the implementation is going as planned and the solution is working.

ASSESSMENT TO FULL IMPLEMENTATION

2-106. The KM process is conducted as an iterative loop. Once a solution or set of solutions are in steady state execution, they are monitored and their impacts are assessed to ensure they meets the established process improvement outcomes. (See Figure 2-4 for an example of the complete five-phase KM process and key products developed in each phase.)

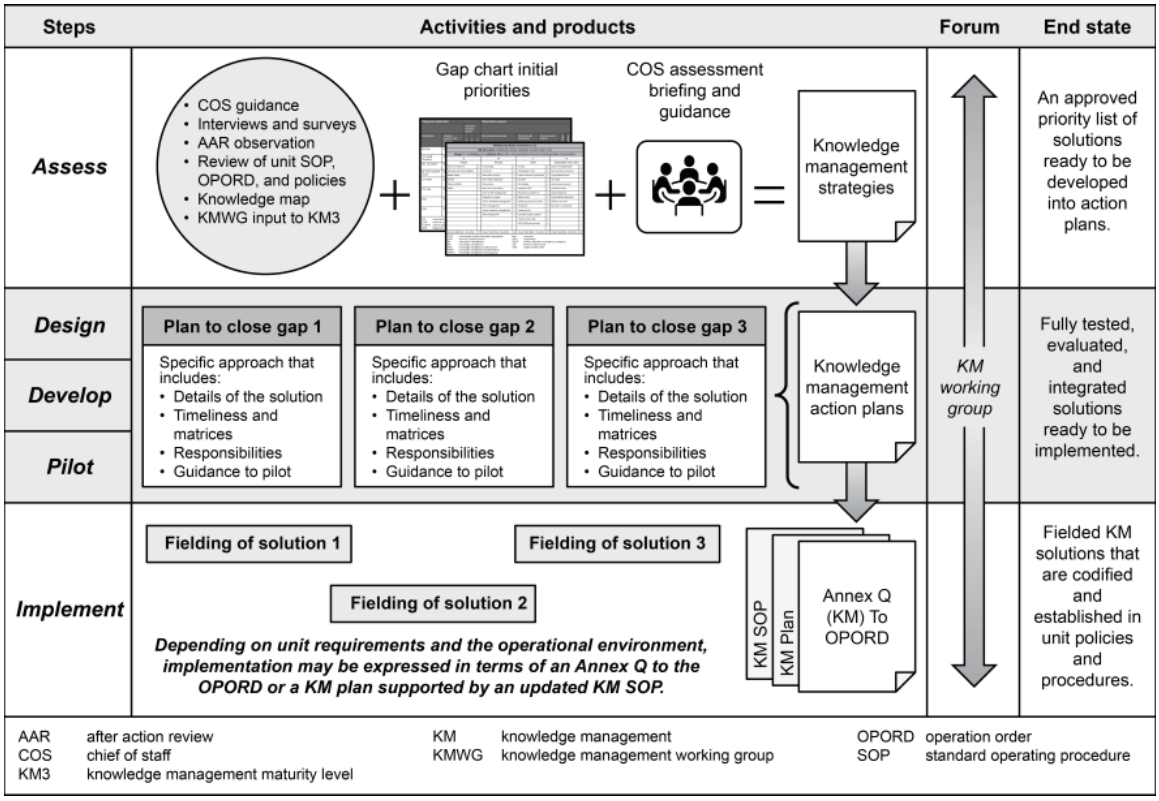


Figure 2-4. Knowledge management process and products

MANAGING MULTIPLE SOLUTIONS

2-107. When planning for implementation of a KM solution or solutions, leaders consider that this is a long-term process. It needs careful expectation management, condition setting, and continuous review. Project management is discussed in Chapter 1 as a supporting KM discipline. Knowledge managers employ project management techniques to facilitate resolving and managing multiple gaps simultaneously. Each gap identified during the assessment stage is considered a separate, distinct project with a different timeline, resources required, and projected completion date. Careful change management practices of all implementation efforts are essential to persuade users and stakeholders to accept and embrace changes. (See Chapter 4 for more information on change management.)

2-108. When planning implementation, the KMO considers what tools are required for keeping track of all the initiatives being addressed and how the COS or XO is kept abreast of progress. As members of a staff

section, knowledge managers need a running estimate to do that. Table 2-11 shows a sample project management chart that can be used as a potential running estimate graphic to ensure the COS or XO sees progress on the approved solutions. Critical elements to develop a tool for tracking implementation of KM solutions may include—

- A short title to describe the KM gap.
- A short title to describe the proposed solution together with the date that solution was started and projected completion dates (all five phases of the KM process).
- The project's current stage in the KM process (assess, design, develop, pilot, implement).
- A status of the solution (such as completed, in process, or delayed).

Table 2-11. Example project management chart

Gap description	*Approved solution*	*Start Date*	*Projected finish date*	*Current step*	*Status and remarks*
Time management, wasted time looking for information	Create and enforce content management plan	4/2/23	7/10/23	Design	On track: knowledge management section updating content management process.
Reduced reaction times when operation order timelines not clear	Establish request for information response timeline with operation order publishing requirements	4/13/23	6/15/23	Pilot	On track: piloting ongoing and new procedures are working.
Lack of shared critical information across staff sections	Refine and update portal and prioritize distros to end-user	4/13/23	7/27/23	Implement	Off track: training lagging due to insufficient turn-out.
Lack of reset and assessment time after after-action reviews complete. No time to apply lessons.	Re-evaluate after-action review processing, archiving and lessons learned implementation procedures.	5/1/23	7/4/23	Implement	On track: Nearing full implementation and will be completed on time.
Insufficient interagency coordination and info sharing and reduced shared understanding	Identify liaison officer requirements with defined roles and responsibilities and update standard operating procedures	6/5/23	8/5/23	Assess	On track: new tasking and detailed assessment is under way.

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Chapter 3
Knowledge Management Solutions for Common Problems

This chapter discusses common problems many Army organizations encounter. This chapter discusses analyses of these common problems. Then the chapter discusses KM solution designs.

ANALYSIS OF COMMON PROBLEMS

3-1. All units have common problems they must address. KMOs identify the existing problems and then they provide solutions for commanders to solve these problems. KMOs conduct an assessment during phase one of the KM process. They identify knowledge and performance gaps early in the process. Knowledge managers, at a minimum, consider six problem areas. Each area has a specific analysis technique to determine the extent of the problem and possible solutions. There are six common problem areas discussed in this chapter: standards, battle rhythm and time management, meeting management, reporting, technical systems, and content management. This is not an all-inclusive list, as other problem areas may exist.

3-2. KMOs, through the assessment process discussed in Chapter 2, seek to determine where Soldiers and staff members are spending excess time on outdated processes, searching for information that should be readily available, waiting on decisions that are not made in a timely manner, and why critical information is not getting updated and added in a timely manner. KMOs work with the KMWG to continue to identify other areas that need to be improved.

STANDARDS ANALYSIS

3-3. Often units fail to consistently maintain standards for KM. A standards analysis helps a unit determine what standard KM practices the unit follows and what practices the unit needs to start following. The intent is to achieve standardization in KM practices across the force. Using standard KM practices enables units to share knowledge efficiently and make managing knowledge routine and efficient. Commander's guidance, policy letters, and SOPs for individual elements in the organization contribute to establishing and adhering to KM standard practices. These standards analysis questions provide a starting point to determine the effectiveness of the policies and procedures and which require a change:

- Does the organization's SOPs establish standards for KM practices?
- Do the organization and subordinate units follow a common standard?
- Are the standards included in the organization's SOPs?
- What is the purpose behind the standards?
- Are the SOPs current and regularly reviewed?

BATTLE RHYTHM ANALYSIS AND TIME MANAGEMENT ANALYSIS

3-4. KMOs provide advice and recommendations to improve time management and battle rhythm. The purpose of time management analysis is to determine if an organization is using time efficiently, how it can reduce wasted time, and how it can make the best use of available time. This analysis focuses on the unit's battle rhythm. Battle rhythm continues to be a challenge for many headquarters that must operate in their own decision cycle and interface with higher echelon headquarters, stakeholders, and adjacent headquarters while supporting their subordinate units with timely direction and information.

3-5. *Battle rhythm* is a deliberate cycle of command, staff, and unit activities intended to synchronize current and future operations (FM 6-0). An organization's battle rhythm consists of meetings, briefings, and other events synchronized by time and purpose. The battle rhythm is the primary means for the unit to

synchronize the collection, analysis, and presentation of information for decision making. A battle rhythm that does not provide critical decision-making information in a timely and presentable manner is not contributing to mission command in that organization.

3-6. Battle rhythms must be nested with their higher echelon headquarters. The battle rhythm changes during execution as the operation progresses. It must be flexible and adaptable to remain current and up to date. The KM staff analyzes the unit's battle rhythm to determine its efficiency. (See Figure 3-1 for an example battle rhythm analysis.)

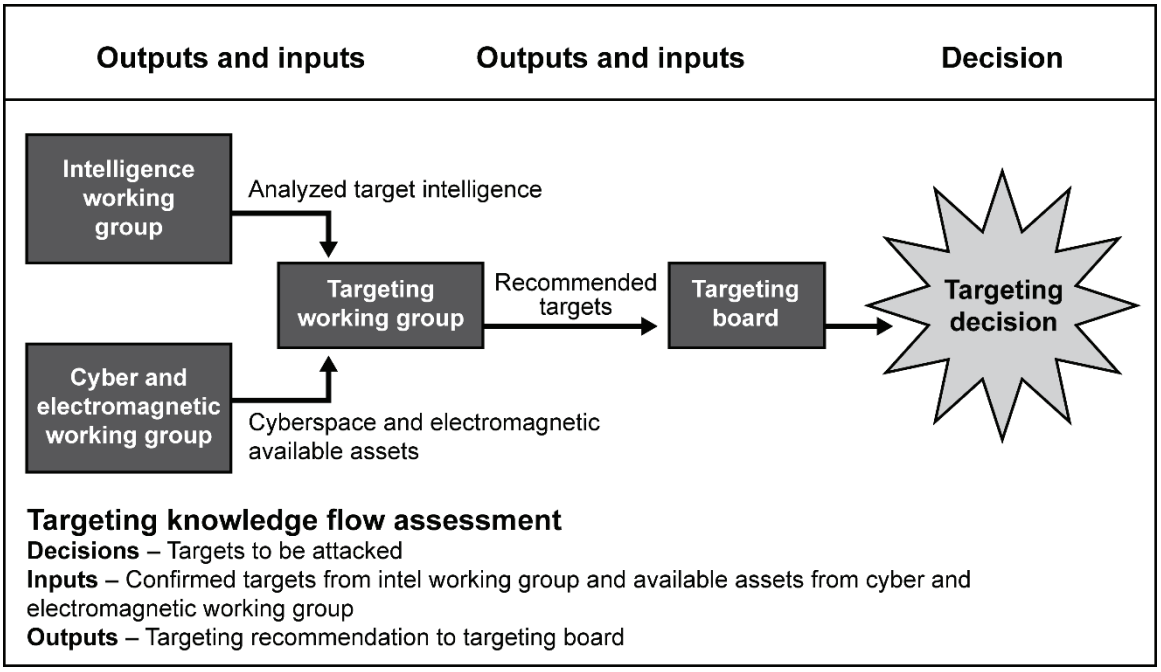


Figure 3-1. Sample time management and battle rhythm analysis

3-7. In Figure 3-1, the intelligence and fires working groups meet before the targeting working group, which in turn must meet before the battle update briefing for the commander to make timely targeting decisions. Any other sequence of events will not produce the required decisions.

3-8. Commanders understand and manage the battle rhythm to nest temporal events and ensure meetings flow logically. The flow of information from meeting to meeting produces knowledge that staffs use to plan and execute and leaders use to make decisions. Commanders consider several questions when analyzing the organization's battle rhythm and time management. These questions include—

- Does the organization have and use a battle rhythm?
- Is the battle rhythm nested with higher events?
- Does the battle rhythm allow subordinate units to establish their routine?
- Does the battle rhythm match the events happening on the ground and the intensity of the engagement, and does it adjust to do so without major disruptions?
- Is there time between routine events to allow for leaders and staffs to plan and consider the information and knowledge garnered?
- Does the battle rhythm identify the touchpoints and critical decision path for the commander?

3-9. A good technique to begin battle rhythm analysis is to analyze one sequence at a time the knowledge movement through the organization (such as the counter-improvised explosive device working group), instead of the entire organizational battle rhythm. This involves identifying working group inputs and outputs and resulting decisions and requires sitting in on that working group's meetings to analyze how efficiently the information and knowledge is shared during and after those meetings. The purpose is to determine if that working group is meeting its information objectives in the most efficient manner. This sequential analysis of

the different battle rhythm activities provides better insight into how improvements can be made during the design phase of the KM process.

MEETING MANAGEMENT ANALYSIS

3-10. Meeting analysis helps units determine not only the purpose of meetings, but also the way meetings are facilitated or conducted, which is often inconsistent and wastes time. Analyzing meetings enables organizations to manage meetings effectively. Army headquarters organize their staff into command posts (main command post and tactical command post), each with a purpose. Command posts consist of cells (functional and integrating) and staff sections, including the KM staff section. Cells and staff sections perform meetings which are coordinated as part of a unit's battle rhythm.

3-11. Knowledge managers use meeting management to nest meetings in the battle rhythm and eliminate duplicative efforts unless units require redundancy. Without proper management, meetings can potentially consume the most time in an organization. Effective meetings need participants who provide key inputs that result in outputs that enable further staff synchronization or ultimately require command decisions. The decision points are tied to the CCIRs, which focus the KM staff's integrated efforts to create shared understanding.

3-12. Efficient meetings are essential to ensuring that information presented becomes knowledge that leads to shared understanding. For the knowledge to flow, participants take ownership of the inputs and outputs for which they are responsible. To determine a meeting's usefulness, commanders consider the following:

- Is there a clear purpose to the meeting (analyze for context and purpose)?
- Do meetings feed each other and ultimately lead to timely decisions?
- Are the inputs and outputs of meetings identified and synchronized?
- Are the meeting deliverables identified in advance?
- Is there sufficient time for those involved to prepare?
- Are meetings structured and performed to support each other (information flow)?
- Are there duplicative meetings that can be eliminated?
- Have the visual and audio PACE plans been determined?
- Are the proper attendees at the meeting?
- What communication platforms are required to support the meeting?

3-13. Every meeting includes the following five critical elements. Ensuring these elements are present are also known as the seven-minute drill which is discussed in paragraph 3-15. The following elements ensure a meeting is well organized and achieves what was intended:

- Have a clear purpose.
- Have a meeting agenda.
- Identify personnel required to attend.
- Identify required inputs.
- Identify expected deliverables or outputs.

3-14. KMOs and unit leaders conduct meeting assessments. The assessments can be performed with a simple checklist. Meeting assessment questions may include—

- Where did the meeting occur?
- How did staff notify attendees?
- Did the meeting occur as scheduled?
- What collaborative tools did staff prepare in advance; how many were used?
- Which of the five critical elements were missing?
- Which designated attendees were absent?
- What key tasks were not accomplished?
- What input products were not provided to conduct the meeting?
- What output products were not provided for follow-on meetings?

3-15. Some staffs use what is often referred to as a "seven-minute drill" (borrowing a term from sports) to ensure meetings are needed and useful. The seven-minute drill provides a format by which the staff proponent summarizes the purpose for a prospective meeting. Each meeting lead presents a quad chart to the COS or XO, which explains the meeting's purpose, attendees, and how it supports decision making in seven minutes. The approved quad charts are used later to assess meeting effectiveness and ensure it accomplishes its intended purpose. Effective use of the seven-minute drill facilitates synchronized meetings and prevents arbitrary changes.

3-16. Working groups are common battle rhythm meetings. A KMWG, for example, is a type of meeting designed to provide analysis and coordination and provide recommendations for a particular purpose or function. Working group meetings are planned out in advance to facilitate consistency and knowledge sharing. Working groups integrate members from across the staff to help break down stovepipes and synchronize information. The KMWG provides an excellent means to assess knowledge gaps and implement solutions. (See Table 3-1 for an illustration of an example working group agenda.)

Table 3-1. Example knowledge management working group agenda

General Information	*Participants*
Purpose: to ensure knowledge flow throughout the organization by identifying knowledge management needs, trends, and issues; establishing priorities and processes; providing training and technical support; and resolving issues. **Meeting type:** working group **Frequency:** biweekly on Thursday at 1500 **Duration:** 60 minutes **Location:** Staff conference room	**Staff proponent:** knowledge management officer **Chair:** executive officer **Members:** • Knowledge management representatives from coordinating, special, and personal staff sections • Unit knowledge management officers • Web master • Public affairs officer
Ongoing Requirements	***Portal Exploitation***
Inputs: • All members: recommended changes to knowledge management processes (including training), tools, organization, and knowledge management issues. • Signal staff section: planned network outages; technical and portal capabilities. **Outputs:** • Updated knowledge management standard operating procedures • Changes to processes • Recommendation to chief of staff for battle rhythm changes **Feeds:** • The command's collaborative process • Portal design • Information sharing and the military decision-making process • Knowledge documentation and creation	**Products** • Knowledge management working group battle rhythm website • Standards: battle rhythm, slide master, logo for website **Techniques:** • Portal change request • Discussion board **Weekly agenda items:** • Roll call, due outs from last meeting, and minutes of last meeting • Review of upcoming task suspense dates and issues • New action items (people, processes, tools, and organization) • Staff and task force briefings • Due outs from today's meeting :

3-17. Each working group has information requirements (inputs) and results (outputs) which contribute to the organization's command and control process. The KM staff analyzes each working group to list required inputs and outputs and ensure synchronization with other working groups. When assessing groups and boards, the KM staff ensures—

- Battle rhythm inputs and outputs support the commander's decision cycle.
- Outputs and inputs of each working group are clearly identified at each meeting.
- Each working group and board produces an executive summary for each meeting to share results and to assess effectiveness (issue, discussion, and recommendations).
- Assessment of parallel planning between cross-functional cells (if everything stops to wait on the results of a core planning group, there is no parallel planning occurring).
- Analysis of information stovepipes to mitigate or eliminate them.

Report Analysis

3-18. Often units only partially maintain reports for managing knowledge. Report analysis examines how staffs create, organize, and transfer reports. This analysis identifies who uses the information in reports, and it contains methods to make that information available to the most people, consistent with security requirements (such as the PACE plan).

3-19. Effective KMOs perform report analysis by applying appropriate tools and reporting procedures. The KM staff and information managers collaborate to perform report analysis. Factors that affect reporting include, but are not limited to—

- Physical factors including size and topography of the area of operations, distances, terrain that masks radio communications, infrastructure, and the ability of mounted or dismounted elements to carry communications equipment.
- Equipment factors including availability of systems, support, connectivity, band-width, and maintenance.
- Decentralized operations including the level of understanding of task, purpose, and commander's intent; collection focus; standardization; and efficient information movement and analysis.
- Training factors, which are related to Soldiers' understanding of the equipment and systems and ability to use them to their potential, proper use of reporting procedures, and understanding what needs to be reported.

3-20. Elements at the National Training Center conduct KM observations of units deployed there for training. These observations indicate some common KM deficiencies among many units. These deficiencies include—

- Subordinate unit does not understand or execute KM SOPs.
- Subordinate unit does not understand reporting requirements.
- Subordinate unit does not have enforcement mechanisms in place to enforce reporting, format, filing, and file naming conventions. This causes critical information to be lost from the system.
- Subordinate units lack C2 information systems training. Mechanisms to facilitate the "flattening" of networks are not developed.
- Units do not appreciate the power of enterprise reporting systems and do not populate it with additional reporting (such as key leader engagements).
- Units do not understand the uses and capabilities of web portals versus databases.
- Units do not focus or nest information requirements at respective echelons with a collection priority.
- Subordinate units do not tie knowledge management to the unit's targeting battle rhythm's inputs and outputs. Units struggle to move information but fail to perform analysis on the information collected and disseminated.

3-21. The KM staff performs an analysis of unit reporting. During this analysis, the KM staff considers—

- Information requirements leaders need to make decisions (focusing on the CCIRs).
- Methods the unit uses to provide information to leaders.
- Gaps in the process.
- Possible solutions to the gaps.

TECHNICAL SYSTEMS ANALYSIS

3-22. Units often have difficulty managing technical systems. Technical systems analysis provides operational and functional analysis of the technical systems supporting the organization. The KM staff uses the results to prepare customized digital dashboards (also known as digital status charts) to display key organizational performance indicators. These indicators show an organization's health. Digital dashboards use visual data displays from warfighting functions and information systems to provide action notices and warnings, track progress, and summarize organizational performance. Examples of key performance indicators for technical systems analysis include—

- Reduction or increase in extent (such as number of nodes) in a technical system.
- Reduction or increase in number of users on a technical system.
- Reduction or increase in number of queries on a technical system.
- Reduction or increase in downtime or system outages of a technical system.
- Reduction or increase in processing time or production turnaround time on digital requests for information.
- Reduction or increase in flow on certain information systems.

3-23. The KM staff may be tasked to determine KM requirements for new information systems before those requirements are given to the signal staff section for connection to the technical network. The KMO, operations officer, and signal staff officer work together to meet user requirements and ensure the confidentiality, integrity, and availability of the technical network are not jeopardized.

CONTENT MANAGEMENT ANALYSIS

3-24. Content management is an activity that focuses on managing digital and nondigital knowledge and information contained in any medium that conveys content. Before computers and other electronic information systems became widely used, content management primarily concerned data and information technology administration based on data standardization. Content management in an organization using KM today has a wider focus. Content managers consider when and how to apply information and knowledge to help a unit accomplish its mission. They also consider how the visibility and accessibility of digital and nondigital knowledge products in and outside the organization affect mission accomplishment. This assessment includes how units manage data throughout its life cycle.

3-25. Content management analysis begins with a review of current practices, the commander's guidance, and existing content management standards including applicable doctrine publications, Army regulations, and policies. Other considerations for content management analysis include the following:

- Networks used.
- Information systems used.
- Compatibility of systems and networks.
- Classification of information and data.
- Foreign disclosure authorities for information and data when dealing official representatives of foreign governments.
- People and culture of the organization.
- Data standards used.
- Relevancy to the operation or need.

3-26. Analyzing the content management standard requires verifying the applicable components. Content managers assess all applicable components outlined in the bullets to identify gaps. These include—

- A specified location of all types of content that the organization uses.
- Identification of the content creator.
- Identification of the person, office, or proponent responsible for updating or deleting content.
- Identification of file types.
- Identification of the content purpose.
- Description of how the taxonomy or structure facilitates content discovery and content retrieval.

3-27. The content management analysis verifies if the taxonomy or structure facilitates user understanding. The analysis does this by—

- Being easy to read and understand.
- Using common language and terms when determining categories for organizing content.
- Using doctrinal terms where applicable.
- Using doctrinal language where applicable.
- Being relevant to users in the organization.
- Following approved naming conventions.

3-28. The content management analysis verifies methods to ensure proper access to content. These include—

- User roles.
- User controls.
- Permissions.
- Different requirements for garrison, field training, and deployment.

3-29. The content management analysis verifies rules and methods. The content management analysis verifies rules on file size to protect networks or information systems (including email attachments, messages for meetings, working groups, and boards and documents posted to web portal). It verifies that there is a cybersecurity policy to secure content while allowing access by authorized users. Content management analysis verifies that methods for using metadata tag content allow discovery and allow for effective retrieval. Lastly, this analysis verifies that methods for using metadata provides users confidence in the accuracy and trustworthiness of content by—

- Identifying the creator.
- Identifying contributors.
- Identifying creation date.
- Identifying content expiration date.

3-30. Content management analysis verifies security. This analysis verifies that security classifications are assigned according to AR 380-5 and AR 25-2. It also verifies—

- Spillage procedures.
- Procedures to standardize content to support interoperability (technical and procedural).
- Naming convention standards to support data identification or retrieval (for example file names support search tools).
- Compatibility procedures for maximizing the availability of content for users regardless of location, access to networks, or information systems.
- Access procedures for maximizing the availability of content for users regardless of location, access to networks, or information systems.
- Content properly marked per classification requirements.

3-31. KMOs ensure unit web portals maintain KM standards. Standards for a unit's web portals include—

- A categorization system that sorts content based on relevancy and importance.
- After login, a policy requiring no more than one click from the unit's homepage to access information identified as the most relevant and important ("one-click rule"). Under this category are—
  - All unit SOPs and battle drills.
  - Current battle rhythm.
  - Links to web-based services required to support the unit's operations.
  - Most recent or current order or fragmentary order.
  - The CCIRs.
- Current contact information for key personnel is considered one level below the most relevant and important. It should be no more than two clicks away from the unit's home page. This must be included on each staff section and subordinate unit page.

3-32. All battle rhythm events and meetings have a "digital home" on the primary C2 system (SharePoint, Command Post of the Future, or Command Post Computing Environment). This "digital home" includes—

- Critical information regarding meetings or events such as the purpose, who chairs, attendees required, and agenda (for example, seven-minute drill quad charts).
- Current inputs and outputs.
- Archive of past meetings.
- Meeting notes or executive summary of most recent meeting, when applicable.

3-33. All subordinate unit sites follow the structure established by higher echelon headquarters to streamline access to information. The standard for the unit's site provides the commander with an enforcement mechanism and a method for review to ensure the standard is current and incorporates emerging technologies and operational terms. Web portals must be reviewed and monitored for operations security.

3-34. If a unit uses an unclassified web portal type site, it should support social networking and other informal networks to support the public domain (for example, the family support group). Organizations must refer to their unit public affairs officers to approve information release.

3-35. Content management assessment includes verifying that the content management standards are suitable. It also includes developing a plan of action, with milestones, to close the gaps.

SOLUTION DESIGN FOR COMMON PROBLEM AREAS

3-36. KM has solutions for each of the six common problem areas. These solutions orient on the movement of information and knowledge in organizations and where organizations commonly encounter problems. If problems are revealed during the assessment phase, the KMWG collaborates to find the best solutions.

3-37. Paragraphs 3-38 through 3-80 discuss design considerations for each of the six common focus areas. The text discusses each of the areas in terms of its own characteristics without breaking it into the three design steps.

STANDARDS SOLUTIONS

3-38. Analysis performed during the assessment step reveals that knowledge and information is not reaching those who need it, or when they need it. It may reveal that there is no common standard for KM in the organization.

3-39. In designing standards solutions, the KMWG considers the commander's guidance, policy letters, plans and orders, SOPs, and other sources that establish and adhere to standard KM practices. The working group corrects inconsistencies and ensures the SOP defines the organization's objectives (for example, developing shared understanding) and procedures and incorporates all elements of KM. The solution is tailored to the organization's needs but there are items to address in any KM SOP. These include—

- Responsibilities, roles, and duties of the KMO and KM section.
- Responsibilities and procedures for the KMWG and KMRs.
- KM in the organization's battle rhythm and meeting procedures.
- Proper content management that makes content visible, accessible, understandable, reliable, and responsive to Soldiers. (See Appendix A for more information on content management.)
- Use of SharePoint, email, and other collaboration methods and digital systems, ensuring SOPs address each digital system.
- Procedures for changing SOPs and planned, periodic updates (at least annually, more often in the early stages of an organization's KM program) to ensure KM remains relevant to the operations process.

BATTLE RHYTHM AND TIME MANAGEMENT SOLUTIONS

3-40. Time management solutions make the organization's battle rhythm efficient and productive. Analysis of one sequence of activities at a time provides greater insight than attempting to view the entire organizational battle rhythm. This enables the design to incorporate solutions specific to that aspect of the battle rhythm. Solutions could be piloted incrementally, adjusted as needed, and implemented with minimal disruption.

3-41. Battle rhythm changes affect the entire organization and should be approved by the COS or XO. Incremental changes to the battle rhythm alleviates disruption in routines, identifies how the changes affect other battle rhythm events, and ensures the battle rhythm remains nested with that of higher headquarters. Battle rhythm changes that improve shared understanding and require less time for the same work will demonstrate the usefulness of the KM program and garner further support.

3-42. The time management design incorporates aspects of meeting management solutions, ensuring every meeting is nested in the battle rhythm and eliminating those that can be combined with other meetings or are otherwise unnecessary. The time management solution ensures—

- The unit's battle rhythm is nested with higher events.
- Changes to the battle rhythm allow subordinate units time to adjust and establish their routine.

- The battle rhythm is tailored to match events on the ground and the intensity of the engagement or operation.
- The battle rhythm provides time between routine events to allow for leaders and staffs to plan and consider information and knowledge garnered.

3-43. Time management also includes gaining efficiencies in time use such as the time wasted using outdated processes and tools that consume more time than they should. Not all meetings are battle rhythm events. The KM section, in its assessment, may determine the unit or organization is using outdated tools or processes that need to be modernized or meetings are not effective requiring a change in procedures. A meeting management SOP is one way to standardize how meetings are conducted.

MEETING MANAGEMENT SOLUTIONS

3-44. Meeting management is important to proper time management. Designing a solution to improve meeting management takes the battle rhythm into account. An overarching goal for meeting management is ensuring that the right people are in the right place for the right reasons. Meeting management requires careful analysis of both individual meetings and a broader analysis of their sequencing and scheduling. The analysis of existing conditions and broad steps to improve them takes place during the assessment step. The design step requires the KMWG to focus on ways to improve meeting management and set priorities. The KMWG works closely with the COS or XO to design suitable solutions to improve meeting management. Designing a solution to improve meeting management ensures that meetings have a purpose, agenda, participant roster, and expected inputs and outputs. The solution includes the following objectives:

- Making individual meetings more productive and as short as possible.
- Eliminating duplicative meetings—such as meetings that serve the same purpose as other meetings. Determine what is important and combine meetings or eliminate altogether them.
- Sequencing meetings logically so that what is learned, developed, and accomplished in previous meetings informs and assists subsequent meetings.
- Synchronizing meetings with other meetings and events in the organization's battle rhythm.
- Facilitating lateral communication with working groups or boards that have the staff representation needed to accomplish the purpose and foster shared understanding.
- Ensuring meetings facilitate parallel planning when appropriate.
- Eliminating arbitrary changes to meetings.

3-45. Meeting managers use techniques to ensure meeting are effective and efficient. Proven techniques for managing meetings include the following:

- The use of the meeting agenda quad chart, depicting inputs, outputs, and required attendees, which keeps the meeting focused and ensures the right people attend. (See Table 3-2 for a depiction of an example of a quad chart for a meeting.)
- Specified formats for inputs and outputs (to ensure the right information is available, and required information is forwarded).
- An executive summary forwarded to the leaders and other meeting leaders (keeping everyone informed).
- All staff work is completed before the meeting.

3-46. The meeting agenda quad chart establishes a standard format for conducting meetings and can be adjusted as needed. Table 3-2 shows an example quad chart. Because meeting management impacts battle rhythm, the same considerations apply. To avoid unexpected negative effects from changes to the battle rhythm, the priorities are—

- Improve the productiveness of individual meetings.
- Eliminate unnecessary meetings including duplicative meetings (where redundancy is not required).
- Sequence and synchronize meetings for meeting outcomes to be available and useful for subsequent activities.
- Ensure meetings support the commander's decision cycle.

3-47. Ongoing monitoring and assessment reveal how meetings are sequenced and synchronized. Changes made incrementally are less disruptive and meet less resistance.

Table 3-2. Example meeting agenda quad chart

Meeting Name: Targeting Working Group	
Purpose of meeting: Target recommendations **Frequency**: Daily **Duration**: 1 Hour **Location**: Fires Cell	**Chair**: Deputy fire support coordinator (DFSCOORD) **Facilitator**: Chief of Staff **Attendees**: Assistant chief of staff, intelligence (G-2), assistant chief of staff, operations (G-3), assistant chief of staff, plans (G-5), assistant chief of staff, civil affairs (G-9), engineer officer, information operations officer, chaplain, legal officer, targeting officer, signal officer, cyber electromagnetic warfare officer, aviation officer, collection management officer, space operations officer, liaison officers, psychological operations officer. **Notes**: Minutes of meeting.
Inputs: Weather, intelligence summary, last 24 targets engaged, air tasking order, commander's targeting guidance, battle damage assessments, collection plan, attack guidance matrix **Outputs**: Recommended target lists, recommended new products distribution, fragmentary order nominations **Feeds Into**: Targeting board **Dissemination plan**: Minutes of meeting and targeting list for targeting board	**Agenda**: Weather report (24-48 hours out) Intelligence estimate Update on current target engagements Air taskings (96 hours out) Civil and religious considerations Target recommendations (all attendees) Legal review

REPORT SOLUTIONS

3-48. Designing adequate report solutions starts with precise assessment of the problems. It also requires collaboration between the KM, operations, signal staff sections, and sometimes other staff sections and stakeholders. Reporting issues fall into different fields of expertise. The KMWG designs report solutions that efficiently disseminate the information contained in reports to people who need it and ensure reporting effectively provides the information to support decision making. An *information exchange requirement* is a set of characteristics that define who exchanges what information with whom, why the information exchange is necessary, and how the information exchange must occur to support an operational process or function. (JP 3-33.) Information exchange requirements are especially important when working within a coalition environment where multiple nations are part of the operation. When working in various command posts or combatant commands that have other stakeholders that need to share information, fully understood information exchange requirements facilitate shared understanding. (See Chapter 4 for more information on interoperability and international information sharing standards.)

3-49. The types of reporting issues in the purview of KM are those related to decentralized operations: level of understanding of task, purpose, and commander's intent, collection focus, standardization, and efficient

information movement and analysis, and training factors. These factors include Soldiers' understanding of the different tools and systems, their ability to use them to their potential, proper use of reporting procedures, and understanding what needs to be reported.

Standardization in Reports

3-50. A lack of standardization causes reporting problems, especially when report SOPs are not standard across an organization. The standards analysis performed during the assessment step identifies shortcomings in an SOP, which the designed solution addresses. The main body addresses all the types and categories of reports required including frequency, method, format, reporting channels, priorities, and other pertinent information. Different annexes describe the different information systems and their use. They ideally provide examples of how to use them for different reporting requirements. If adequacy or standardization of an SOP is one of the issues, the KM staff collaborates with the operations and signal staff sections to design the solution.

Standardized Templates and Formats for Common Reports

3-51. Standardizing templates and formats for common reports makes them easier to prepare and understand. Standardization ensures all required information is included. For example, knowledge managers use a significant activity (known as SIGACT) report. Like many reports, this common report has three types: initial, update, and final. (See Table 3-3 for an example of an initial significant activity report completed by a knowledge manager.)

Table 3-3. Example significant activities initial report

SIGACT			
WHO: 1st BDE/4ID **WHAT:** IED ATTACK **WHEN:** 30 1200 JUNE 2024 **WHERE:** 38SLF 12345 12345 (EAST MOSUL) HN REPORT AT 30 1200 JUNE 2024, A 2/7/2 IA MOUNTED PATROL WAS ATTACKED WITH AN IED AT 38 SLF 12345 12345			
BDE	brigade	IED	improvised explosive device
HN	host nation	4ID	4th Infantry Division
IA	Iraqi army		

3-52. Unit SOPs provide detailed instructions with examples of all the types of required reports. Subordinate units reporting requirements and timelines are also identified. Instructions include, at a minimum—

- Type of report.
- The person to submit the report.
- How often to submit the report (daily, weekly, upon occurrence, or no later than time).
- The person to receive the report.
- Method used to submit the report.
- Report format.

(See Table 3-4 for an example of unit intelligence reporting requirements and timeline.)

Table 3-4. Example unit intelligence reporting requirements and timeline

Intelligence Summary
Subordinate unit: Submit daily unit intelligence summary 0800 hours daily to division intelligence section. **Method:** Post on IRONHORSE Web Portal (SECRET Internet Protocol Router Network) in the intelligence folder. **Format:** Subordinate units are authorized to submit their intelligence summary in their respective unit formats.

3-53. Other C2 factors that affect reporting require collaboration with the operations staff section, intelligence staff section, and the information management staff to design a solution. For example, if information becomes bottlenecked or does not move efficiently to its intended destination, this makes subsequent analysis inefficient and impedes the timely provision of relevant information to commanders. When assessment reveals poorly integrated systems (typically depicted on a concept map), designing a solution focuses on prioritizing the use of the different information systems and improving their capabilities to complement one another.

3-54. Lack of integration of different systems is encountered in multinational operations and sometimes between different Services. Assessment reveals any incompatibility between systems and known fixes such as hard copy data transfer if what is initially identified as a reporting issue will fall under designing technical systems solutions.

3-55. Training factors require collaboration to identify the type of training required, the best means of delivery, and the design of a training program. A frequent training-related problem is lack of understanding of the full capabilities of different information systems. Design reporting solutions include a training component.

3-56. Because of its technical nature and wide variety of reporting problems that assessment reveals, design solutions to improve reporting are multidisciplined endeavors. The KMWG, with its representation from the different staff sections, performs much of the design work.

TECHNICAL SYSTEMS SOLUTIONS

3-57. The result of technical systems analysis during the assess phase, which provides operational and functional analysis of the technical systems supporting KM, indicates a need to design a customized digital dashboard or improve the existing one. These digital dashboards provide an easy-to-read, real-time user interface to show a graphic representation of the organization's current status and historical trends of key performance indicators to enable rapid and informed decision making.

Digital Dashboards

3-58. Digital dashboards include tools to organize key information into a single interface. These dashboards are intended to reduce time to find information and enable knowledge flow and shared understanding, learning, and decision making. Typically, changes to digital dashboards are indicated when the commander or a staff principal cannot quickly find critical information, or when command information requirements change.

3-59. The KMWG knows the type of knowledge and information the commander considers important to making decisions. The staff gains this insight from the CCIRs, guidance, intent, and description of the mission. If the commander is not satisfied with the information being communicated, the COS may identify the problem and bring it to the attention of the KMO for an abbreviated assessment. The KMWG responds to this by adjusting what the commander receives and how it is displayed.

3-60. How information and knowledge are provided and presented is based on how the commander prefers to receive and process it. The KMO seeks the best way to align the people, processes, and tools (helping the commander organize the C2 system) to present what the commander needs to know—reliably, accurately, and on time—with minimal effort.

Systems Integration

3-61. KMOs check existing systems to ensure they can support whatever process the unit performs. If not, the first design solution determines if the existing system needs to be "redesigned" to support the existing process. If they cannot, the KM staff collaborates with the signal staff section to design a new means to meet user requirements while protecting the network. Both designs, existing and new, must be accomplished before the system is connected to the technical network. Designing solutions for the use of new information systems requires staff sections to—

- Identify where the information system communicates in each category (for example, subordinate, internal, higher headquarters, lateral) in its echelon (brigade, division, corps, Army Service component command).
- Determine how effective each system is in that echelon and category.
- Determine the system's PACE backup plan among the other information systems used at an echelon.
- Determine if the system has a certificate of risk-management framework.

3-62. Commanders establish PACE priorities. When they do this, all information systems are placed in context with other information systems used at each echelon using the following criteria:

- Justification. For example, a justification for "primary" is that the system is available immediately, is reliable, and provides visibility to adjacent and higher units.
- Who needs to receive the report? (Is it the operations officer, intelligence officer, or others? This refers to the report sent via the new information system.)
- Information required to be included in the report.
- Standardized reporting times.
- How to send the report (for example, using email as a contingency because chat is down).
- Permissions required.
- Data entry point.
- Other pertinent information.

Content Management Solutions

3-63. Content management is the application of a structured process to create, organize, apply, transfer, and archive knowledge and information products within a collaborative environment or records repository. Content management problems are among the most frequent problems that organizations encounter. KM staffs above division are assigned content management specialists. At brigade and below, the KMO (if one is assigned as an additional duty) collaborates with the signal staff to design content management solutions. Content management specialists are the unit's experts on content management storage and retrieval. They ensure knowledge is available to Soldiers and leaders when and where they need it. They are required to help manage digital content with tools that exchange explicit knowledge, collaborate, and connect with subject matter experts across the organization.

3-64. Successful content management solutions adhere to the content management principles. These summarize the characteristics of successful content management efforts. The content management principles are—

- Make knowledge products visible, accessible, understandable, and reliable.
- Support data interoperability.
- Be responsive to Soldiers.

(See Appendix A for more information on content management principles.)

3-65. Each section has its own site manager responsible for subsequent implementation and execution of the content management plan. The section content manager assists in designing and piloting content management solutions.

3-66. The KMWG may design a solution for one or more content management functions under any of the four content management task areas of create, organize, apply, and transfer. Designing content management solutions includes—

- Determining a common language for the organization.
- Determining where content is located.
- Determining who created the content and version controls.
- Determining the format (structured or unstructured) and the file types (defined by their file extension).
- Determining who uses the content and for what purpose.
- Determining where in the PACE the content is staged.

3-67. To accomplish effective design solutions, content managers perform interviews with the commander, subordinate leaders, primary and special staff, NCOs, functional area subject matter experts, and Soldiers. Content managers determine what content must be created and managed on all networks. They use surveys, a detailed audit, or a content map to perform the inventory. In joint and multinational environments, they consider multiple networks. Content managers work with the signal staff section to help mitigate and manage classified spillage.

3-68. Designing content management solutions includes determining the essential sources of knowledge to include those located outside the unit (such as centers of excellence). The KMWG identifies the content needed, when it is needed, the desired format, and how it must be made available for the unit to accomplish its mission. This involves determining where and how content will be created, organized, applied, and transferred. Tasks that support content management include—

- Determining who manages the documents.
- Determining what technology is available to manage content.
- Determining roles and access rights and classifications for content.

3-69. The KMWG confirms physical security control measures, operations security, classified documents, and dissemination in coordination with the operations security and information assurance officers. A content management plan defines standards, processes, and roles for the entire organization, including the staff sections and subordinate organizations. The plan includes training requirements on those processes and standards for the entire organization. Standardized practices allow knowledge sharing and make knowledge integration routine. Designing a solution to content management issues ensures that content management in the organization includes, at a minimum—

- A file-naming standard or taxonomy.
- Standardized procedures for collecting, storing, or sharing the content.
- A common acronym list.
- Meta-data and meta-tagging to ease searching for relevant content.
- Standardized templates and forms for common reports useful for recording information with minimal effort.
- Archiving procedures for dealing with obsolescent content.
- Permissions and access policies to various types of content.
- Handling, sharing, and storage of content containing personally identifiable information.

File-Naming Standards

3-70. A standardized naming convention for files is essential to proper content management. If a weekly report that has been saved with 24 different file names, the files are hard to find and use. However, with a standardized nomenclature, files are easy to find and efficient to use. Naming convention standards support data identification or retrieval. (Table 3-5 on page 3-16 shows an example of a file naming convention.)

Table 3-5. Example of file naming convention

Report	*Individualized report names*	*Taxonomic report names*
Status report, Jan. 19	STATREP 2019-11-01.docx	1AD_Status_Report_2019_Jan.docx
Status report, Feb. 19	Report, Status, 2019, Feb, 11.docx	1AD_Status_Report_2019_Feb.docx
Status report, Mar. 19	Sullivan's Report for Mar19.docx	1AD_Status_Report_2019_Mar.docx
Status report Apr. 19	COS Monthly Status Report.docx	1AD_Status_Report_2019_Apr.docx
Status report, May 19	SITREP 05112019.txt	1AD_Status_Report_2019_May.docx
Status report, Jun. 19	MyReport v12 w/notes.pdf	1AD_Status_Report_2019_Jun.docx
AD	armored division	
COS	chief of staff	
SITREP	situation report	
STATREP	status report	

Content Management in the Command and Control Information System

3-71. Content management is crucial when developing the COP in the various information systems. Content management standards are established to address C2 system issues such as privileges, permissions, and proper use of stickies, pasteboards, icons, drawings, frames, and overlays.

Standardized Procedures for Storing or Sharing Content

3-72. Designing standardized procedures for storing or sharing content provides an effective information filing storage and retrieval system that uses standard file naming conventions. A design builds around the unit's web portal. Microsoft SharePoint is currently the Army's enterprise environment for sharing most knowledge and information. The Command Post Computing Environment is the Army's enterprise system for tactical operations.

3-73. A sound design solution for standardizing procedures for sharing content improves organizational information flow. It also allows easy access to common information and provides several benefits. A sound design solution—

- Reduces the undisciplined and disorganized use of shared drives and email with attachments as primary means of sharing important information.
- Provides a more organized, disciplined collaborative environment that allows users to—
  - Share common calendars.
  - Create wikis for standardizing SOPs and operation orders.
  - Develop collaboration tools with viewer commenting abilities.
  - Customize workflows to improve business processes.
  - Create various views of the same data set for different audiences.
  - Design informational dashboards to improve situational awareness.

3-74. KMOs establish content management standards. The content management standard for sharing content includes—

- One specified location for all types of content used by the organization.
- Identification and responsibility for development of the information metadata model.
- Identification of the content creator.
- Identification of the person, office, or proponent responsible for updating the content.
- Identification of the person, office, or proponent responsible for deleting content.
- Identification of a structured or unstructured format for content management.
- Identification of file types.
- Identification of the content purpose.
- Identification and responsibility for metadata.

3-75. Taxonomy or structure facilitates content discovery and retrieval. It facilitates user understanding by—

- Being easy to read and understand.
- Using metadata labels for organizing content.
- Using doctrinal terms and including doctrinal language where applicable.

3-76. Successful sharing of content designs follow certain principles. The design ensures that the method used to ensure proper access to content includes—

- User roles, user controls, and permissions.
- Rules on file size to protect networks and information systems.
- A cybersecurity policy that secures content while allowing access by authorized users.
- Effective naming conventions.
- Effective use of metadata.
- Effective use of versioning.

3-77. Compatibility and access procedures maximize the availability of content for users regardless of location, access to networks, or information systems. For example, a software version is specified to ensure compatibility for all users. An example of ensuring access procedures is to break a file into smaller pieces to facilitate access. A slide library is a good tool for this. Content managers ensure that all file types used are supported by the various information systems.

Web Portal Standards

3-78. KMOs establish web portal standards. Standards for the unit's web portals include—

- Rules that enforce sorting content based on relevancy and importance. For example, after login, a policy requiring no more than one click from the unit's homepage to access information identified as the most relevant and important. The "one-click rule" applies to unit SOPs, battle drills, battle rhythm, links to web-based services required for use to support the unit's operations process, current orders, and CCIRs.
- Current contact information for key personnel is considered one level below the most relevant and important. This is also known as "two-click rule" information, and it must be included on each staff section and subordinate unit page.
- All battle rhythm events or meetings have a "digital home" on the web portal that includes—
  - Critical information regarding meetings and events such as the purpose, who chairs, attendees required, and agenda.
  - Current inputs and outputs.
  - Archive of past meetings.
  - Meeting notes or executive summary of most recent meeting, when applicable.

All subordinate unit portal sites follow the structure established by the higher echelon headquarters to streamline access to information.

3-79. KMOs routinely develop solutions that are common across the Army. In some cases, KMOs provide a supporting role in other operations that need a special solution, as in the 2017 hurricane disaster when Hurricanes Harvy, Irma, and Maria hit parts of the United States in rapid succession. The KMO worked across multiple federal agencies to develop a medical COP that required-real time information feeds into the command post. This was a difficult task because it required identifying the correct platform, relevant sources of information, an organization willing to host the platform, and technical expertise to get the correct information flowing through the correct platforms to decision makers. (See the vignette "Building an Uncommon Common Operational Picture" on page 3-18 for a description of KM activities during a national disaster.)

Building an Uncommon Common Operational Picture

In 2017, three hurricanes devastated the United States in quick succession: Hurricane Harvey made landfall in Texas on 25 August 2017; Hurricane Irma made landfall in Florida on 10 September 2017; and Hurricane Maria hit Puerto Rico on 20 September 2017. The three hurricanes swept through the Caribbean and Gulf of Mexico, causing catastrophic damage. This resulted in the government deploying more than 81,000 FEMA and National Guard personnel to Texas, Florida, and Puerto Rico for disaster recovery operations.

Within the Regional Health Command—Atlantic concern mounted over the status of medical assets in the area, with the major concern being the status of the hospital at Fort Buchanan, Puerto Rico. As additional federal agencies entered the area of operations, coordination tasks grew, and the difficulty of maintaining situational understanding increased dramatically. The Regional Health Command—Atlanta KMO was immediately detailed to the operations staff to provide a solution to this problem.

Working across many Federal agencies, most of them non-Department of Defense agencies, the KMO began to assess knowledge and performance gaps. Working with the National Geospatial-Intelligence Agency, the Department of Homeland Security, the National Weather Service, FEMA, and U.S. Northern Command, the KMO was able to integrate information feeds on a cloud collaborative platform for dynamic real-time data feeds. This solution, called the medical COP, provided relevant real time information to answer CCIRs and positively impacted the commander's decision cycle.

Chapter 4
Knowledge Management Supporting Activities

This chapter discusses specific support that KM provides. It begins with a discussion on support to the Army. Then it discusses KM support to learning organizations and describes the characteristics of them. The chapter then discusses KM support to interoperability. Then it discusses specific KM techniques on managing change. The chapter concludes with a discussion of dynamics that affect KM support.

SUPPORT TO THE ARMY

4-1. Army units at each echelon use the KM section or KMWG and the KM process to identify and solve knowledge flow gaps. The Army is a learning organization. Units can use KM as an integrating process to improve knowledge capture, creation, and sharing to stay relevant in a complex operational environment. Because of the requirement to be integrated with joint and coalition partners, knowledge managers must understand the main factors that enable interoperability and improve upon those factors. Lastly, in operating forces, and especially in the institutional force, the degree and speed at which change happens makes using KM as an integrating process even more important. Many factors drive change and validate the need to have a plan or model to address change. Knowledge managers stay involved in three areas instrumental to successful mission command:

- Support to learning organizations.
- Support to interoperability.
- Support to change management.

SUPPORT TO LEARNING ORGANIZATIONS

4-2. Army leaders have recognized that to win in a complex environment, their organizations must be agile and adaptive. Learning organizations are more competitive in operational environments. Furthermore, leaders who promote a culture of learning create units and Soldiers that are more innovative, effective, and resilient. KM practices, if applied correctly, lead to the development of a learning organization.

4-3. An Army ***learning organization*** **is an organization characterized by a continuous orientation towards comprehensive learning, disseminating, and adapting to what is learned to achieve a future-oriented shared vision.** An effective Army learning organization skillfully creates and acquires new knowledge, but it also transfers and shares knowledge. Furthermore, a unit must continually and routinely modify its behavior to reflect what it learns. An essential aspect of this is to learn from past successes and past failures—to unlearn and relearn to stay operationally relevant. Units modify their behavior as necessary to incorporate what they learned, good or bad. After action reviews (AARs) are only one of the tools Army units use to capture and create knowledge. However, learning occurs continuously and at all levels of a units' hierarchy, from the commander to the lowest Soldier, and not just during unit exercises or deployments.

4-4. The building blocks of creating a learning organization start with a clear strategic vision for the organization, an assessment and action plan, and trained personnel and staff. Knowledge managers ensure these foundational elements are in place before the KM team can be effective. (See Figure 4-1 on page 4-2 for a depiction of a learning organization.)

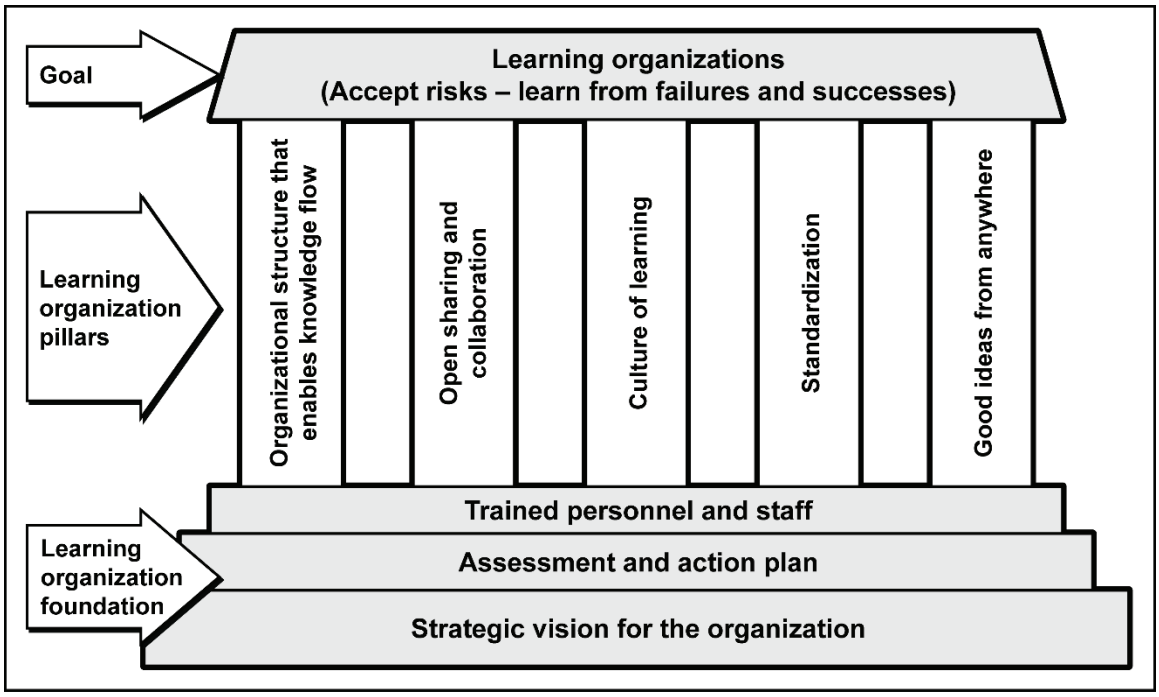


Figure 4-1. Elements of a learning organization

4-5. Unit personnel learn when they have a clear purpose, and when leaders set clear conditions. Furthermore, metrics must be in place to measure success. Once the foundational elements are in place, the following pillars contribute to and promote individual and collective learning:

- Organizational structure that enables knowledge flow.
- Open sharing and collaboration.
- Culture of learning.
- Standardization.
- Good ideas from anywhere.

ORGANIZATIONAL STRUCTURE THAT ENABLES KNOWLEDGE FLOW

4-6. Army units organize their command posts to be effective during an operation. Command posts have the equipment necessary to conduct operations based on their MTOEs and the personnel required to conduct operations. Non-operational organizations use the TDAs. The MTOE or TDA does not describe in detail how to arrange the personnel or the equipment to be effective. That task normally falls on the operations staff section and unit SOPs.

4-7. Knowledge managers play a supporting role in determining ideal arrangements as they relate to facilitating information sharing. For example, at higher levels, organizations use liaison officers to facilitate communication with higher and lower echelons. It is important to analyze where liaison officers should be located physically in the command post, and what computer technology they require. In today's information technology-centric command posts, many activities are conducted through computer networks interfaced by key personnel. The command post's physical and virtual arrangement directly affects data, information, and knowledge flow, and commanders arrange their command posts for an effective flow of information. Furthermore, staff members need dedicated locations to huddle, have face-to-face discussions such as in working groups, and conduct planning which is not disruptive to ongoing operations. (See FM 6-0 for more information on command post operations.)

OPEN SHARING AND COLLABORATION

4-8. Collaboration is an important aspect of KM. At all levels of command, problems arise that need critical analysis and solutions by staff members. The KMO promotes open sharing and collaboration. To accomplish this, a systematic formal process and informal processes and tools are necessary to bring together cross-functional teams to identify gaps, solve problems, and make recommendations or decisions. The battle rhythm is a key formal method to make this happen. However, it is not necessary to wait until a scheduled battle rhythm event to meet. Good learning organizations make open sharing and collaboration part of day-to-day activities, with it being the expectation rather than a rule. They use a range of tools, such as chat rooms, forums, and face-to-face capabilities, to facilitate maximum participation in communication and sharing.

4-9. Collaboration tools are important to link people together in both formal and informal ways. But collaboration goes beyond people sitting in a room or linked through a video conference. Effective collaboration is a skill that is developed with time and experience. First, commanders establish the climate that allows for the sharing of information. Trust is a key component of the climate. Without trust, collaboration is hindered. Second, people involved in collaborating possess the right skills, including—

- Effective listening skills.
- The ability to practice empathy.
- Willingness to receive and provide constructive feedback.
- Knowing when to lead and when to follow.
- Speaking with clarity and staying on track in the discussion or meeting objective.
- Looking for solutions that provide win-win.
- Being trustworthy.

CULTURE OF LEARNING

4-10. Leaders create the conditions that establish a learning environment. Leaders constantly look for creative and innovative ways to train and educate Soldiers, which may include computer simulations, organized formal and informal social activities, guest speakers, and seminars. As a matter of regular practice, the Army conducts formal AARs after major exercises. However, the use of the AAR process alone does not constitute a learning organization. Learning is done collectively as a unit or team and on an individual basis before, during, and after an exercise or operation.

4-11. A learning environment consists of all the activities that contribute to creating and sharing tacit and explicit knowledge throughout an entire unit to improve a Soldier's ability to understand and accomplish the mission. Knowledge is a resource that provides a competitive edge. Leaders exploit and act upon knowledge to maintain a decisive advantage. New knowledge and insights must be accompanied by modifying behavior—a fundamental aspect of good learning organizations. It does a unit little good to spend time collecting lessons learned and best practices and then not take corrective action to integrate that new knowledge. Leaders factor in time for Soldiers to reflect on what they learned, followed by allotting time to pilot and implement corrective actions.

STANDARDIZATION

4-12. Standards drive the Army, and this also applies to KM. Units develop a set of standards that provide for consistency in how data, information, and knowledge are collected, stored, and shared. In joint, interorganizational, or multinational environments they are nested with multinational information sharing standards. Furthermore, units capture these standards in the unit SOP. Items to be standardized include—

- Document naming conventions.
- Request for information process.
- Email rules of engagement (including files size, links, signature blocks, reply all).
- Portal and website layout (including standardized templates).
- Document life cycle rules.
- Battle rhythm (including seven-minute drills, change process).

- Personally identifiable information.
- Use of collaborative tools (including Microsoft TEAMS, chat, milSuite, social media).
- Collaboration services exchange standard.
- Metadata information model standard (including the necessary descriptors to ensure data is visible, accessible, understandable, linked, trustworthy, interoperable, and secure).
- Master data management standard (including values and identifiers that enable consistent use across the unit).
- Common operational picture.

(See paragraphs 4-35 through 4-67 for more information on interoperability standards.)

4-13. The KM section ensures SOPs are followed for all knowledge and information sharing standards. Commanders and staffs ensure an enforcement mechanism in place. If staff members do not follow the rules and comply with the established standards, time is wasted looking for the right information. A common complaint is that a unit develops a great SOP, but it is not followed. Although not the preferred method, withholding someone's network permissions to access key information may be the nudge needed to ensure compliance. A better approach is a good training program, so there is a complete understanding of what leaders expect. A well thought out and published SOP creates the conditions for establishing an effective learning organization. However challenging as it may be, standardizing and enforcing how people communicate, collaborate, and solve problems is how units learn, grow, and excel.

GOOD IDEAS FROM ANYWHERE

4-14. Learning organizations provide a venue for ideas to flourish no matter who has the idea. Today's Soldiers are creative, technologically savvy, and digitally connected. More importantly, they want to contribute and make a difference. With the fast pace of technological change, today's Army connects people more than ever. This connectivity provides for a greater capacity for Soldiers to innovate and make contributions. Mission command is a philosophy that allows for bottom-up and top-down communication and innovation. Therefore, an effective learning organization is one that embraces ideas from all Soldiers and not just leaders. Despite the cultural history of the Army as top-down hierarchy, history has shown that young Soldiers and NCOs are extremely innovative. As part of learning and innovative thinking, learning organizations determine if new insights are applicable, and they make the necessary changes to improve the organization.

ASSESSING A UNIT'S LEARNING MATURITY

4-15. The KM section can use surveys as another tool (in addition to AARs) to obtain feedback on learning. The Army has long identified itself as a learning organization, but how to measure learning has remained elusive. The Army is well known for conducting surveys. In most cases, surveys are necessary to gain insight into a problem or identify if there are problems. (One example of this is the command climate survey.) While Soldiers are often learning from the extensive training they engage in, training is only one method for learning. Individual learning alone does not equate to a "unit" being a learning organization.

4-16. Additionally, U.S. Army Research Institute (known as ARI) for the behavioral and social sciences measures organizational learning with a validated model called Army learning organization maturity model (ALOMM). Along with the ALOMM, the Army learning organization assessment (known as ALOA) can be used to define and measure a unit's learning maturity. The completed Army learning organization assessment can help leaders better understand how their subordinates perceive the learning climate of their organization and can assist leaders with identifying areas of learning strength, and areas in need of improvement.

4-17. The ALOMM and Army learning organization assessment identify what practices are required for an Army unit to improve and assess learning outcomes at the organizational level. A learning organization is focused on integrated continuous learning and sharing of knowledge within the organization and between organizations to modify organizational behavior and improve performance outcomes.

4-18. The ALOMM is organized into five dimensions that, when applied at the unit level, provide an understanding of the learning organization maturity. Organizations may be more mature on one dimension and less mature on others. Advanced maturity for any of the dimensions requires strong commitment to and

practice of all the associated attributes as perceived by the organization. This means leaders, while central for setting the conditions for learning to occur and communicating the importance of learning, must also be able to rely on their subordinates to continue to communicate the importance of learning until it permeates the culture of the organization. Paragraphs 4-19 through 4-23 briefly describe the five dimensions and descriptions of the ALOMM. (See Appendix H for more detail on each dimension.)

Cultivation of Learning Support

4-19. A culture of learning support ensures that everyone's ideas are being listened to. Commanders play an important role in establishing this culture. Commanders maintain a culture that is conducive to continuous learning for individuals and teams by providing resources, removing obstacles, and incentivizing and modeling behaviors that support learning. This dimension is centered on the organization's continuous support for learning via communication about the need for learning, rewards and encouragement for learning, and access to learning.

Orientation Towards a Shared Future

4-20. Commanders provide the vision for their organization. This includes creating a learning organization whereby everyone in the unit contributes their ideas. Creating a shared organizational vision and a common understanding is crucial to collectively achieving that vision. This dimension is centered on the organization's commitment to shared learning including collaboration, unification, and integration of personnel and ideas collectively focused on the future.

Exploration of New Perspectives

4-21. New perspectives and ideas come from all levels in the unit. Searching continuously for new perspectives and information and challenging current thinking together give rise to unit improvements. This dimension is centered on the organization's ability to foster an environment of trust where members are consistently assessing and changing their environment while developing and implementing new ideas and practices that increase innovation.

Synchronization of Capabilities

4-22. Capabilities include the tools and processes that everyone uses to communicate their good ideas. Aligning capabilities and resources is done to achieve interdependencies, promote learning, and enhance effectiveness. This dimension is centered on the organization's success in providing seamless coordination between the capabilities, diverse perspectives, and complex relationships among the organization and the environment.

Management of Organizational Knowledge

4-23. KMOs have a critical role in developing the mechanisms where new ideas and perspectives are made available for the entire unit to benefit from. Managing organizational knowledge effectively includes incorporating lessons learned, best practices, and formal AARs. It also includes engaging in ongoing activities to identify, capture, store, transfer, and apply knowledge to address knowledge gaps and optimize performance. This dimension is centered on the organization's proactive approach towards managing organizational knowledge including the systems and communities they leverage.

AFTER ACTION REVIEWS

4-24. An AAR is designed to provide feedback on performance during exercises by involving participants in their training evaluations. Involving participants increases and reinforces learning. Although the AAR was originally developed for training events, units can use it effectively for learning and improving other events such as conferences, promotion ceremonies, and seminars. In both cases, the AAR facilitator 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 they can do it better. The AAR is a professional discussion that requires participants' active participation. The AAR is not a critique. It has the following advantages over a critique:

- Focuses directly on operation order or operation plans derived objectives.
- First addresses how well the unit accomplished the mission (using MOEs); addresses meeting Army standards (using MOPs) only if failure to meet standards was a factor in mission failure or resulted in unnecessary losses.
- Encourages participants to discover important lessons themselves.
- Allows many Soldiers and leaders to participate, because most of the operation can be recalled, and more perspectives, observations, insights, and lessons can be shared.

LESSONS LEARNED DEVELOPMENT AND BEST PRACTICES

4-25. Lessons learned are validated knowledge and experience derived from observations and the historical study of military training, exercises, and combat operations or world events that lead to a change in behavior at either the tactical, operational, or strategic-level or in one or more of the Army's doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) domains. The organization may conduct an internal program for developing lessons learned, or it may use a collection and analysis team from the Center for Army Lessons Learned (CALL).

4-26. Units use KM to incorporate knowledge gained during operations into its tactics, techniques, and procedures. This type of KM begins with collecting observations, insights, and lessons from operations or key events. Leaders then assess these lessons, develop solutions to identified problems, and apply solutions to operations as appropriate. If the solutions succeed in improving performance, they may become best practices. Best practices are proven ways to accomplish a task or project. Army units conduct many tasks during their daily activities. They replace ineffective methods with ones that work well. Lessons learned naturally lead to what works best for the unit for a particular task, and they can be captured for future use.

4-27. Units may share lessons learned locally and disseminate them to other Army organizations that can use them. In many cases, these lessons may be significant beyond just the unit that developed them. Commanders and other leaders, while assessing operations or after any AAR, may identify knowledge to share with the rest of the Army and incorporate into operations. Effective organizations create a repository that stores all unit AARs in a single place so that they can be referred to and shared with others—both internally and externally as needed. This simple step reduces recurring problems and creates a resource to ensure past deficiencies can be reviewed to ensure they are corrected.

4-28. Conducting AARs and integrating lessons into the Joint Lessons Learned Information System (known as JLLIS) from those AARs into ongoing operations are command responsibilities. Units share their important or significant observations, insights, and lessons with the rest of the Army by sending them to CALL. CALL shares this information with the Army through various electronic and paper products.

4-29. Although CALL has the lead to gather and disseminate lessons learned for the Army, it cannot do so without help from commanders and units. Branch proponents work with deployed unit commanders to gather lessons in general and lessons about warfighting in particular. They make these available either as contributions to CALL's database and website or through their websites and repositories. (See AR 11-33 for more information on the Army lessons learned program.)

ONBOARDING AND CONTINUITY BOOKS

4-30. Organizations design continuity books to prevent knowledge loss and facilitate the onboarding process. Onboarding is the process of bringing new Soldiers into the unit. Many units have a formal program to integrate new personnel. This process usually starts with a checklist that the Soldiers complete, and often new Soldier are assigned a sponsor. Continuity books take the onboarding process a step further by providing information such as points of contact, training requirements, and information specific to the job. Continuity books go beyond the traditional checklist where the Soldier goes to supply, finance, and other locations to in-process.

4-31. During their assignment, Soldiers have many interactions with personnel inside and outside the organization, attend certain required training events, work a variety of projects, and complete additional duties. They acquire a great deal of knowledge during that time. When it is time to leave for a new assignment, Soldiers provide enough information in the form of a continuity book for their replacement. Not only will a

continuity book make the transition smoother, but it shortens integration times for new personnel. Continuity books are useful in many ways—most importantly, for preventing knowledge loss and improving new Soldier in-processing time. Retaining knowledge through the implementation of a continuity book program is an objective of KM. Good units integrate continuity books as part of the onboarding process, and they make them a part of Soldier performance counseling.

4-32. There is no standard for what should be in a continuity book. What works in one unit may not suffice in another. However, there are some useful techniques when designing and using continuity books:

- Units start the process early, and do not wait until immediately before a Soldier is transitioning out. If one is not provided to the Soldier when they come on board, leaders start the process immediately after taking the assignment to build one for the next person. Starting early means there is more time to think through or anticipate what new Soldiers may need to know to do their job.
- Leaders refer to continuity books frequently and revise them as needed. If done correctly and if enough material is in the book, it can be used as a reference when looking for important documents related to the unit. For example, appointment orders and alert procedures are often maintained in continuity books.
- Leaders make continuity books a part of the goals and objectives in the DA Form 67-10-1 (Company Grade Plate [01 – 03; WO1 -CW2] Officer Evaluation Report) and DA Form 2166-9-2 (NCO Evaluation Report [SSG-1SG/MSG]) reports. Raters counsel rated Soldiers on their continuity books.
- Leaders make continuity books easy to update. Continuity books can be digital or analog. A digital book makes it easier to update and transfer to the next Soldier.

4-33. What goes into a continuity book depends on the job itself and the needs of the Soldier. It can also change over time. Although not all inclusive, the most common categories of information are—

- Table of contents.
- Administrative data.
- Operational or job specific knowledge.
- Equipment and supplies.
- Training requirements.
- Leader guidance.
- Key points of contact.

(See Appendix I for a more detailed example of content in a continuity book.)

SUPPORT TO INTEROPERABILITY

4-34. U.S. forces rarely operate independently, and they are increasingly required to work with other partners. In all future operations, as part of a joint task force or combined joint task force (known as CJTF), the Army will need to ensure its systems, processes, and procedures are working in conjunction with its joint, interorganizational, and multinational partners. *Interoperability* is the ability to act together coherently, effectively, and efficiently to achieve tactical, operational, and strategic objectives (JP 3-0). Units achieve interoperability through human, procedural, and technical means at various levels based upon the mission partner's capabilities and similarities to those of the Army. KM enables interoperability by—

- Understanding different levels of interoperability (including joint, intergovernmental, and multinational).
- Employing interoperability enablers.
- Integrating planning factors to achieve greater interoperability.

JOINT INTEROPERABILITY

4-35. Joint doctrine, although less comprehensive than Army doctrine on KM, provides important concepts and an overarching framework from which the other joint partners can nest their KM activities. In joint operations, the Army applies its own KM practices, while at the same time nesting with the higher echelon

joint doctrine. Each of the Services works towards achieving interoperability. Joint doctrine does not explicitly use the term KM, but it does use the term knowledge sharing. Knowledge sharing involves taking a deliberate, cross-organizational, and functional approach to gaining, sharing, and maintaining knowledge that facilitates understanding, which is necessary to have an advantage in an operational environment. (See JP-3-0 for more information on knowledge sharing.)

4-36. A principle of mission command is creating shared understanding. Joint doctrine refers to the need to build shared understanding and identifies the elements of collaboration, information management, and knowledge sharing as key aspects of the process. Joint doctrine provides a cognitive framework that starts with collecting data, then processing it into information and knowledge to eventually gain an understanding of operational environments similar to Army doctrine. Army units first integrate with a joint command and, depending on the mission, then expand to unified action partners. This may include defense support of civil authorities (known as DSCA) and other governmental organizations such as Homeland Security and the Federal Emergency Management Agency (FEMA).

INTERGOVERNMENTAL INTEROPERABILITY

4-37. In addition to working towards joint and multinational interoperability, another challenge is working with intergovernmental organizations. This can occur outside the United States in an operational environment in a theater of operations or inside the United States in the homeland in the case of a national emergency or defense support of civil authorities.

4-38. Intergovernmental interoperability includes working with organizations such as the Department of Justice, Department of State, Department of Homeland Security, and FEMA. Human, procedural, and technical interoperability challenges exist, but can be mitigated by thoroughly assessing the organization's role in the operation, identifying what information needs to be shared, and establishing processes and procedures and tools to improve sharing of data, information, and knowledge.

4-39. Information sharing within the United States has an added layer of complexity, especially when it comes to intelligence collection. U.S. law prohibits collecting and sharing information on U.S. citizens. It is important to be mindful of the types of information collected and shared with various organizations, especially law enforcement organizations. Most information shared with intergovernmental organizations will be law enforcement information.

4-40. The KMWG is the venue to address issues related to interoperability. It takes into consideration what partners, countries, and organizations are involved in the operation and what human, procedural, and technical barriers are interfering with interoperability. A KMO is not a foreign disclosure officer. The sharing of information with foreign partners should be validated by the organization foreign disclosure officer or trained foreign disclosure representative. Once validated, the KMO can assist with data and information movement between domains.

MULTINATIONAL INTEROPERABILITY

4-41. The KM section, working with the other operations and planning staffs, develops plans and orders that consider what other nations are using to conduct command and control. Practitioners often describe interoperability as systems need to "talk to each other." However, practitioners recognize that interoperability does not just include technical aspects but also other human and procedural factors, such as CCIRs, the COP, and battle drills. Furthermore, interoperability includes a set of common standards on how information is collected, stored, and accessed by other partners. Achieving full integration is challenging, especially when dealing with multiple nations. Systems, processes, and procedures which differ between nations create gaps in data, information, and knowledge flow. The end goal is to minimize the use of workarounds to be able to interoperate with mission partners quickly, ideally with "plug and play" speed. AR 34-1 identifies the levels of interoperability as—

- Not interoperable: Partner is not interoperable with the Army, C2 interface with Army is only at the next higher level, and formations must operate independently from Army formations and operations.
- Deconflicted: Army can coexist with key Allies and partners, but forces cannot interact together. This level requires alignment of capabilities and procedures to establish operational norms, enabling partners to complement Army operations.
- Compatible: Army can interact with key Allies and partners in the same geographic area in pursuit of a common goal. Partners have similar or complementary processes and procedures and can operate effectively with Army forces.
- Integrated: Army can integrate with key allies and partners upon arrival in theater. Interoperability is network-enabled to provide full interoperability. Partners can routinely establish networks and operate effectively alongside, or as part of, Army formations.

INTEROPERABILITY ENABLERS

4-42. Interoperability is a multilevel problem, and it involves extensive staff planning and thought. Despite that complexity, enablers will aid in making the challenge manageable. The KM section understands how to leverage these enablers. Making use of the multinational information sharing standards, coordinating with digital liaison detachments, and integrating proper planning factors will ensure a high level of interoperability. Paragraphs 4-43 through 4-54 discuss the enablers KM sections employ.

Multinational Information Sharing Standards

4-43. The U.S. Army participates extensively in multinational forums to develop information sharing standards (including North Atlantic Treaty Organization [NATO] standardization agreements [STANAGs] and ABCANZ standards) to use when planning for conducting operations, and potentially during competition (for example, for the intelligence warfighting function). Since many nations have their own C2 systems and processes, when they become a part of a U.S.-led coalition, they bring their systems with them. The challenge is how to integrate within the overall C2 plan for the coalition. An important way to do this is by having a set of information sharing standards all partners have agreed on ahead of time.

4-44. AR 34-1 governs how the standards are developed and managed for the Army. The KM section ensures these standards—which are dependent on the participants in the operation—are identified and published in the KM annex portion of the operation order during the planning phase of the operations process. It can be attached as an appendix to the KM Annex. Areas where multinational standards are developed may include document naming conventions, information exchange requirements, content management, chat, and email usage. (See paragraph 4-60 for more information on planning considerations for interoperability.)

4-45. In coordination with mission partner network planners, KMOs need to understand the formats of joining, membership, and exiting instructions. Implementing a standardized approach via the use of formats to plan for and manage the integration of multinational partners onto a secret-releasable expeditionary mission partner network enables the mission partner environment. A mission partner environment allows for the management and exchange of information between mission partners. The formats (found in ATP 6-02.62) are based on requirements to join the network, to be a member approved to share information on the network, and to follow instructions to leave the network. These formats are named network joining, membership, and exiting instructions. Joining, membership, and exiting instructions support network management on a mission partner network. Units assigned as a coalition force headquarters use the instructions when preparing for coalition operations. This information is also beneficial in developing multinational program of instruction products.

Digital Liaison Detachments

4-46. Another resource to improve interoperability is the digital liaison detachment. A digital liaison detachment representative, if employed in the theater of operations, attends the KMWG to identify gaps in information flow and procedural and interoperability issues with coalition partners.

4-47. The digital liaison detachment, when deployed, allows commanders to integrate military operations in joint, intergovernmental, multinational, and other applicable environments by providing necessary staff

interface, mentoring, support, and communication required for U.S. partners and allies to accomplish their missions. Digital liaison detachments also provide—

- Functional area expertise via liaison officers to joint and multinational headquarters.
- Digital information management and communications interface capability for U.S. systems with a host headquarters.
- U.S. headquarters representatives inside a supported multinational headquarters to facilitate mission command by clarifying orders, interpreting commander's intent, and identifying and resolving issues.
- The host headquarters with Army experts on maneuver, fires, intelligence, sustainment, and air and missile defense.
- Army C2 systems.

(See ATP 3-94.1 for more information on digital liaison detachments.)

Foreign Disclosure Process

4-48. In a coalition environment multiple countries operate with differing delegated disclosure authorities by country, category of information, and classification level. Because of this, Army regulations create additional procedural steps to ensure compliance and prevent the inadvertent release of information. Foreign disclosure personnel on staffs possess the required training, and they are authorized to release information. Paragraphs 4-49 through 4-54 discuss foreign disclosure procedures.

4-49. To share information with coalition partners, U.S. forces rely on foreign disclosure procedures. Foreign disclosure is the process by which classified information is made available through approved channels to an authorized representative of a foreign government or international organization. There are three disclosure methods: oral, visual, and documentary. U.S. policy states that it is the policy of the U.S. Government to treat [classified military information] as a national security asset, which must be conserved and protected, and which may be shared with foreign governments and international organizations only when there is a clearly defined advantage to the United States. (See CJCSM 5230.01A for more information on foreign disclosure.)

4-50. As stated in CJCSM 5230.01A, only designated disclosure authorities, specifically appointed in writing by individuals already having written foreign disclosure authority, have the authority to approve disclosure or release of classified military information (CMI) to foreign governments or international organizations. Foreign disclosure officers (known as FDOs) and foreign disclosure representatives (known as FDRs) are individuals who have the background to determine what and to whom classified information is released. With respect to decision-making authority, only commanders and foreign disclosure officers having the delegated disclosure authority may make disclosure decisions for the CMI for which they are the proponent. The foreign disclosure representative works to assist in the staffing and decision-making process, but the foreign disclosure representative cannot make disclosure decisions for CMI.

4-51. KM personnel need to be aware at all times of the level of classification of data, information, and knowledge to prevent unauthorized disclosure of sensitive information. Unauthorized spillage of classified information, in most cases, results in the network being suspended until the system is purged and the source of the spillage is identified. A principle of KM is to disseminate information with the widest audience. To ensure continuity of operations, being vigilant and abiding by classification tenets and having a good relationship with foreign disclosure officers and foreign disclosure representatives will prevent a disruption of information flow. To effectively support interoperability goals, knowledge managers must have a thorough understanding of the information technology systems (such as NATO Secret or SECRET Internet Protocol Router Network) and which nations have access to and use these information systems, and the caveats that apply. Paragraph 4-52 lists the controls for foreign disclosure.

4-52. Strict controls are placed on disclosure and release of CMI. These controls include—

- There must be a clear benefit to the United States.
- The intended recipient must be eligible to receive CMI.
- The recipient must have need-to-know.
- Foreign representatives must have commensurate foreign personnel security clearances.
- The recipient must provide protection of information equivalent to United States protection.

- Reciprocal security arrangements must be in place.

Specific U.S. personnel requirements for the disclosure and release of CMI include—

- Must have written authority to release or disclose CMI.
- Must be the proper channel for disclosure of the information.

4-53. Foreign visitors are common during military operations (and in many cases during garrison operations). Leaders ensure facilities, command posts, and other venues that rely on the use of classified or sensitive information have controlled access procedures in place. Prior coordination with a designated foreign liaison officer, if provided, is done to ensure proper access procedures are followed.

Write for Release

4-54. KMOs support interoperability by ensuring information products are written to provide coalition partners access, known as writing for release. To enhance interoperability with coalition partners, producers of information consider operationally relevant information sharing (permissive) as opposed to information protection (restrictive). Writing for release has historically been a phrase associated with the production of intelligence products. As part of the write for release process, intelligence analysts have been trained to remove information related to the sources and methods of collection from their analysis to protect and preserve collection efforts. In other instances, analysis and reports are edited to enable wider dissemination as the nature and makeup of an ad hoc group or coalition evolves. Both write for release situations are more reactive efforts as opposed to proactive ones.

4-55. Units focus on interoperability "write for release" (permissive) processes and procedures on disclosure considerations oriented to enable interoperability. To speed up sharing critical information with allies and partners, documents are developed with a write for release mentality during the generation process. The ability to share CMI, controlled unclassified information, or unclassified information with allies and partners is critical to meeting the requirements of the current and future coalition security environment; interoperability is directly affected by our ability to generate shared understanding, develop mutual trust and confidence, and leverage unity of effort during the operations cycle.

Planning Considerations for Interoperability

4-56. Nations whose forces are interoperable across material and nonmaterial capabilities can operate together effectively in numerous ways. However, interoperability does not happen automatically. It must be planned for. KMOs do not assume that other partners have the same technical systems or procedures as U.S. Army units. JP 3-16 lists many factors that either contribute to interoperability or inhibit it. Regardless of the partner's capabilities, proper planning will ensure a better outcome. Table 4-1 lists key factors to consider and to avoid.

Table 4-1. Interoperability factors

Factors Enhancing Interoperability	*Factors Inhibiting Interoperability*
• Proper planning and pre-event rehearsals • Information sharing and foreign disclosure procedures • Personalities of commanders • Access to multinational capabilities • Positive command atmosphere • Adequate liaison teams • Multinational training exercises • Feedback mechanisms in place to eliminate confusion • Common technical standards for information flow	• Restricted access to proprietary defense information • Time available • Refusal to cooperate with partners • Differences in military organizational structure and equipment • Language and doctrine • Overclassification of information • Not including foreign disclosure officers in planning

INTEROPERABILITY IMPERATIVES

4-57. KM personnel have a significant role in supporting interoperability. The lack of proper processes, procedures, and tools prevent coalition partners from gaining needed access to vital data, information, and knowledge. The KM section, in support of C2, ensures these processes and procedures and the knowledge architecture, support shared understanding with all joint, intergovernmental, and coalition partners. The KM process enables units to assess interoperability and mitigate knowledge gaps. To achieve interoperability, the units follow these KM imperatives:

- Account for the systems unified action partners use and their classifications.
- Identify all unified action partners and organizations that need to share information.
- Grant appropriate access for each system.
- Publish proper policies, procedures, and restrictions on information sharing.
- Task liaison personnel adequately and appropriate to the mission.
- Plan interoperability requirements for events with unified action partners in attendance (such as battle rhythm events, commander's update briefings, and operational planning meetings).
- Properly clear and mark for release products to be disseminated (such as CCIRs, the COP, and SITREPs).
- Gain foreign disclosure officer approval for disclosure of CMI to official representatives of foreign governments and international organizations.
- Identify and enforce ratified standards on information sharing by unified action partners (such as NATO STANAGs, ABCANZ standards, and bilateral agreements).
- Treat collaboration as a capability.
- Optimize KM and information management services around the battle rhythm.
- Enforce KM and information management SOPs.
- Publish a content management plan that includes—
  - An information model as a semantic infrastructure to control knowledge and information products and to enable artificial intelligence.
  - Metadata tagging.
  - Validated taxonomies.
  - Controlled vocabularies (such as terms of reference for acronyms and abbreviations).
  - Information model linked with workflows into records management.
  - Account for KM information exchange to be conducted within the mission partner environment using a mission partner network.
  - Account for mission partner network differing classification levels: SECRET Internet Protocol Router Network, Secret-Releasable, and Non-Secure Internet Protocol Router.

UNIQUE CHALLENGES IN WORKING WITH COALITION FORCES

4-58. As discussed, KM supports coalition interoperability through adherence to the KM and information management NATO STANAGS and ABCANZ standards. Coalition armies view information management and KM differently.

4-59. U.S. forces view information management as enabling KM, while coalition forces often view KM as inclusive of information management. Figure 4-2 illustrates integration of information management tasks with KM tasks in support of the commander's use of the observe, orient, decide, and act decision cycle to reach a decision. It also illustrates how data is transformed into information and knowledge in support of the commander's decision. Commanders observe an operational environment in which staff sections create and capture data. Staff sections then begin to process and organize the data into information, so commanders can orient their organizations within that operational environment. As information is applied to operational problems and processed through the operations process, commanders evaluate and decide on a course of action. This is completed while staff sections simultaneously execute the information management tasks for data and information capture, creation, storage and security, and the KM tasks necessary to turn the information into knowledge and actionable courses of action. The initial stages of this process are heavily

dependent on technology as computer systems capture the data. Processes and people become important as the data is transformed into information and knowledge. Within coalition forces KM tasks are performed by and integrated within the staff sections, whereas U.S. forces often use a KM section to perform and complete the KM tasks.

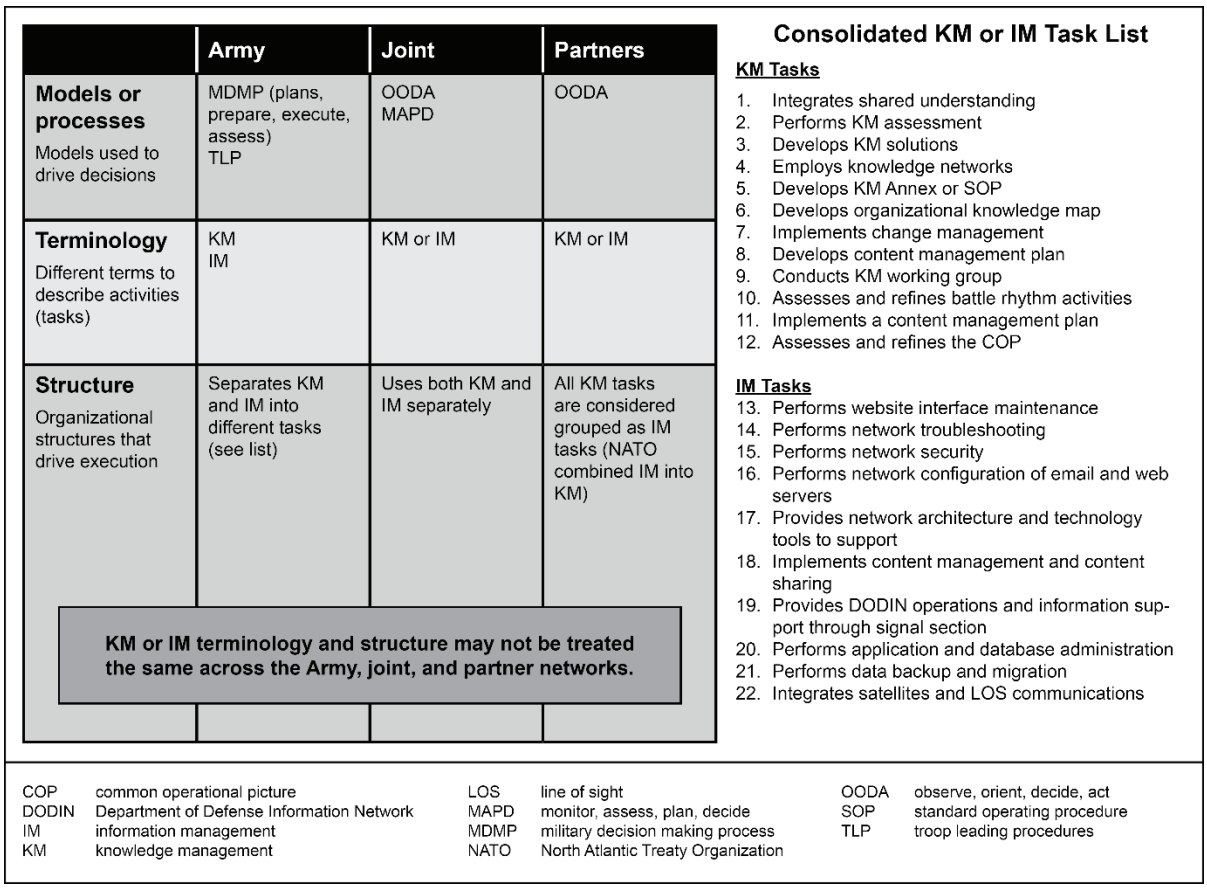


Figure 4-2. Information management-knowledge management support to decision making

4-60. Moving from the bottom to top, information management is more closely associated with data and computing technology tools, while KM is more closely associated with processes and people skills—including organizational culture. Information sharing with coalition partners may be limited based on national policies. Not all information is sharable, but knowledge managers work to identify information gaps and solutions to mitigate these limitations to provide coalition partners access to relevant information. With Army headquarters at Army Service component command, corps, and division there are KM sections to assist the headquarters in accomplishing these tasks. In coalition headquarters, the COS is designated as the senior information officer, and the COS is responsible for all KM and information management policies and tasks. The Army uses published NATO standards when they are available, and it will use ABCANZ standards when NATO standards are not available. As an example, there are no NATO information and knowledge management standards, so the Army currently uses—

- ABCANZ Standard 2087, *Information and Knowledge Management Policy*.
- ABCANZ Standard 2133, *Information and Knowledge Management Training*.
- ABCANZ Standard 2134, *Information and Knowledge Management Design*.

SUPPORT TO CHANGE MANAGEMENT

4-61. The Army is in a constant state of change. Knowledge managers deal with it daily and, in many cases, are the drivers of change. The KM process described in detail in chapter 2, when applied effectively, will

result in changes to the organization. To be effective, change management planning can and should start as early as the design phase. Once the solutions are mature enough, then training should start. However, during the implement phase of the KM process, the KMO ensures that the adopted solutions result in a finalized action plan to implement necessary changes. As discussed in paragraphs 4-2 through 4-35 on learning organizations, many of the changes come as an outcome of learning and gaining new insights into how to perform better. But a lot of the change is more deliberate, meaning it is directed by higher headquarters or directed by regulation and Army modernization efforts, which is a necessary part of being able to defeat an ever-changing enemy.

DRIVERS OF CHANGE

4-62. Drivers of change are the activities that cause a unit to react when an internal or external force necessitates a change in the way a unit performs. Working at the unit level, KMOs implement changes that must happen because of those drivers. The Army employs knowledge managers at all levels—strategic, operational, and tactical. Depending on their assignment and echelon, KM professionals manage change appropriate to their assignment, which may include using the KM process in combination with a change process and in conjunction with other Army regulatory requirements.

4-63. KM supports strategic-level change through the Army proponency program and the Army management framework described in AR 5-1. The Army Knowledge Management Proponent office at Fort Leavenworth, Kansas is directed by regulation to facilitate force modernization efforts, which include DOTMLPF-P. Headquarters, Department of the Army typically maintains control of policy efforts. AR 5-1 requires that major general, or senior executive service equivalent commands, use the Army management framework to improve upon and measure performance across several mission areas: warfighter mission area, the Department of Defense portion of the intelligence mission area, the enterprise information environment mission area, and the business mission area. The Army management framework directs leaders to deliberately work toward improving outcomes through effective process optimization and organizing effectively to achieve goals. (See AR 5-22 for more information on the Army force modernization proponent system. See Figure 4-3 for a depiction of the Army management framework.)

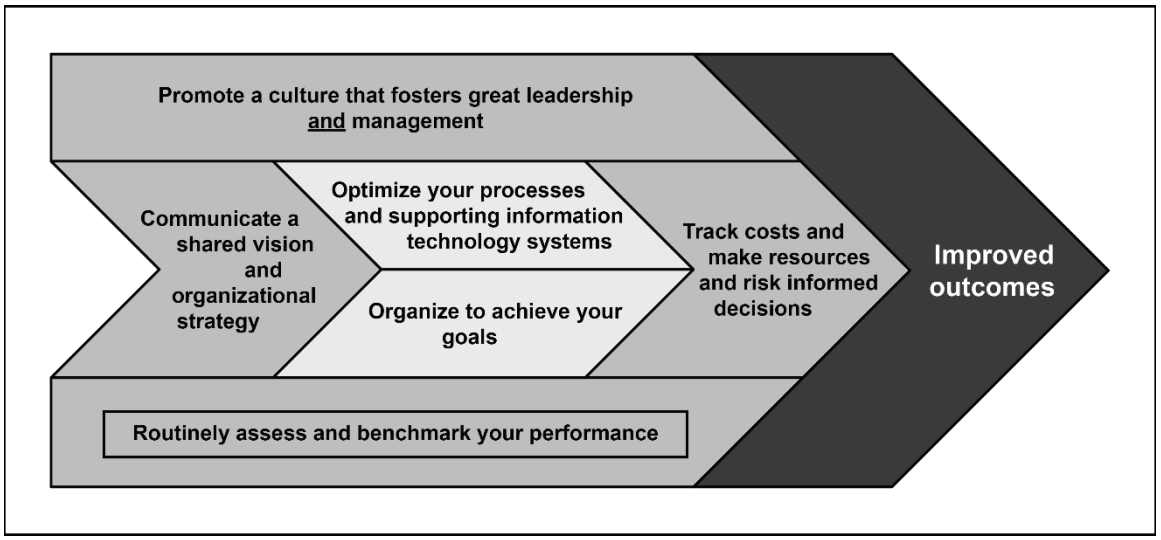


Figure 4-3. The Army management framework

Strategic Management System

4-64. The strategic management system (SMS) is used to manage execution of Army and organizational strategies. SMS helps leaders measure progress against their organizations' strategic goals. The SMS program allows organization leaders to communicate strategy; demonstrate alignments; build goals, measures, and targets; assess performance against those goals, measures, and targets; and review the execution of strategy. The Office of Enterprise Management is the program management office for SMS.

More information on SMS can be found on milSuite at the following address: https://www.milsuite.mil/book/community/spaces/orion/sms.

4-65. KM supports operational-level change by participating in the Mission Command Training Program (known as MCTP) forums, CALL events, and collaborative communities such as KM NET on milSuite. Microsoft TEAMS is a collaborative capability connecting people across the Army. Feedback from TEAMS events provides insights that can be harvested by the centers of excellence to identify and address capabilities gaps and incorporated into DOTMLPF-P solutions designed to mitigate the gaps at both the operational and tactical levels.

Army Centers of Excellence

4-66. In support of operations, Army centers of excellence drive change for each warfighting function through force modernization initiatives across all DOTMLPF-P domains. They include fires, command and control, sustainment, intelligence, movement and maneuver, and protection. Knowledge managers assigned to centers of excellence use KM practices to improve knowledge sharing so that it more effectively provides U.S. Army Forces Command increased capabilities for the operational army. Centers of excellence periodically are accredited through the U.S. Army Training and Doctrine Command accreditation program quality assurance office. U.S. Army Training and Doctrine Command accreditation standards for KM are developed in conjunction with the quality assurance office and the Army Knowledge Management Proponent Office.

4-67. KM supports tactical-level changes by assessing warfighting function areas for improvement and integration. ADP 6-0 outlines the framework for the conduct of C2. C2 is the integrator of the other warfighting function areas: intelligence, fires, protection, movement and maneuver, and sustainment.

Center for Army Lessons Learned

4-68. CALL is the lead for the Army Lessons Learned Program, and it identifies, collects, analyzes disseminates, and archives lessons and best practices and delivers timely and relevant information to resolve gaps, enhance readiness, and inform modernization. Knowledge managers participate in CALL forums and seminars to identify relevant trends identified through CALL's formal collection efforts. (See AR 11-33 for more information on the Army lessons learned program.)

Common Army Change Management And Process Improvement Approaches

4-69. Learning to manage change is a critical skill for knowledge managers. This manual uses the 5-phase KM process—assess, design, develop, pilot, and implement—to drive and implement change. It can be tailored for any echelon or unit as needed. The Army develops its leaders to be effective change managers in their professional development, and it discusses leading change in many publications. Also, professional military education programs introduce various models. Knowledge managers who work at the strategic level may employ different methods than knowledge managers at the operational or tactical level. Most of the models on leading or managing change have similar characteristics such as shared vision, short-term wins, and communicating with stakeholders. Although there are numerous models and approaches to managing change, three approaches for managing change most used by the KM community are—

- Army leading change process.
- Leading from the Middle.
- Lean Six Sigma (LSS).

(See Chapter 2 for more information on the KM process. See FM 6-22 for more information on leader development.)

Army Leading Change Process

4-70. The recognized change management model taught at the Command and General Staff College and the KM course provides military leaders a straightforward, logical, sequential, and effective model suitable for leading organizational change and improve performance. This model is well documented, researched, and

widely used. Further, it provides a methodology to assist leaders in improving their organizations as they operate. There are nine steps to this model:

- Assess the need for change (anticipate problems or identify opportunities).
- Build a guiding coalition.
- Create and communicate a compelling vision.
- Determine how to implement the vision (design plan, gather resources).
- Empower others to act.
- Facilitate learning (promote new skill development).
- Goal reinforcement (identify and reinforce evidence of progress).
- Hone the change process through monitoring and reinvesting.
- Institutionalize change (modify policies or procedures).

4-71. Leading and managing change requires KM practitioners to incorporate various methods that both drive change and improve performance for their organization. This publication also introduces other methods that can be applied. Something must trigger the need for change, and it cannot be done haphazardly. The change needs to come as a result of analysis and be tied to an identified performance or knowledge gap or directed by a higher authority.

4-72. Chapter 2 describes the KM process—assess, design, develop, pilot, and implement—which identifies knowledge and performance gaps and naturally drives change when organizations implement solutions. Some of the gaps in knowledge flow from KM assessments may result in the command group or leaders at the top requiring change on a particular process or issue—for example, the common operational picture or battle rhythm. This is considered top-down change and mostly revolves around strategy, culture, or mission. On the other hand, change can come from the bottom of the organization. Personnel trained in LSS or assigned as a KMR (considered a process owner) may see a need to improve processes specific to their section that may or may not affect other sections. The assistant chief of staff, personnel (G-1) may need to improve the DA Form 67-10-1 and DA Form 2166-9-2 process. This change, while a G-1 personnel issue, will impact parts of the organization outside of the G-1.

Leading Change from the Middle Model

4-73. Leading Change from the Middle Model is a leading change model taught at the Command and General Staff College KM course that puts the emphasis for change on those staff members working in the middle of the organization. The commander or the COS issues the KM guidance for knowledge sharing and collaboration within the organization. This will often involve the use of the KM process—assess, design, develop, pilot, and implement—to effect change. A useful model for knowledge managers and other staff members is the ability to categorize stakeholders as illustrated in Figure 4-4.

Command Agree-in

4-74. It is important for this change model that the KMO has the full support, including a credible commitment of time and resources from the commander, board of directors, or council of colonels. These bodies are the typical decision bodies that effect change that the KMO can leverage for a successful KM plan. The KMO requires guidance in the following areas:

- Timing and objections for the desired or specified completion date.
- Conducting a stakeholder analysis and requesting assistance in the stakeholder management.
- Resource support such as manpower, contracts, and budget.
- Desired in-progress review dates for keeping the project on track.

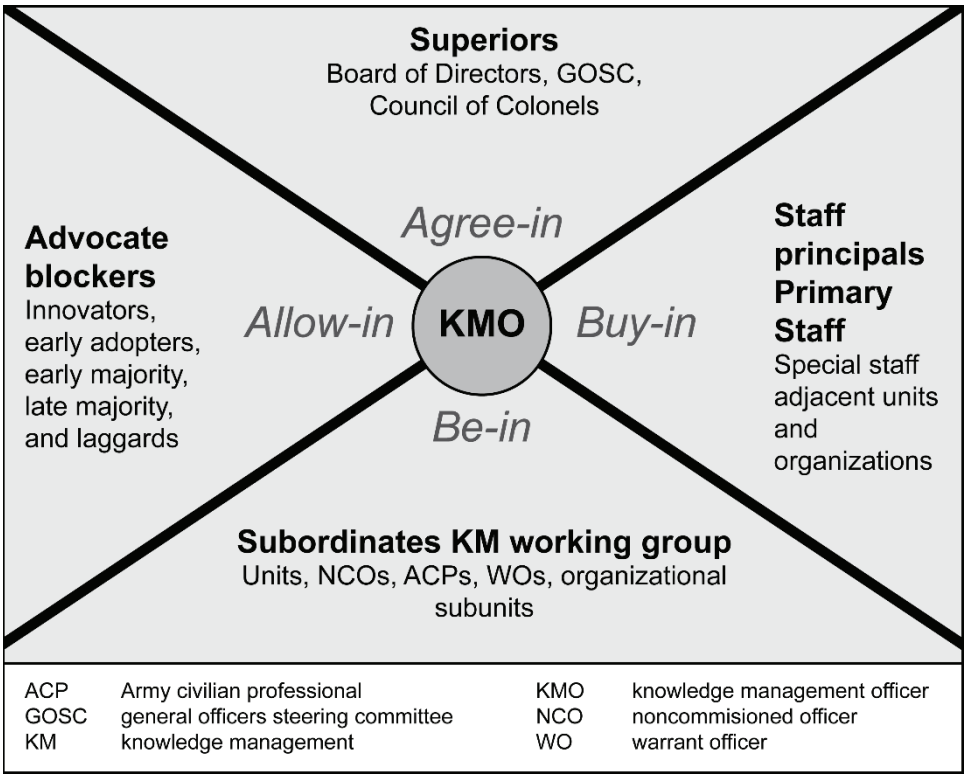


Figure 4-4. Leading change from the middle

Be-in

4-75. Leading change from the middle requires subordinate organizations and groups to be in the working group as part of the process. If subordinate groups are part of the solution development, it is easier for them to implement the solutions once approved. When selecting a group of subordinates to assist in solution development it is important to—

- Select the right team and ensure preference is given to innovators and early adopters of new technologies and processes.
- Communicate the preliminary change vision from the commander, COS, or board of directors.
- Understand the leading change challenge from all perspectives.
- Develop solutions and verify solutions with subordinates.
- Design and execute the action plan.

Staff Principal Buy-in

4-76. KMOs seek to obtain staff principal buy-in. To obtain buy-in on the solution development from primary and principal staff, it may be necessary to—

- Engage the commander or COS to attend in project review meetings or KMWG meetings.
- Use staff surveys and results of pilot tests to socialize the change process with the primary staff.

Stakeholder Allow-in

4-77. KMOs seek to obtain staff principal allow-in. This requires the KMO to conduct a stakeholder analysis to determine which stakeholders on the staff are advocates, early adaptors, and innovators that can help the change process and conversely which stakeholders are blockers to the change process. (See Table 4-2 on page 4-18 for a depiction of a useful way to categorize stakeholders.)

Table 4-2. Example stakeholder analysis chart

Categorize stakeholder					*Stakeholder analysis*				
Stakeholder	Category: superior, staff principal. subordinates	Advocate	Blockers	Neutral	Key interests and issues	Objective with stakeholder	Communication method	Power	Influence
BG Doe	Superior			X	Decision support information	Make decisions	Verbally	10	10
LTC Smith (Surgeon)	Staff			X	Decision support information	Influence decisions	Verbally	10	10
Mrs. Hill (KMO)	Staff	X			Develop a dashboard (MedCOP)	Influence decision making	Verbally and cloud platform	9	9
Mr. Ham (CUOPS Chief)	Staff	X			Get information through direct access or digital means	Accurate information	Verbally and cloud platform	9	9
LTC Beak	Staff		X		No approved use of RHC-A's network to support KMO's intent	Strict following only internal IT policies	Verbally	8	9
Col Ray	Staff	X			Support KMO and CUOPS chief to develop key elements the CG required	Support intent to develop a COP with key elements	Verbally and cloud platform	9	9
NGA	Subordinates		X		Not able to share mapping expertise and cloud platform capabilities	Enhance knowledge sharing capabilities	Verbally	8	9
DHS	Subordinates	X			Provide permission for NGA to facilitate a cloud platform	Enhance information sharing	Verbally	9	10

BG	brigadier general	IT	Information technology
CG	commanding general	KMO	knowledge management officer
Col	colonel	LTC	lieutenant colonel
COP	common operational picture	MedCOP	medical common operational picture
CUOPS	current operations	NGA	nongovernment agency
DHS	department of homeland security	RHC-A	Regional Health Command-Atlanta

Lean Six Sigma

4-78. LSS, as a component of continuous process improvement, is one of several methods to improve Army performance. LSS is a disciplined, data-driven approach that combines Lean and Six Sigma methodologies for eliminating waste in the form of quality, cost, and efficiency in any process. The goal of the Army's LSS program is to generate deep efficiency-driven benefits to the Army each year. The LSS program drives benefits throughout the Army by developing and maintaining a cadre of continuous improvement practitioners who can sustain the Army's ability to execute enterprise-level and local LSS projects. (See AR 5-1 for more on continuous process improvement and LSS.)

Note. AR 5-1 discusses other methodologies that may be used depending on the organization's needs: business process reengineering, value engineering, Army communities of excellence, and Army business initiatives.

DYNAMICS OF CHANGE

4-79. Knowledge managers identify the best approach to implement necessary changes. After assessing and developing solutions to knowledge and performance gaps as part of the KM process discussed in Chapter 2, they take into consideration other dynamics which may impede their ability to affect the necessary change.

CULTURE

4-80. Cultural considerations are important when managing change. Culture refers to the beliefs, values, customs, norms, and attitudes shared by everyone in an organization. Organizations influence culture over time through written and unwritten rules that become internalized and deemed valid. Based on this, the desire is to inculcate these factors into new personnel in the organization, and this sense of belonging and purpose aids in performance and productivity improvements. The Army culture embodies characteristics such as loyalty, duty, selfless service, and personal courage. The KM section assesses the culture of the organization to identify barriers caused by the cultural environment. KMOs, in working with other coalition partners, recognize that different cultures from other nations will have different reactions, opinions, and responses to change. All members of a coalition should be mindful that both planned and unplanned changes, events, or consequences of operations may impact members of a group differently and that these reactions should be anticipated to the greatest extent possible to maintain cohesion.

4-81. The structure of an organization may impact effective change. An organization's structure is determined by how tasks are organized, assigned, and grouped to perform work. For the Army, the organization is the command post. Commanders tailor their command posts for the mission. Further refinements can be made by task-organizing based on mission needs if a capability is not organic to the command post. Knowledge managers work within the authorized MTOE or TDA structures and task organization to ensure the command post arrangement best supports data, information, and knowledge flow.

LEADERSHIP

4-82. Knowledge managers are leaders within their organization. Formal leadership is based on being provided the authority to lead based on a specific position, such as the commander. Informal leadership, on the other hand, arises from knowledge, experience, or technical expertise, and it may require initiative on the part of an individual. Knowledge managers combine formal and informal leadership to manage change within their organization. Since the knowledge manager works for the COS or XO at brigade level, brigade leaders should support initiatives leading to necessary change. Knowledge managers, as leaders, continually hone their skills to support the unit. Skills sets include leading change, decision cycle effectiveness, agile learning, and program management.

GENERATIONAL

4-83. Different generations, such as baby boomers, millennials, and generations x, y, and z, think and operate differently. The generational make-up of Army units, both in operating forces and the institutional force, contributes to effective change management. Knowing the target audience and its generational preferences is a key factor when gaining buy-in. While the Army operates by using lines of authority, chains of command, policies, procedures, and standards, knowledge managers consider how different generations think and operate. Each group learns, communicates, problem solves, and uses technology differently, potentially affecting how knowledge managers implement change. Organizations that are civilian personnel heavy may require a different approach than one comprised of younger Soldiers with different learning styles.

TECHNOLOGY

4-84. Technological advances have enormous impact on Army organizations, and they likely have the most significant impacts on Army units. All information systems on the battlefield, if incorporated effectively, provide a competitive edge and are critical parts of the Army system. Army modernization efforts for information systems are constantly under revision. As industry technology advances, Army information systems are updated to reflect the most current advances. Knowledge managers keep current on information technology so that as it matures, its capabilities are properly exploited to achieve a competitive edge.

4-85. Knowledge managers need to be aware of change fatigue. Change fatigue occurs when an organization experiences so much constant change that it affects the morale of personnel affected by the perpetual change. This is especially true with technology. The pace at which technology rapidly changes—requiring constant updating of programs, adding new programs, improving security, and the ability of the current workforce to create their own applications—is a major contributor to change fatigue. Change fatigue can be mitigated by monitoring how new technologies are implemented, providing adequate training for personnel, and keeping them informed as to why it is necessary to make the changes.

4-86. KMOs drive change by applying the KM process discussed in chapter 2. In OPERATION INHERENT RESOLVE, the KMO was tasked to merge two headquarters which required a considerable effort to organize. A major component of accomplishing this task was creating a guiding coalition with a council of colonels to oversee the merger's planning and execution and identifying all the stakeholders it would impact. The KMO was able to re-build the battle rhythm and determine information flow requirements across the headquarters, in addition to leveraging other technical expertise to create information sharing tools for the newly combined headquarters. The merger was effective, and the result was improved decision-making and performance. (See the vignette "Battle Rhythm Convergence" for a description of the KM activities that enabled the successful merger of headquarters and their staff sections.)

Battle Rhythm Convergence

During OPERATION INHERENT RESOLVE, the III Corps KMO exercised exceptional initiative when III Corps, operating as a combined joint task force, was tasked to merge their headquarters with the combined joint force land component command. The III Corps COS tasked the KMO to enable this merger. The KMO quickly assessed the knowledge and performance gaps that needed attention for a successful merger. He determined he needed additional assets on the KM team, including structured query language and SharePoint developers. The COS organized an operational planning team and a council of colonels to provide stakeholder input and guidance for this initiative. The scope of this challenge was to assess 96 combined joint task force and 87 combined joint force land component command battle rhythm for 183 events in time for a newly merged headquarters. The KMO and KM team analyzed the battle rhythm events by working backward from every commanding general decision and analyzing all the inputs and outputs to account for the information flow that led to these decisions. The KM team used seven-minute drills to integrate essential information such as meeting notes, calendars, slides, and attendees within SharePoint linked to Outlook and a dashboard. This battle rhythm assessment resulted in the successful convergence of two major headquarters' battle rhythms and reduced the total battle rhythm events from 183 to 144. The KMO and KM team successfully led change from the middle by exercising initiative, exercising adaptability, and applying critical and creative thinking.

Chapter 5

Sustaining a Knowledge Management Program

This chapter provides an overview on how to sustain a KM program. It begins with a brief overview of what is meant by sustainment and the steps to ensure program continuity over time. It describes the concept of benchmarking and a methodology to measure and track unit KM progress. It then describes a training strategy that ensures incoming Soldiers and leaders understand their roles in the KM effort. The chapter concludes by describing how to communicate effectively with stakeholders and the importance of keeping an entire organization informed and motivated on critical KM objectives.

KNOWLEDGE MANAGEMENT PROGRAM SUSTAINMENT

5-1. Knowledge managers work to ensure the KM program is sustainable over the long run. Maintaining and sustaining a KM capability takes work. Personnel turnover, OPTEMPO, technology changes, and changes in doctrine require constant vigilance and resilience to keep up. A program that is effective in the beginning stages because it is new may not remain so over a longer term. Personnel trained in KM rotate out and incoming leaders may not have the same passion for it as previous leaders. Various other factors may also contribute. Knowledge managers codify the program in their unit's policies and procedures so that the program does not rely only on the people who are intimately involved with it.

5-2. The KMO strives to ensure critical knowledge is embedded in organizational memory through the unit's policies, procedures, and practices. The KM section can ensure longevity with the KM program by understanding elements that promote program continuity over the long run. There are three primary considerations that knowledge managers consider to sustain a KM program:

- Maintaining program continuity, including the use of benchmarking, the knowledge management capability assessment tool (KMCAT), and the knowledge management maturity model (KM3).
- Conducting ongoing KM training and documenting program activities.
- Using the KMWG to communicate with stakeholders and motivate participants to stay involved.

PROGRAM CONTINUITY

5-3. Chapter 4 discusses the term continuity in relation to a specific job as part of the onboarding and off boarding process. The term "continuity" has been in the Army lexicon for many years. The continuity book includes specific and detailed information regarding a particular type of job, such as information technology specialist, records manager, or training NCO. Effective units use continuity books for sustainment because they help new Soldiers integrate as part of the team more quickly. However, in this case, the term continuity is more about keeping the program healthy over the lifecycle of the unit and to prevent degradation from internal, and in some cases, external factors. (See Chapter 4 for more information on job continuity.)

5-4. Continuity refers to something that continues uninterrupted over time. For the Army, KM personnel are assigned KM positions by MTOE at division through Army Service component command levels (and by TDA for institutional force organizations), theater sustainment command, and expeditionary sustainment commands and are filled by the personnel system. That ensures positions exist officially as part of the organization's structure (at brigade echelons and below, KM positions are mostly additional duty assignments with some coding for the KM additional skill identifier). Effective KM continuity includes not just filling slots or vacant positions, but also capturing and codifying critical knowledge that a unit needs to operate,

despite internal or external factors and regardless of who occupies key positions within the organization. Even when a new commander takes command or the unit deploys, an effective unit continues improving KM.

BENCHMARKING AND METRICS

5-5. Benchmarking and identifying metrics are the first steps in sustaining a KM program over the long run. To show improvement, KMOs use a KM maturity scale to establish a maturity baseline and then track progress over time, which contributes to sustainment. Knowledge managers use sound management practices to improve performance. Since it is important to manage, it is important to be able to measure performance. It is no different with KM. Measuring KM presents challenges because much of what is known is tacit knowledge, which resides in the Soldiers and leaders' experiences. However, the Army's approach to KM, covered in Chapter 1, is a blended approach. It includes two parts; one part is organizational learning (create, retain, transfer knowledge), and the second part is systems science or system design (C2 system is a system of systems). The solution to this complexity is referred to as benchmarking.

5-6. Benchmarking, a term used extensively by the American Productivity and Quality Center (APQC) and the Army Office of Business Transformation, provides a means to develop measurable outcomes. Benchmarking has multiple purposes, but mostly its purpose is to establish a baseline of KM maturity so that over time, results can be compared to track measurable progress. Benchmarking can also be thought of as a crawl, walk, run approach to performance enhancement. It is also used to compare an organization's performance with other similar organization's performance. For Army KM, the KM3 is a maturity model and tool used to benchmark the establishment and the maturation of a KM program over time. The objective is to use the idea of benchmarking to mitigate upheaval in Army units that are in constant personnel turnover, high OPTEMPO, and change.

KNOWLEDGE MANAGEMENT MATURITY

5-7. Program continuity and the KM maturity ratings are means to quantify and visualize KM efforts. The idea of KM maturity is not new, and the Army model is based on work from other organizations that have used the same approach. KM maturity refers to how embedded the KM program is in an organization's internal processes, tools, and people.

5-8. In the beginning stages of a KM program, KMOs, when assigned, must create the conditions to conduct KM. This includes establishing a KMWG by identifying and training staff representatives, developing a KM strategy based off the organization's vision and mission, and identifying key processes, personnel, and leader roles and responsibilities. The program at this stage is considered immature. Once these conditions have been met, it is considered more mature, but not fully mature.

5-9. The goal is to develop a completely mature KM program capable of executing the KM process. In turn, this will lead to improved processes in stages ultimately supporting the exercise of mission command. Various maturity models exist and have been used at the joint level and within Army units. Paragraphs 5-10 through 5-13 discuss examples of two types of maturity models.

AMERICAN PRODUCTIVITY AND QUALITY CENTER MATURITY MODEL

5-10. Various tools exist to measure KM maturity. Some of the tools come from outside the Army, but they can be tailored or modified based on the needs and level of the Army unit (permission is required in some cases). APQC's KMCAT is a self-assessment maturity model administered by the organization. This maturity model tool gives organizational leaders the ability to self-assess their organization's KM maturity level across four broad areas of strategy, people, process, and information technology. These four areas are further subdivided into twelve capability areas to provide greater analysis in the assessment.

5-11. As an example, the United States Army Corps of Engineers used APQC's KM capability assessment tool maturity model from 2012 – 2018 to gauge their units' level of maturity, with a goal of reaching level three by the end of 2017. Government organizations that have used APQC's maturity model average begin at level two after the initial assessment. (See Table 5-1 for a listing of the stages of maturity.)

Table 5-1. Example 1 – knowledge management capability assessment tool stages of maturity

Model	*Stage 1*	*Stage 2*	*Stage 3*	*Stage 4*	*Stage 5*
Knowledge management capability assessment tool (KMCAT)	Initiate	Develop	Standardize	Optimize	Innovate

CAPABILITY MATURITY MODEL INTEGRATION

5-12. The Army operates as part of the joint force, and KM maturity is measured using a tool designed and tailored for the joint command. When the Joint Enabling Capabilities Command deploys, it does so for the purpose of helping to rapidly stand up a new joint task force headquarters. To improve the headquarters' KM maturity, the KM team uses a similar approach developed by Carnegie Melon University called the capability maturity model integration (known as CMMI). This model uses slightly differing terms for each stage, but the outcome is the same as the KMCAT. (See Table 5-2 for a listing of the stages of the capability maturity model integration.)

Table 5-2. Example 2 – Capability maturity model integration stages of maturity

Model	*Stage 1*	*Stage 2*	*Stage 3*	*Stage 4*	*Stage 5*
CMMI (JECC)	Initial	Repeatable	Define	Managed	Optimizing
CCMI capability maturity model integration			JECC Joint Enabling Capabilities Command		

5-13. Both models discussed in paragraphs 5-11 and 5-12 are designed to improve organizational performance over time. In the beginning stages, processes are generally ad hoc and chaotic. With an effective, fully mature KM program, those internal processes, aligned with personnel and tools within the organizational structure, become more efficient and lead to improved performance. Furthermore, long-term sustainment is ensured because the unit improves, and the processes to support mission command are codified in policies, procedures, and daily practices.

ARMY KNOWLEDGE MANAGEMENT MATURITY MODEL

5-14. Sustaining KM requires KMOs to use tools tailored for the Army. The Army KM3 incorporates much of the thinking in the models discussed in paragraphs 5-10 through 5-13. However, it has a slightly different approach. The KM3 tool is designed around the four components of the KM system. It uses a rating scale of 1–5, and 42 specific "efforts" to assess and calculate an overall maturity rating for a unit. Scoring is accomplished using a focus group approach, and the dashboard is color coded to highlight areas of weakness based on the collective input of the focus group. The next step after completion is to develop a roadmap to move to higher levels based on analysis and unit priorities. The Army Maturity Model has four main elements:

- KM3 dashboard.
- Scoring method.
- Effort descriptions and references.
- Plan of action.

Knowledge Management Maturity Model Dashboard

5-15. The KM3 dashboard supports sustainment by providing indicators on progress. The main purpose of the dashboard is to provide a simple way to present and visualize progress. The scoring is a quantifiable representation of the staff sections' impressions of each individual effort and then aggregated into a single score (the baseline). The KMRs are important to this process because they bring their own experiences from their individual staff sections to provide critical input. The more input from people (staff members) the better the results.

5-16. The KM3 method uses a focus group approach designed to facilitate collaboration, perform critical analysis, and prevent groupthink. Over approximately 2 to 3 days, the KMO garners a collective consensus of each effort. It is facilitated by discussion with the KMO, with the objective of scoring each effort

individually. The dashboard guides the KMWG discussion and provides a single, simple tool to communicate strengths and weakness to the command group, COS, or XO. (See Table 5-3 for a depiction of a KM3 dashboard.)

Table 5-3. Knowledge management maturity model dashboard

KM Maturity Model Worksheet (V1.0) (for reference only)							
KM principles–understand, share, integrate, connect, learn, trust							
Range– 1 = not doing, 5 = validated effort (rate unit or organization for level of implementation of each effort)							
A		B		C		D	
People		Process		Tools		Organization and culture	
Terms of reference	2	Onboarding	2	IM tools	2	Culture of collaboration	2
KM roles and responsibilities	2	Continuity	2	Collaboration tools	2	Communities of purpose	2
Battle rosters	2	After action reviews	2	Lessons learned repositories	2	Organizational trust	2
KMWG	2	KM or staff rehearsals	2	KM SOP	2	KM vision	2
External SMEs	2	KM process	2	KM strategy	2	Learning environment	2
KMRs	2	KM or IM tools training	2	Validated COP	2	Cohesive teams	2
		CCIR or SIR management	2	KM planning (Annex Q)	2	Social interaction	2
		Operations process	2	Battle rhythm	2	Organizational feedback	2
		COP or dashboard management	2	Working groups and boards	2	Mission command	2
		Time management	2	PACE plan	2	KM chain of command	2
		Lessons learned management	2	Learning tools	2		
		Task management	2	Expertise location system	2		
				Virtual communities	2		
				Organization SOPs and policies	2		
Column total (maximum = 30 points)	12	Column total (maximum = 60 points)	24	Column total (maximum = 70 points)	28	Column total (maximum = 50 points)	20

CCIR	commander's critical information requirement	KMWG	knowledge management working group
COP	common operational picture	PACE	primary, alternate, contingency, and emergency
IM	information management	SIR	serious incident report
KM	knowledge management	SME	subject matter expert
KMR	knowledge management representative	SOP	standard operating procedure

Knowledge Management Maturity Model Scoring Method

5-17. The assessment scale of 1–5 standardizes and quantifies KM3 ratings. The scale is universal to every effort, meaning a separate set of metrics is not needed for each effort. A unit is doing it, doing it to some level of proficiency (substitute the term maturity here), or a unit is not doing it at all. Essentially, all the efforts identified were chosen because they were either a doctrinal requirement or an emerging KM best practice. Army units at all levels, including the institutional force and operating forces, are required to inculcate mission command. Each effort is intended to be linked to mission command doctrinally in some way. Based on this, the KM3 tool helps to identify and assess activities related to KM that the organization needs to be doing well, particularly as it relates to the exercise of mission command. The scale is intended to answer three key questions: Is the unit even doing this effort? If so, is it in some stage of development? Is it codified and validated in daily practices? (See Table 5-4 for a listing of the KM3 rating scale.)

Table 5-4. Knowledge management maturity model rating scale

Rating (1-5)	*Description or Metric*	
1	Unit is not doing this effort at all	Minimum
2	Unit has started this effort, but it is still in development	
3	Effort is well developed, but it not fully implemented	
4	Unit does this effort, and it is fully implemented	
5	Unit has assessed the effort, and it has validated its utility	Maximum

Effort Description and References

5-18. The KM3 has tabs describing each effort and how it is linked to KM. There is also a column within the tab for each effort that contains a link or reference to gain more understanding about each effort. This is useful for the personnel scoring because it provides a common understanding of what it is and why the effort contributes to KM success. (See Table 5-5 for an example KM maturity model term of reference with a description and associated references.)

Table 5-5. Knowledge management maturity model term of reference

Knowledge management maturity model references (This section provides details of each rated effort and how it relates to KM maturity and references for further development.)		
Component of effort	Knowledge management-effort linkage (how the effort is tied to knowledge management)	References
People	People are important to successful knowledge management. Knowledge has meaning only in a human context, and it is based on an individual's experience, expertise, or insight.	ATP 6-01.1. *Knowledge Management*
Terms of reference	A terms of reference document is an emerging "best practice" document that is developed to identify the roles and responsibilities of key players essential to an organization's mission. It usually contains the person's title and his or her primary duties. The knowledge management section can use this document to ensure there are adequate collaboration tools in place, especially in operations involving joint and other governmental organizations that are part of the mission.	*Insights and Best Practices Focus Paper*, Joint Headquarters Organization, Staff Integration and Battle Rhythm 3rd Edition September 2019.

Plan of Action and Results

5-19. The final piece of the KM3 tool is the plan of action. It is simply a field on the worksheet filled in by the KMO on potential solutions. Essentially, staff members identify why they collectively scored the efforts the way they did, and then they begin the process of improving the ratings which will affect the overall unit maturity rating.

5-20. The results of the completed worksheet serve several purposes. This first time it is completed, it should be considered a part of the overall assessment which is phase one of the KM process—assess, design, develop, pilot, and implement. It is used initially in conjunction with the assessment matrix and the effort impact chart discussed in Chapter 2. It also serves as a benchmark for establishing the initial maturity of the KM program. Several of the efforts are specific to establishing the KM program, and the KMO focuses first on the efforts that get the program established (such as KM roles and responsibilities, KM strategy, KMWG, and KM SOP). This sets the conditions for the KMWG to address other areas that need further analysis and improvement (such as time management, CCIR management, and collaborative tools). Finally, the results are shared with the leaders with the goal to periodically update the model to show progress. (See Appendix G for a sample KM strategy and Appendix J for a sample KMWG.)

Techniques and Lessons Learned for Using the KM3 Tool

5-21. Multiple iterations of training units by the Army Knowledge Management Proponent have occurred. Training units with the KM3 tool from brigade up through Army Service Component Command have identified several lessons and best practices. These lessons include—

- The KM3 is designed as a knowledge manager's tool to facilitate dialogue and quantify results. It is not a survey to be sent out. It should reflect the collective wisdom of the entire group.
- The KMRs involved in this effort should be identified as the primary KMR liaison for each staff section and subordinate organizations ahead of time. This is important because the next steps will be working on solutions.
- Staff sections schedule enough time to complete the entire worksheet as a group in a single period. If not, they complete it by sections such as the people column during one KMWG meeting and the process column during another separate KMWG, and so on.
- The KMO, as the facilitator, seeks honest feedback. There will be disagreements, but when there is lack of agreement on the score of a particular effort, KMOs seek consensus. This may take time, but it pays off. The KMO cannot be defensive and must listen to all parties involved.
- Before starting the process, KMOs review the scoring scale, and they revisit it often.
- Staff sections start each effort by reviewing the description of the effort first as a group so there is common understanding of its purpose.
- It may be necessary to break into groups, such as division staff and brigade staff. Each group scores the effort and comes back together to discuss rationale. The KMO determines the final score.
- This is a group effort, and the more KMRs who are involved, the better the outcome.
- The KM3 assessment rating is not a grade or inspection. Even though the term "score" is used, it is intended to identify and quantify areas for improvement.

5-22. The Army KM3 tool has shown great utility since its inception. However, the more times it is used, the more lessons learned are gathered. The KM3 will likely be modified in the future to reflect those lessons.

KNOWLEDGE MANAGEMENT TRAINING AND DOCUMENTING THE PROGRAM

5-23. Sustaining a KM program over the long term requires robust training and careful documentation. Soldiers and leaders rotate out of a unit, and new personnel arrive. Equally, technology changes or new versions come out frequently. Along with that, if the KM section is effectively executing KM, it means that change is happening as a normal by-product of their work. Training comes in many forms. To sustain a KM program, there are six groups that require training:

- KM section.
- KMRs.
- Leaders and staff.
- Soldiers and civilians.
- Specialty tools training.
- Other external functional training.

The discussion concludes with documentation. Knowledge managers document not only the training provided and supported, but also the application of the KM program.

KNOWLEDGE MANAGEMENT SECTION TRAINING

5-24. KMOs contribute to sustaining a KM program by staying current on KM practices, effectively keeping the KM section and staff trained and ensuring there is proper documentation of KM initiatives, roles and responsibilities, policies and procedures, and KM progress. Training for the KM section starts with the knowledge manager who must attend the Army Knowledge Management Qualification Course at Fort Leavenworth, Kansas. It is a three-week course designed to provide KM fundamentals, doctrine, KM process, change management, and KM support to mission command. Soldiers requesting to attend the course should

contact their Army Training Requirements and Resource System (known as ATRRS) representative to enter them into the system. Graduates of this course are awarded the additional skill identifier 1E. It also qualifies them to conduct KMR training for their unit using the authorized curriculum provided by the Army knowledge management program at Fort Leavenworth.

5-25. For the remainder of the KM section training, the KMO must log into the Army Training Network (known as ATN) to download KM section collective and individual tasks. These tasks have been developed and approved by the Army Training Development Capability (known as TDC) and hosted on the Central Army Registry (known as CAR) to develop unit KM training plans. (See the Army training network at https://atn.army.mil/ for more information on training.)

5-26. KM tasks are reviewed and updated periodically through a formal critical task site selection board made of subject matter experts with backgrounds in KM. There are additional supporting tasks developed for each echelon for use in training plan development.

5-27. Ongoing KMR training is a critical component of sustaining a KM program. KMRs are the subject matter experts from each staff section, and they should provide feedback and input into all KM products. Therefore, initial training will ensure they know their role in the KMWG. As graduates of the Army Knowledge Management Qualification Course, KMOs are authorized to teach the KMR training. KMOs contact the Army knowledge management proponent for the most recent program of instruction. KMOs teach the class periodically depending on how frequently KMRs change. Training can be broken into modules if necessary. For National Guard and Reserve units, a technique is to teach one module at a time over a drill or assembly weekend.

Training Leaders and Staff Members

5-28. Leaders and staff members contribute to sustainment by understanding how their roles improve and support KM initiatives. This includes signing the necessary documentation to implement changes. Leaders and staff members must have training to ensure they understand how to support and lead the KM effort. Primary staff members are required to provide a KMR to represent them at the KMWG. So, staff training on KM should be oriented on KM fundamentals and how the KM section can support the overall mission. In many cases, some of the initiatives cross into multiple staff sections, and training can eliminate confusion and create synergy and productive cross talk. In the long run, KM is the commander's program. KMOs should prepare and present a brief to the COS or commander. Recommended briefing points for the senior staff members are—

- Understand the KM process—assess, design, develop, pilot, and implement—and how it improves performance.
- Different types of KM assessments (deliberate and abbreviated).
- Role of KM in mission command.
- The need to establish a KMWG with trained KMRs.
- An understanding of the role of the KMR in the process and how KMRs benefit each section and the entire unit.

5-29. Soldiers need training, even if they are not directly involved in KM efforts. However, training usually comes after a change in processes, tools, or procedures. Any time the KMWG identifies a performance or knowledge gap where information is not getting where it needs to go, it usually means that the recommended solution or solutions creates a change in procedures or processes. Each solution should include a training component. Furthermore, the KM section and the KMRs should be looking for better ways to share information with staff members.

Training Army Civilian Professionals

5-30. Civilians help to sustain a KM program by providing continuity during military staff turnover. They must be trained properly on KM practices. Civilians are increasingly being called on to fill the roles of KMOs. As a result, the KM proponent has expanded its training audience to include civilians. Civilians can apply for and attend the KM Qualification Course at Fort Leavenworth, Kansas. Even though they do not usually deploy (there are special programs where they can), civilians play an integral part in Army organizations,

especially on the institutional force. Most of the centers of excellence have a KM program. Therefore, having trained civilian KMOs is important since they directly support the warfighter. It is likely that there will be an increasing demand for civilian KM professionals in the future. Most combatant commands have KM programs. The joint KMWG uses a set of training competencies that provide common focus areas for KM professionals across all the Services. The Army has endorsed these competencies. Each competency falls into one of five focus areas (desired outcomes):

- Establish a KM program.
- Facilitate shared understanding.
- Create agile learning organizations.
- Improve decision cycle effectiveness.
- Enhanced mission and organizational performance.

Note. The Army Quality Assurance Office maintains the complete list of the focus areas and competencies as they are developed and agreed upon through the joint working group.

SPECIALIZED TRAINING

5-31. Successful KM programs also provide ongoing training on specialized tools to sustain Army forces. It is not always necessary for the KM section to conduct the training, but it is important to coordinate with the assistant chief of staff operations section to provide additional training when necessary and when gaps are identified. A common criticism is that the Army has more tools than Soldiers can keep up with, and some of the training is self-taught. Also, Soldiers are not able to exploit all their capabilities. Common collaborative off-the-shelf tools that are widely used are Microsoft Outlook, other Microsoft applications, and SharePoint. New tools and apps are constantly being fielded and updated. The KM section focuses on collaborative tools to connect Soldiers with other subject matter experts and information sources. Another tool developed for Department of Defense personnel is milSuite. It is a collection of applications that require a Department of Defense access card but provide a host of tools, such as Microsoft TEAMS, to conduct asynchronous collaboration. (See Appendix J for more information on virtual communities.)

5-32. Training can be delivered in multiple venues, and training does not always have to be in a classroom session. Some of the most effective training is face-to-face discussions, road shows, word of mouth, and email announcements. The key to effective training is being innovative and persistent. Some training delivery examples are—

- Brown bag lunches.
- Knowledge cafes.
- Microsoft TEAMS classes.
- Army Learning Management System (known as ALMS).
- Video teleconferences (known as VTCs).
- Phone conferences
- In-person conferences.
- Military University courses, including the Army basic KM course.

OTHER FUNCTIONAL TRAINING

5-33. The Army offers other functional courses to increase KM competency. Members of a unit who have specialized roles support sustaining a KM program by completing individualized training unique to their assignment within the unit. Other functional training courses are available that, combined with KM training, directly impact effective KM. (See Figure 5-1 for a listing of other functional training.)

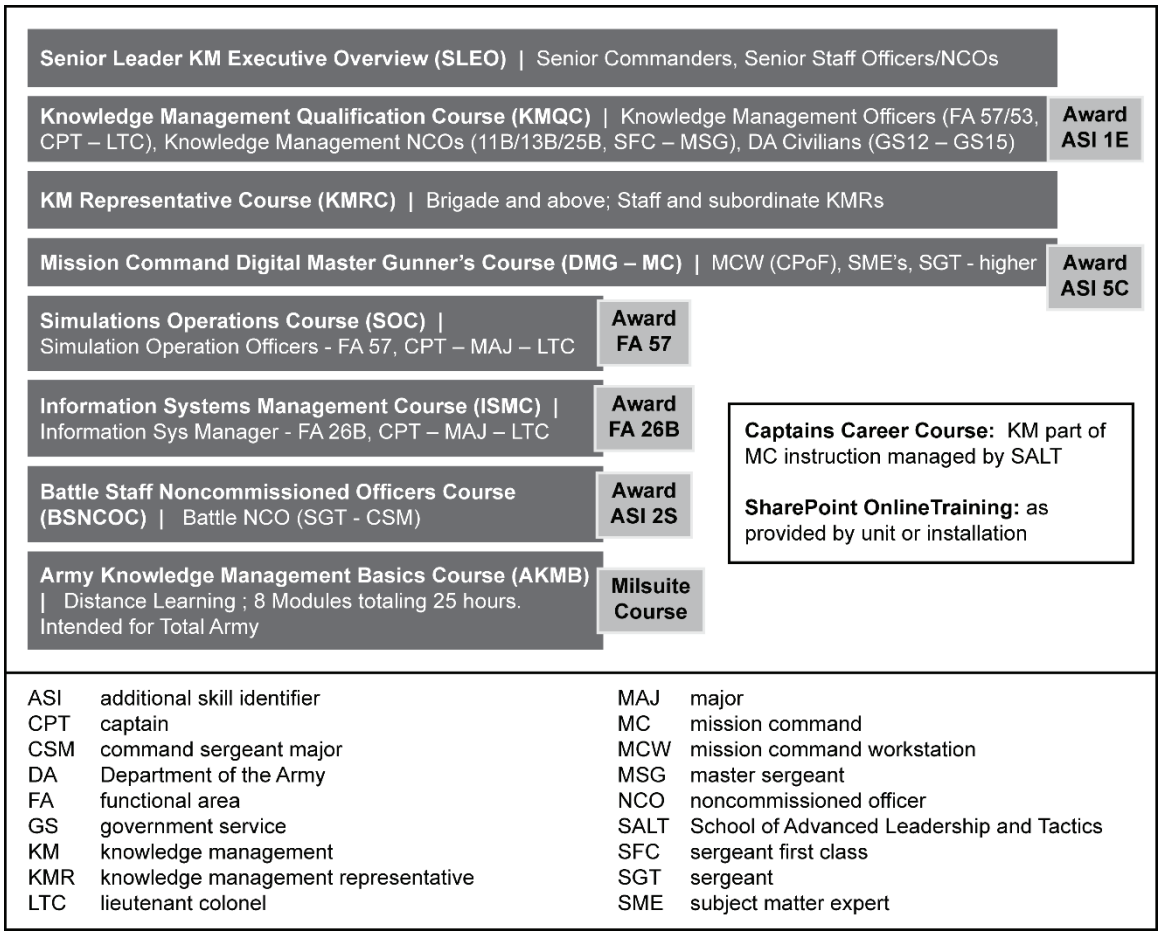


Figure 5-1. Other functional training

DOCUMENTATION OF PROGRAM ACTIVITIES

5-34. Sustaining a KM program over the long term requires adequate and enduring documentation. First and most importantly, KM supports and ties into the strategic goals and objectives of the organization. Second and equally important, KM is supported by official documents, such as KMR appointment orders or a KM implementation plan. This shows staff members command group supports KM. Chapter 1 discusses documents necessary to implement a program. Those initial documents are developed in conjunction with the KMWG. The best approach is for the KM section to develop a draft document first, such as a KM SOP, then gives the members of the KMWG time to review it and provide input. In most cases, the products developed not only pertain to the higher echelon headquarters, but also to subordinate units. Therefore, units publish them in a single location, such as a unit Sharepoint site, the unit milSuite site, or one that is accessible remotely. Although not all are required, paragraphs 5-35 through 5-39 provide and discuss a sample list of documents that can be created to ensure a KM program is sustainable.

Knowledge Management Charter

5-35. The KM charter contains broad and sweeping goals and objectives for the KM program. It further outlines roles and responsibilities for the KM section, KMWG, and other leaders and staff members. (See Appendix E for a sample KM charter.)

Knowledge Management Representative Appointment Orders

5-36. KM representative appointment orders identify a staff representative and an alternate to represent each section at the KMWG. Appointment orders for KMRs are strongly recommended, but they are not required.

Knowledge Management Action Plan

5-37. The KM action plan is a written document which is completed after a formal assessment has been completed. The KM action plan contains the information sharing gaps that were identified in the assessment, and it describes the plan to close them.

Knowledge Management Standard Operating Procedures and Policies

5-38. The KM SOP is a critical document as it contains what actions are required for the staff members and subordinates to support KM. It can cover a range of topics including lessons learned management, battle rhythm, and content management procedures. The KM SOP is comprehensive enough to ensure unit personnel know how and where to find and share information. (See Appendix G for an example KM SOP.)

Knowledge Management Operation Order Annex Q

5-39. Depending on the organization, the KM operation order is usually an annex to the main order, and it is in the 5-paragraph format. It is completed as part of the operations process when a unit gets a mission. It can be issued as a stand-alone order if necessary. For example, the U.S. Army Reserve Command published a stand-alone operation order establishing KM in the Army Reserve, and it pertained to all Army Reserve units. (See Appendix C for instructions on the KM annex format.)

Content Management Plan

5-40. The content management plan contains the details on how data, information, knowledge, and records are organized and stored for use. It can be a stand-alone document or an appendix to the KM plan. The content management plan is developed with collaboration from the signal staff section, as it relates to permissions and security.

STAKEHOLDER COMMUNICATION AND MOTIVATION

5-41. KMOs ensure KM sustainment by effectively communicating initiatives and progress with stakeholders and by keeping Soldiers and leaders involved to provide continuing support. Communicating with the many stakeholders within the command structure is a KM imperative to keep a program sustainable. The higher the echelon the more critical this is because there are more personnel and stakeholders to interface with. Central to this idea is that the KM process by its nature drives needed changes that improve performance. Without a good communication strategy, including KM incorporated into the commander's communication synchronization, those efforts may go unnoticed and lead to complacency. They may be interpreted as just another task they have to perform. To keep staff and leaders engaged, they must see progress and improvements. That is accomplished by KMOs providing sufficient information and frequent updates to those who have a stake in the outputs of the KM program. (See Chapter 2 for a discussion of the KM process.)

5-42. An effective communication plan mitigates some of the barriers to communication. With deployed units, the most prevalent barriers to communication are time and distance as units are in many occasions dispersed. Robust Army communications networks eliminate time and distance factors. In the orders process, Annex Q can be updated with a fragmentary order for changes to the KM plan.

COMMUNICATING THE RIGHT MESSAGES

5-43. Keeping staff members involved with the KM effort requires communicating the right messages. Aside from seeing visible results and how KM has improved their work performance, the question to be answered in the commander's communication synchronization is what types of messages are the most important that will resonate. There are many KM messages, but some of the most effective include—

- Success stories of how KM has helped staff members in their job, assignment, or project.
- Explanations of the importance of KM to the mission.
- Endorsements from staff and leaders who have used or benefitted from KM tools and practices.
- Metrics demonstrating mission impact.
- Spotlighting individual contributions to the KM effort.

5-44. Some other useful KM message areas to consider are tying KM involvement into job performance or career progression (for example, warrant officers within the legal community by policy are required as part of their career progression to complete KM training) and employing techniques to promote friendly competition. This can come in the form of commander's update briefings and sharing with staff members and leaders who have gone above and beyond the call of duty to improve performance for a section or an entire unit. Rewarding innovative ideas and people on in staff sections who are persistently looking for ways to improve operations sparks others to do the same.

5-45. KM messages need to relate to the unit or organization's mission and vision to be effective. In the beginning stages of the program, the KMO should have collected all the relevant documents regarding the mission of the organization as part of developing an effective implementation strategy. Those documents include SOPs, relevant policies, the organization's vision, and its mission. As part of the communication plan, it is helpful to refer to those documents so that whatever is being communicated is tied to other significant documents that drive operations and contribute to accomplishing the mission and realizing the leader's vision and priorities.

Communication Channels, Methods, and Frequency

5-46. Knowledge managers employ effective communication strategies with the assistance of public affairs officers, who communicate with internal and external audiences and develop plans that support the commander's communication synchronization. The Army has many mechanisms to communicate with various audiences. KMOs blend channels effectively to get the message out. Each method has strengths and weaknesses. Some of the most common methods are—

- Unit and professional magazines and newsletters.
- Intranet announcement.
- Announcements at events.
- Virtual and in-person training.
- Email.
- Microsoft TEAMS.

5-47. The KMWG is one venue to disseminate KM initiatives. The KMRs will have first-hand knowledge as part of the KM team, and they can relay the information to their respective personnel and be available to answer questions. However, it should not be the only channel. Research has shown that audiences prefer face-to-face communication, when possible, followed by other means such as messages from leaders during meetings, direct written or verbal messages from senior leaders, email announcements, and verbal messages.

5-48. There is no standard for how often the KM staff should communicate information. Communication frequency is normally determined by the staffing levels and needs of the organization. The KM section can conduct an assessment and determine the frequency, methods, and audiences to be communicated with. Follow-on surveys and feedback sessions can aid in determining if the right messages are getting out, and if the target audiences are aware of KM initiatives.

Promoting the Benefits of Knowledge Management

5-49. KM provides many benefits to an organization. Many benefits are tangible, but others are not so explicit. The primary outcomes for KM are improved shared understanding, learning, and decision-making. But there are other complementary outcomes that support these objectives that need to be stressed. These outcomes include—

- Improving productivity and work quality by applying best practices and lessons learned.
- Saving time when looking for information.

- Improving efficiency across special projects and working groups.
- Increasing innovation and staff collaboration.

(See ADP 6-0 for more information on the benefits of KM.)

MOTIVATION, INCENTIVIZING, AND ENGAGEMENT STRATEGIES

5-50. Keeping Soldiers and staff members, from senior leaders down to the most junior Soldier, in an organization engaged in KM efforts is a primary objective of the KM program. When the program is initially established, staff members are likely to be motived and leaders add command emphasis. Turnover, high operating tempo, leader changes, and changing priorities driven from higher echelon headquarters may eventually contribute to program deficiencies and hinder maintaining long-term continuity.

5-51. Creating a knowledge-sharing culture is fundamental to effective KM. Chapter 1 discusses the Army's two-pronged approach to KM as including organizational learning and systems thinking. There are two primary objectives for units to create, retain, and transfer knowledge gained through experience and learning while at the same time improving the C2 system that allows for effective operations. The first objective is achieved by encouraging Soldiers and staff members to share what they know which leads to better collaboration, innovation, learning, and problem solving. Leaders ensure a knowledge-sharing attitude is pervasive throughout the command, and they find innovative ways to encourage this attitude to continue. The second part of the Army's KM approach is systems thinking and the need to continue to find ways to streamline the four KM components of people, process, tools, and organizational structure. These two approaches support achieving the mission through effective C2.

REWARDING KNOWLEDGE SHARING

5-52. Rewarding Soldiers when they actively pursue positive organizational changes will keep them engaged. It is the same for KM, and it is important to sustaining the program. Everyone likes to be recognized when they are successful. Traditional rewards for Army outstanding performance such as commander coins, commendations, and achievement letters are effective to encourage KM, and they can be augmented by other rewards that are both formal and informal.

5-53. Aside from the traditional Army achievement awards, other rewards include thank-you messages from leaders and managers, formal annual awards, special meetings and events to recognize outstanding contributions, and unit newsletters and unit social networks. The KM section makes recommendations to leaders on Soldiers who have made improved important KM efforts.

STRATEGIES TO IMPROVE KNOWLEDGE MANAGEMENT PARTICIPATION

5-54. Leaders involve as many people in KM activities as possible. Leaders ensure KM is not just a section task where only KM personnel are involved. Effective organizations adopt strategies to keep people involved. Four of the most effective ways to involve people in KM practices are—

- Requiring it as part of specific unit processes.
- Including it in individual performance goals.
- Making it part of job descriptions.
- Fully integrating it into daily work activities.

5-55. Commanders and staff members include KM during MDMP. In addition to writing the KM annex for an upcoming mission, the KM section aids the planning staff in exploring more effective tools and techniques to streamline the MDMP. KMOs and staff members ensure all staff sections understand which tools are being used (depending on the unit), how to use them, and the procedures and processes to provide the required products from their warfighting function to support the planning process.

5-56. All Soldiers have performance objectives and goals for DA Form 67-10-1 and DA Form 2166-9-2 evaluations. Leaders make KM a performance goal to ensure Soldiers are actively involved in sharing knowledge and experiences, especially when they are in a leader or mentoring role. Leaders also encourage Soldiers to continue to apply critical thinking to identify and solve knowledge gaps identified in the assessment phase of the KM process. Most Soldiers want to improve their organization, and when they

actively engage in sharing their experiences, especially with subordinates, their KM activities get credited during the evaluations process.

5-57. In the civilian community, most positions include a specified job description that the person must meet to obtain employment. Depending on the organization and its mission, KM can be included in the person's job description even if the person is not solely dedicated to a KM section.

5-58. The unit battle rhythm identifies all the specific meetings and planning events that occur during an operation or specified timeframe. The KM section, when directed, has a scheduled time to meet on the battle rhythm to discuss KM initiatives, conduct analysis, and make recommendations on improving information sharing. (See FM 6-0 for more information on battle rhythm.)

MENTORING

5-59. Mentoring subordinates is an effective means to share knowledge and improve performance. Mentoring is most often thought of as a senior person mentoring a junior Soldier or person. However, peer-to-peer mentoring and reverse mentoring are other ways that it can be employed. All three approaches are effective and contribute to knowledge sharing.

5-60. Traditional mentoring is when a senior person in a staff section, who has more experience and knowledge, meets with and coaches a junior person. Army leaders in senior positions are expected to mentor junior Soldiers as part of their professional development.

5-61. Peer mentoring occurs when an individual, regardless of rank or position, who has specific skills or knowledge of a tool, works with other staff members who need to learn about a particular subject, job, or task. An example of this is a project officer who has been the lead on a previous project and the task is passed on to someone else. A peer can meet with the project officer to discuss the projects goals and objectives and pass along insights and lesson learned from previous efforts.

5-62. Reverse mentoring is a bottom-up approach that occurs when a junior Soldier or person mentors a senior person. Although this may seem illogical, generational differences in the Army have created an environment where junior Soldiers, usually more comfortable with technology, can work with other more senior people on newer tools, such as social media applications. An example of this is learning from a SharePoint advanced user on how to use lists, create pages, and develop shared files.

BARRIERS TO KNOWLEDGE FLOW

5-63. In addition to the challenges of KM adoption, several barriers impede knowledge flow. KM experts used data collected from eleven distinct Army Headquarters after completing the KM3 to compile a list of barriers to knowledge flow. This includes—

- No content management SOP.
- KMWG not functional.
- Inadequate COP.
- Records management not functional.
- Lack of continuity books.
- Inconsistent battle rhythm.
- Inadequate AAR management.
- Lack of task tracking.

These common barriers to knowledge flow can create frustration in units and degrade the credibility of the KMWG's ability to enable synchronization of the coordinating, personal, and special staff sections for the COS.

5-64. Organizational culture is an important indicator for knowledge flow, and the Army has made great strides at the organizational level in improving organizational culture. Commanders and staff members consider the organizational component of KM and its corresponding groups of associated metrics in the KM3 when determining initial KM assessments.

OTHER TECHNIQUES TO FOSTER KM PARTICIPATION AND SUPPORT

5-65. KMOs and staff members can use other techniques to foster more sustained participation in KM activities. These techniques include making participation and contributions easy, including KM in everyday activities, developing real solutions that address critical challenges, and using effective feedback mechanisms.

Making Participation Easy

5-66. A frequently talked about issue for unit personnel is time. KM solutions cannot be overcomplicated and time intensive, otherwise, few will participate. If the unit identifies a need to develop a new process or tool, such as a request for information process or tool, it must be intuitive and easy to access. Soldiers and leaders have many requirements, especially in a train-up mode for a deployment, which is why KM needs early implementation before a deployment or major exercise. The staff need time to identify knowledge sharing gaps, develop solutions, and properly test them before the event. Surveying the users during the pilot phase of the KM process—assess, design, develop, pilot, and implement— can be used to identify challenges and simplify the processes used in the new tool or solution. (See Chapter 2 for more information on the knowledge management process.)

Making Knowledge Management a Part of Everyday Activities

5-67. Effective and sustainable KM programs identify ways to incorporate KM practices into everyday work. Some KM activities, such as participating in a formal AAR process, require Soldiers to stop what they are doing and devote significant time and attention to it. While those are necessary and highly useful activities, a desired objective is to make KM a part of routine activities.

5-68. An example of making KM a part of everyday work was a National Guard division participating in a Mission Command Training Program exercise. The KMO, rather than wait for the end of the exercise to collect lessons learned, created a tool on SharePoint to collect observations, insights, and lessons learned in near real time. It consisted of a tab on the home page that a leader, Soldier, or staff member could open during a down moment in the exercise and make an entry to describe what they observed, what insights could be gained from it, and how to apply it. It normally took just a few minutes to complete the form. At the conclusion of the exercise, the KMO had several hundred entries that were provided to the leaders as part of the formal AAR process.

Developing Solutions that Address Ongoing Critical Unit Challenges

5-69. All units have challenges, but despite this, each still has a mission to accomplish. Sustaining a KM program requires a continual process of identifying knowledge and performance gaps and developing solutions that meet the needs of leaders, staff members, and Soldiers. In some cases, such as in an operational command post, those tools and processes already exist and there is no need to create a whole new solution. However, there may be a need to streamline what is already being done. Regardless, there is always room for improvement. The KM section, along with staff members and guidance from the COS, seeks ways to improve operations. Once a solution has been tested and implemented, the method to sustaining it is to codify it into the policies and procedures for the unit so that it can be passed on to future personnel. (See Chapter 2 for a discussion of a common list of areas to focus on, including content management, battle rhythm, and reporting.)

Using Effective Feedback Mechanisms

5-70. Regular feedback is an important aspect of sustaining a KM program. Feedback can come in many forms, either formally, such as an AAR, or informally, such as interviews with stakeholders. Comments from leaders, end-users, and KMRs are some of the most useful types of feedback, especially when collected in person. (See Appendix F for more information on interviewing techniques.) Other tools, such as milSuite and SharePoint, exist to capture synchronous (real-time) and asynchronous (not real-time) feedback. Other suggestions for feedback include—

- Anonymous suggestion boxes.
- Analysis of virtual community comments.

- Focus groups.
- Annual employee surveys.
- Website feedback tabs.
- Organizational inspection programs or audits.

5-71. KMOs and staff sections use a blend of quantitative and qualitative methods to gather feedback and conduct analysis to ensure the KM program is meeting the needs of the command. This is important because feedback is what allows an organization to assess its operational effectiveness and its progress along the KM maturity continuum.

5-72. An example of a survey that provided value to an organization is when the chief knowledge officer of the United States Army Reserve wanted to know what made KMRs keep coming back to the KMWG. The U.S. Army Reserve Headquarters had previously implemented a KM program with the mandate for all brigadier general commands and higher echelons to establish a unit program. The KMWG was conducted virtually. Participation rate was an important metric, and the unknown information was what drove working group members to keep participating. The results of the survey were distributed to all knowledge managers at each Army Reserve unit that started a program. As a result of the survey data, the KMWG agenda was adjusted to better meet the needs of the Army Reserve.

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Appendix A

Content Management

Content management is the application of a structural process to create, organize, apply, transfer, and archive knowledge and information products within a collaborative environment or records repository.

CONTENT MANAGEMENT TASKS

A-1. Content management is the process of organizing digital products for efficient storage and transfer. It also makes content available for collaborative knowledge creation. Implementing content management involves the following four task areas: create, organize, apply, and transfer. Knowledge managers use a VAULTIS-compliant structured process and a metadata information model to organize their data, information, and knowledge products. (See Figure A-1 for a depiction of the content management lifecycle.)

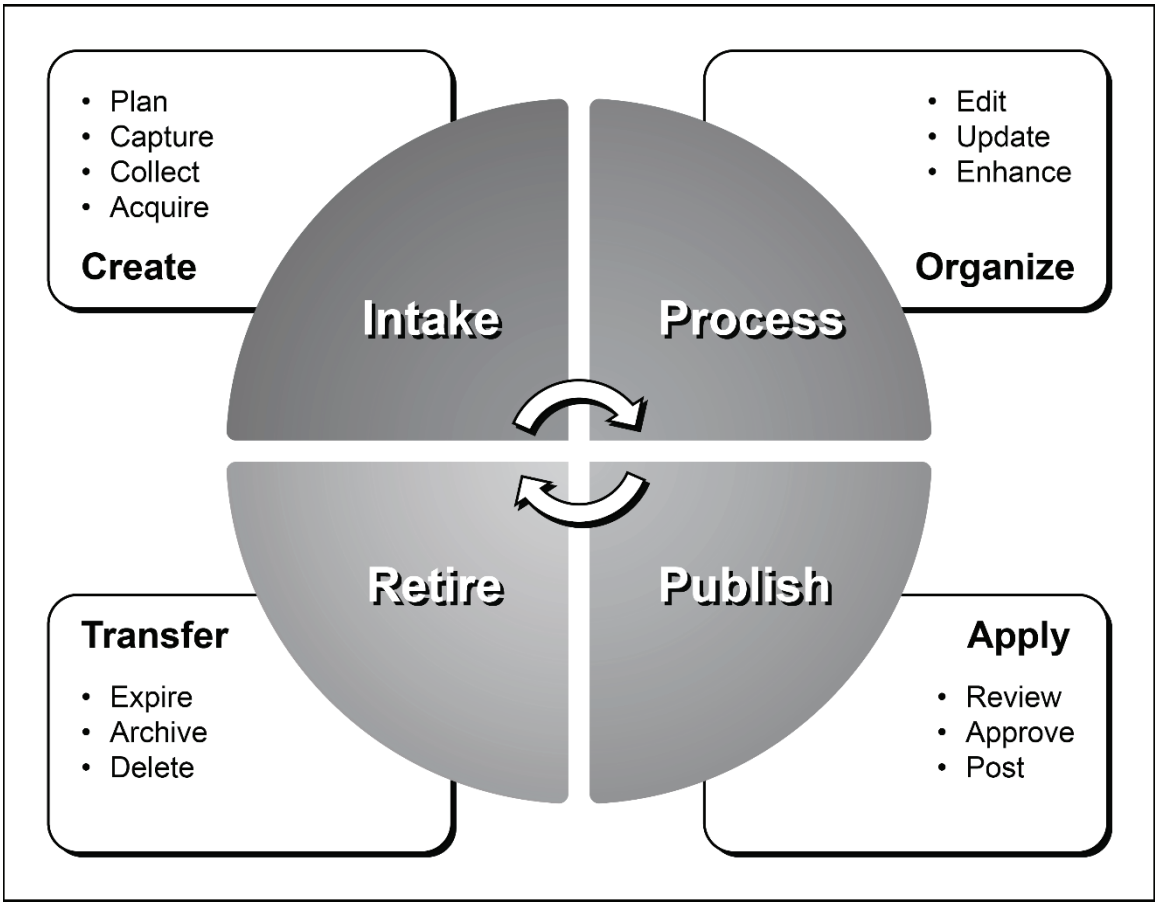


Figure A-1. Content management lifecycle

CAPTURE OR CREATE

A-2. Soldiers capture or create digital data through human, electronic, mechanical, or biological means. The initial collection consists of raw unprocessed data that to be useful must be organized and structured with other data. This data is either captured using sensors or other collection means, or it is created after human observation. For example, when Soldiers send or receive spot reports they are sending or receiving several different data points. (See Figure A-2 for a depiction of the spot report format.)

Spot report [SPOTREP]

REPORT NUMBER: S055

GENERAL INSTRUCTIONS: Use to report intelligence or status regarding events that could have an immediate and significant effect on current and future operations. This is the initial means for reporting troops in contact and event information. Reference STP-21-1-SMCT.

LINE 1 – DATE AND TIME (DTG)

LINE 2 – UNIT (unit making report)

LINE 3 – SIZE (size of detected element)

LINE 4 – ACTIVITY (detected element activity at DTG of report)

LINE 5 – LOCATION (UTM or grid coordinate with MGRS grid zone designator of detected element activity or event)

LINE 6 – UNIT (detected element unit, organization, or facility)

LINE 7 – TIME (DTG of observation)

LINE 8 – EQUIPMENT (equipment of element observed)

LINE 9 – ASSESSMENT (apparent reason or purpose of the activity observed)

LINE 10 – NARRATIVE (free text for additional information required for report clarification)

LINE 11 – AUTHENTICATION (report authentication)

DTG	date time group
MGRS	military grid reference system
UTM	universal transverse Mercator

Figure A-2. Spot report format

A-3. Soldiers receive the data in a voice message format. By either keying in text to a standard computer software or writing on a preformatted document, Soldiers turn the voice message format into an explicit document for filing within the C2 information system's document library. Soldiers place the seven lines of data in context and turn it into information that other Soldiers can file in the unit's document library. (See Table D-1 for a sample of a completed spot report.)

Table A-1. Example of completed spot report

Line 1	Date and time	27/02/2023
Line 2	Unit	2-87, A company
Line 3	Size	Squad
Line 4	Activity	Improvised explosive device emplacement
Line 5	Location	VP 48868639
Line 6	Unit (enemy)	Islamic State
Line 7	Time of observation	0300 local
Line 8	Equipment	Small arms and shovels
Line 9	Assessment	Roadside improvised explosive device emplacement
Line 10	Narrative	7 males, 2 with shovels and 5 with small arms, emplacing a roadside improvised explosive device
Line 11	Authentication	JVL

ORGANIZE

A-4. Organizing involves the use of naming conventions; taxonomy; metadata to label, categorize, and discover data; information; and knowledge products. Naming conventions, taxonomy, and metadata are discussed in paragraphs D-5 through D-9.

Naming Conventions

A-5. Sometimes referred to as a name authority file, a naming convention defines the standard procedure for naming documents containing data, information, and knowledge products. A naming convention is closely tied to the established taxonomy used within the collaborative environment. Naming conventions should be part of the content management SOP and KM SOP (for example, U_20220221_USARPAC_KMSOP. This naming convention notes unclassified, the date approved, the unit, and the name of the SOP.)

Taxonomy

A-6. Taxonomy is a standard developed for specified labels of data, information, and knowledge products that allows these products to be organized according to hierarchies and dependencies based upon doctrine, organizational structures, and functions. It is a guiding structure or framework that organizes knowledge into meaningful groups while establishing context-sensible relationships between them.

Metadata

A-7. Is a descriptive use of identifiers about data, information, and knowledge products within the digital computing environment. Metadata is data about data, and it provides a way of finding information. It aids in categorizing products for easy discovery and computer search. This data can be formatted within the software of the computing environment. Information resources include documents, images, video, audio, links, and other information or knowledge products.

A-8. A metadata information model is a conceptual model that lists the metadata descriptors according to the established taxonomy and task organization. It also establishes categories for the information life cycle to create categories for vetted and unvetted documents. This model should be developed in the KMWG prior to the mission partner network becoming active to facilitate the organization of content within the collaborative environment. (See Table A-2 on page A-4 for an example of a metadata information model for a division headquarters.)

Table A-2. Metadata information model example

Metadata category	*Metadata subcategory*	*Required*	*Metadata category*	*Metadata subcategory*	*Required*
Generating organization		Yes	Author		Yes
4th Infantry Division 1/4th Heavy Brigade Combat Team 1/10th Infantry Brigade Combat Team 12th Mechanized Brigade United Kingdom 16th Air Assault Brigade United Kingdom 504th Battlefield Surveillance Brigade 1st Maneuver Enhancement Brigade			Title		Yes
			Classification level		Yes
			For official use only Secret		
			Partner releasable		Yes
			United Kingdom Turkey		
Warfighter function		Yes	Type		Yes
	Command and control Movement and maneuver Intelligence Fires Sustainment			Memorandum Regulation Tasking Spot report Situation report	
Document life cycle		Yes	Key word		Yes
	Draft Final draft Final			Fill in	

APPLY

A-9. Making content accessible and discoverable by applying metadata and content management techniques to enabling knowledge flow is the primary purpose of content management. To assist the staff in the discoverability of data and information the user applies the meta data model developed by the KMWG to the spot report illustrated in Table A-1 on page A-3. This allows the spot report to be categorized and discoverable within the computing environment.

TRANSFER

A-10. KMOs and units transfer relevant information to those who need it using the metadata information model. This also allows the discovery of vetted and unvetted products and the ability to quickly determine those documents that need to be archived.

A-11. Archiving consists of moving outdated and irrelevant knowledge from active status to an inactive status based on AR 25-400-2 and DA PAM 25-403. KMOs and units moving content that is no longer relevant and archive to keep it separate from current knowledge products.

CONTENT MANAGEMENT PRINCIPLES

A-12. Content management principles aid KMOs and users in managing content. They represent the most important factors affecting content management, but they are not a checklist. Rather, they summarize the characteristics of successful content management efforts. Content managers consider them in all situations; however, the principles apply differently, based on the factors present. The content management principles are—

- Make knowledge products visible.
- Make knowledge products accessible.
- Make knowledge products understandable.
- Make knowledge products reliable.
- Support data interoperability.
- Be responsive to soldiers.

The content management principles are discussed in detail in paragraphs D-13 through D-26.

MAKE KNOWLEDGE PRODUCTS VISIBLE

A-13. Content managers establish a repository where cleared users have access to knowledge products. They post a product before processing it when there is a need for immediate dissemination or access to the data asset. If a piece of information is critical to mission accomplishment or is time sensitive, content managers post it first and assign it to a category later. They pass information that answers a CCIR to the commander immediately. Content managers make sure information is reliable, and they do not post rumors or speculation.

A-14. Content managers create and maintain data asset catalogs that are searchable by user friendly applications. They make sure information is easy to find regardless of where it is stored. They do not bury information where Soldiers must search randomly for it. Visible knowledge products save precious time during operations.

A-15. Content managers perform a data asset inventory to identify and prioritize data assets that support the unit's mission and near-term initiatives. They determine a way to highlight items that are most important to the mission. For example, the content manager should highlight knowledge products from past operations containing information that might pertain to upcoming operations. This may be addressed in the unit SOP.

MAKE KNOWLEDGE PRODUCTS ACCESSIBLE

A-16. Content managers balance accessibility with providing security. An area that provides security allows access to those who need the information. Most organizations have a public and a private website. Much of what the KM section provides relates to operations and needs to be protected on the private site.

A-17. User roles and data asset categorization, dissemination controls, and rights ensure proper access. Content managers protect the repository behind a log-in firewall instead of posting information to a public site.

A-18. Content managers consider the effects of file size and type of each data asset. They work with information technology personnel to ensure the programs can handle the objects being stored. Content managers ensure the shared server is adequate.

MAKE KNOWLEDGE PRODUCTS UNDERSTANDABLE

A-19. Content managers structure taxonomy for shared knowledge that makes sense to Soldiers. Soldiers will not take the time to search through a site they do not understand. Content managers employ common terms when determining product categories. The use doctrinal language and ensure the taxonomy is easy to read so Soldiers can get the information they need. The effect of site design on users may be compared to shopping for a power tool. If users determine the instructions for using the product as too complicated, they will not use it. An understandable format is important to a usable data asset.

MAKE KNOWLEDGE PRODUCTS RELIABLE

A-20. Reliability depends in part on cybersecurity. The repository should provide secure storage while allowing access by authorized users with a username and password or common access card access. Content managers secure storage protects products from corruption by electromagnetic attack. This also reduces the chance of compromising classified information.

A-21. Content managers assign source data to each data asset in the repository and enforce its use by all those who create files in the network. Source data includes the author or publisher, contributors, date created, and

date the asset expires or is no longer valid. Content managers tag items to verify trustworthiness. Complete source data gives readers confidence in the product's accuracy. Content managers ensure only current or valid products are accessible.

A-22. Content managers assign a security classification, dissemination controls, and rights (privacy, intellectual property, and copyright) to each data asset in the repository. They do not post copyrighted materials. The Army is required to follow copyright laws, and obtaining copyright releases during operations is difficult and time consuming.

SUPPORT DATA INTEROPERABILITY

A-23. Content managers determine the level of standardization of knowledge products required to support searches by a variety of users. Soldiers must be able to access knowledge products. Units should be able to obtain access with the search engine they have available.

BE RESPONSIVE TO SOLDIERS

A-24. Content managers provide secure, web-enabled access to users regardless of their location and available bandwidth. They allow Soldiers to search, discover, and retrieve data assets no matter where the repositories are physically located. Content managers develop processes to match user needs to repository content. Categorizing objects aids in achieving this principle.

A-25. Content managers establish metrics to track user behavior, identify trends, and improve service quality. They develop means to monitor how and to what extent knowledge is being transferred. For example, they include the number of return users, return users feedback, user's search terms, searches that returned no results, and participation in discussions.

A-26. Content managers provide a feedback mechanism to involve users in improving the KM strategy. Improvement techniques include periodic surveys, feedback forms, AARs, and Soldier engagement.

Appendix B

Knowledge Management Tools

This appendix discusses KM tools. KM tools are one of the four components of KM alongside people, processes, and organization. The appendix begins with a brief discussion of the role KM tools play in relation to the other KM components and concludes with a discussion of digital and nondigital tools.

KNOWLEDGE MANAGEMENT TOOLS SELECTION

B-1. KM tools include the primary C2 information systems and various software tools used to put knowledge products and services into organized frameworks. It is essential to understand that these tools include anything used to share and preserve information, whether digital or nondigital. The mission dictates the appropriate tools.

B-2. Selecting the appropriate KM tool or mix of tools for an organization is complex. There are a variety of approaches and situations that different tools are most suitable for. These can be a SharePoint portal that allows all unit members to add information to a shared database or a carefully curated and approved set of knowledge managed by individual subject matter experts, units, or staff sections. It is always a question of what works with the tools units have available, what types of knowledge units need to capture and flow, and what resources are available.

B-3. In selecting a mix of KM tools to address an organization's knowledge needs, the KMO considers the mission, activities, and tools in use internally, and by higher echelon, subordinate, lateral, and unified action partners for similar purposes. Under all circumstances, the knowledge manager considers the time and tools available, their ease of use, the degree of specialized skill needed by the users to apply the tools, and any digital or nondigital support requirements needed to employ the selected tools.

B-4. KM includes anything used to share and preserve information. These may be digital or technical, or they may require little or no technology. KM tools do not have a clear division between those used for knowledge transfer, learning, or other purposes. They all contribute to learning to some degree. Learning tools are anything—activity, technology, or system—that supports individual or organizational learning. To maximize the value of a particular learning tool or activity, leaders ensure that knowledge gained from its use is shared across the organization.

NONDIGITAL KNOWLEDGE MANAGEMENT TOOLS

B-5. Meaningful KM does not depend only on technological means to function. The capture and flow of knowledge needed to gain shared understanding can often be best accomplished by human interactions that are not supported by digital means. Some examples of nondigital KM tools are—

- Rehearsals and rock drills.
- Sand tables.
- Storytelling (as a means of transferring tacit knowledge).
- Hot washes and AARs.
- Map boards, wing boards, status boards, and unit message boards.
- Dry erase (white) boards, overlays, and graphics.
- Strip maps.
- Post-it drills.
- Battle drills.

- Terrain walks.
- Wargaming

DIGITAL KNOWLEDGE MANAGEMENT TOOLS

B-6. There is a wide array of digital tools available for knowledge capture and flow. Today's Soldiers are familiar with digital professional and social forums, chat programs, blogs, social networking sites, telephone and video conferencing systems, and Army 365 including MS TEAMS. These tools are continually evolving, and leaders should be aware of them.

B-7. Digital KM tools take many forms. Some examples of digital KM tools are C2 information systems, collaboration tools, data-analysis tools, expertise-development tools, and expertise-location tools. These tools are discussed in paragraphs B-8 through B-12.

COMMAND AND CONTROL INFORMATION SYSTEMS

B-8. C2 information systems and their software, storage, inputs, processing, outputs, formats, content, software, and capabilities provide tools knowledge managers employ to enhance knowledge flow. KM helps guide the use of these systems to fuse information to support an effective and relevant COP. These systems are evolving. For example, the Command Post Computing Environment will become the Army's operational network that replaces the Command Post of the Future system.

COLLABORATION TOOLS

B-9. Collaboration tools are information systems including online capabilities that make team development and collaboration possible. Examples include chat, white-boarding, professional forums, communities of interest, communities of purpose and practice, and virtual teaming.

DATA-ANALYSIS TOOLS

B-10. Data-analysis tools support data synthesis that identifies patterns and establishes relationships among data elements. Data analysis tools can be used to perform data mining (sometimes called data or knowledge discovery) to discover previously unknown, valid patterns and relationships in large data sets. Data mining analyzes data from different perspectives and summarizes it into useful information. It finds correlations or patterns among multiple fields in other large relational databases. Data mining consists of more than collecting and managing data; it also includes analysis and prediction. Data analysis tools can include—

- Statistical models.
- Mathematical algorithms.
- Machine-learning methods (algorithms that improve their performance automatically through experience, such as neural networks or decision trees).
- Search-and-discover tools that include search engines that look for topics, recommend similar topics or authors, and show relationships to other topics (including metadata).

EXPERTISE-DEVELOPMENT TOOLS

B-11. Expertise-development tools use simulations and experiential learning to support developing experience, expertise, and judgment. Examples of expertise development tools include computer generated constructive simulations such as One Semi-Automated Force and the Call-For-Fire Trainer; military gaming, such as Virtual Battle Space; and other three-dimensional experiential knowledge-based unit tactical scenarios. Expertise development tools enable units to—

- Interview or debrief small tactical units that have experienced tactical events worth replicating in sufficient detail to provide a military gaming scenario.
- Design and develop playable scenarios based on what was experienced and learned.
- Disseminate playable scenarios to friendly forces throughout the area of operations to rapidly and effectively transfer the knowledge of the engaged unit.

EXPERTISE-LOCATION TOOLS

B-12. Expertise-location tools support finding subject matter experts. This refers to a group of techniques and tools that help knowledge seekers find subject matter experts. These tools are often directories or databases of people listing their area of expertise. Expertise-location tools emphasize the importance of putting people in contact with one another.

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Appendix C

Knowledge Management Operation Order Format

This appendix discusses relevance of an operation order for KM. It also provides an example staffs can use to develop an operation order.

C-1. A KM annex is included in operation plans and orders for brigade or higher echelon units assigned an area of operations. Annex Q provides guidance on how to share, integrate, and enable effective decision making to provide an operational advantage to perform actions according to commander's intent, priorities, and concept of operations. Annex Q provides direction for units specific to the mission and not intended to replicate what is already addressed in the unit SOP. (See FM 5-0 for a discussion of operation orders.) Figure C-1 illustrates Annex Q to an operation order or operation plan.

[CLASSIFICATION]

Place the classification at the top and bottom of every page of the attachments. Place the classification marking at the front of each paragraph and subparagraph in parentheses. Refer to AR 380-5 for classification and release marking instructions.

Copy ## of ## copies
Issuing headquarters
Place of issue
Date-time group of signature
Message reference number

Include the full heading if attachment is distributed separately from the base order or higher-level attachment.

ANNEX Q (KNOWLEDGE MANAGEMENT) TO OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

(U) References: List documents essential to understanding the attachment.

a. *List maps and charts first. Map entries include series number, country, sheet names or numbers, edition, and scale.*

b. *List other references in subparagraphs labeled as shown.*

[page number]
[CLASSIFICATION]

Figure C-1. Example Annex Q (Knowledge Management) format

[CLASSIFICATION]

ANNEX Q (KNOWLEDGE MANAGEMENT) TO OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

c. *Doctrinal references for this annex include the following: ADP 3-0, ADP 5-0, ADP 6-0, and FM 6-0.*

(U) Time Zone Used Throughout the Plan/Order: Write the time zone established in the base plan or order.

1. (U) Situation. *Include information affecting the functional area that paragraph 1 of the operations plan or operation order does not cover or needs to be expanded.*

a. (U) Area of Interest. *Describe the area of interest as it relates to knowledge management. The area of interest may include places outside the geographic area where operations are being conducted. Refer to Annex B (Intelligence) as required.*

b. (U) Area of Operations. *Refer to Appendix 2 (Operation Overlay) to Annex C (Operations) as required.*

c. (U) Enemy Forces. *Describe enemy capabilities to disrupt command post operations through electromagnetic warfare, malware, or other technical means. Refer to Annex B (Intelligence) as required.*

d. (U) Friendly Forces. *Outline the knowledge management and information management structure, including higher headquarters. This will include the joint force commander involved with the operation. Identify distributed command posts and necessary information exchange requirements.*

e. (U) Joint, Interorganizational, and Multinational Organizations. *Identify and describe other organizations in the area of operations that may impact knowledge management (data sharing and collaboration capabilities). Refer to Annex V (Interagency Coordination) as required. During multinational operations, determine ratified information sharing standards (North Atlantic Treaty Organization [NATO], American, British, Canadian, Australian, and New Zealand [ABCANZ]) as required and when applicable. Include procedures for foreign disclosure activities and identify personnel responsible for release of critical operational information. During defense support to civilian agency (DSCA) missions, it may include governmental agencies that the Department of Defense supports. All information sharing activities must abide by operations security measures to ensure sensitive information is protected.*

f. (U) Civil Considerations. *Determine potential information that may need to come from host-nation partners and local leaders and nongovernmental organizations. Refer to Annex K (Civil Affairs Operations) as required.*

g. (U) Attachments and Detachments. *List units and capabilities attached or detached only as necessary to clarify task organization and knowledge management and information management. Identify if a digital liaison detachment is in theater to support the operations and who they are reporting to Refer to Annex A (Task Organization) as required.*

h. (U) Assumptions. *List any knowledge management integration assumptions that support annex development.*

2. (U) Mission. *State the mission of knowledge management to support the base plan or order.*

3. (U) Execution.

[page number]
[CLASSIFICATION]

Figure C-1. Example Annex Q (Knowledge Management) format (continued)

[CLASSIFICATION]

ANNEX Q (KNOWLEDGE MANAGEMENT) TO OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

a. (U) Scheme of Knowledge Management Support. *Describe how knowledge management supports the commander's intent and concept of operations. Describe how knowledge management will create shared understanding through the alignment of people, processes, and tools within the organizational structure and culture to increase collaboration and interaction between leaders and subordinates, enabling decisions through improved flexibility, adaptability, integration, and synchronization. Describe how knowledge management enhances shared understanding, learning, and decision-making during the phases of the operation. Specify the authority exercised at each echelon for each phase of the operation. Describe the roles and relationships between knowledge management elements in the organization and how they will coordinate with joint, combined, and intergovernmental knowledge management elements. Describe how units' knowledge management elements and assets are integrated into the unit battle rhythm, operations process, and during execution.*

b. (U) Tasks to Subordinate Units. *List knowledge management critical tasks assigned to subordinate units not contained in the base plan or order. This may include tasks to combat units and other functional organizations. Specifically, this must include a task to subordinate units to appoint a knowledge management representative to participate in the knowledge management working group.*

c. (U) Coordinating Instructions. *List only instructions applicable to two or more subordinate units not covered in the base order that affect knowledge management procedures (for example, commander's critical information requirements, and battle rhythm).*

4. (U) Sustainment. *Identify and list sustainment priorities for knowledge management key tasks and specify additional sustainment instructions as necessary, including contractor support. Refer to Annex F (Sustainment) as required.*

a. (U) Logistics. *Identify sustainment requirements, procedures, and guidance to support knowledge management. Specify procedures for specialized technical logistic support from external organizations as necessary. Use subparagraphs to identify priorities and instructions for knowledge management logistic support. Refer to Annex F (Sustainment) and Annex P (Host-Nation Support) as required.*

b. (U) Personnel. *Identify knowledge management personnel requirements and concerns, including global sourcing support and contracted linguist requirements. Use subparagraphs to identify priorities and instructions for human resources support, financial management, legal support, and religious support. Refer to Annex F (Sustainment) as required.*

c. (U) Health Service Support. *Identify availability, priorities, and instructions for medical care. Identify medical-unique automation requirements for medical records and other medical documentation and support requirements for medical units. Refer to Annex F (Sustainment) as required.*

5. (U) Command and Signal.

a. (U) Command.

(1) (U) Location of the Commander and Key Leaders. *State the location of the commander and key knowledge management leaders. Identify who is authorized to make knowledge management decisions for the commander.*

[page number]
[CLASSIFICATION]

Figure C-1. Example Annex Q (Knowledge Management) format (continued)

[CLASSIFICATION]

ANNEX Q (KNOWLEDGE MANAGEMENT) TO OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

(2) (U) Succession of Command. *State the succession of command if not covered in the unit's standard operating procedures.*

(3) (U) Liaison Requirements. *State the knowledge management liaison requirements not covered in the base order. Specifically, identify liaison personnel to be in attendance at the knowledge management working group, information system requirements and training (if required) for communication with their units*.

b. (U) Control.

(1) (U) Command Posts. *Describe the employment of knowledge management-specific command posts, including the location of each command post and its time of opening and closing.*

(2) (U) Reports. *List knowledge management support- reports not covered in standard operating procedures. Refer to Annex R (Reports) as required.*

c. (U) Signal. *Address any knowledge management support-specific communications requirements or reports. Identify subordinate unit and staff information management officers to aid in implementation of the knowledge management requirements Refer to Annex H (Signal) as required.*

ACKNOWLEDGE: *Include only if attachment is distributed separately from the base order.*

[Commander's last name]
[Commander's rank]

The commander or authorized representative signs the original copy of the attachment. If the representative signs the original, add the phrase "For the Commander." The signed copy is the historical copy and remains in the headquarters' files.

OFFICIAL:

[Authenticator's name]
[Authenticator's position]

Use only if the commander does not sign the original attachment. If the commander signs the original, no further authentication is required. If the commander does not sign, the signature of the preparing staff officer requires authentication and only the last name and rank of the commander appear in the signature block.

ATTACHMENTS: *List lower-level attachments (appendixes, tabs, and exhibits).*
Appendix 1 – Battle Rhythm. *Includes the schedule of events to include boards and working groups, attendees, inputs, outputs, locations, and times of each event.*
Appendix 2–Knowledge Management Decision Support Matrix. *Depicts working groups and meetings and their primary and alternate means of sharing information to support decision making.*

[page number]
[CLASSIFICATION]

Figure C-1. Example Annex Q (Knowledge Management) format (continued)

[CLASSIFICATION]

ANNEX Q (KNOWLEDGE MANAGEMENT) TO OPERATION PLAN/ORDER [number] [(code name)]—[issuing headquarters] [(classification of title)]

Appendix 3–Common Operational Picture Configuration Matrix. *Depicts the linkages between all communication methods (voice, chat, SharePoint, Command Post Computing Environment and analog) from multiple echelons (coalition, joint, warfighting function staff) and how they feed the common operational picture.*
Appendix 4–Command and Control Information Systems Integration Matrix. *Includes all information sharing tools that are available, describes their purpose and linkage to primary audiences (joint, interagency, public, internally). Also describes their order of importance in which they are employed (voice, chat, networks) to facilitate communication in degraded operations. This includes the primary, alternate, contingency, emergency (PACE) plan.*
Appendix 5–Content Management Storage and Protection Requirements. *Provides guidance and a detailed plan for storing, archiving, and protecting content before, during, and after the operation throughout the information lifecycle.*
Appendix 6–Lessons Learned Capture, Storage, and Dissemination Plan. *A supporting plan on how KM will aid the operations and ORSA staff in collecting, storing, employing, measuring, and disseminating best practices, lessons learned, and after-action reviews (coordination is required with the operations and ORSA staff to ensure synchronization of efforts). May include graphic depictions of tools designed specifically for this purpose (for example a SharePoint lessons learned repository to collect real time observations and insights) to aid in familiarizing all staff on how the repository is employed.*
Appendix 7–International Information Sharing Standards (NATO, ABCANZ). *Ratified information sharing requirements designed for use in multinational operations. Provides a common set of standards and practices on how information gets exchanged between countries and collectively supports the mission.*

DISTRIBUTION: *Show only if distributed separately from the base order or higher-level attachments.*

[page number]
[CLASSIFICATION]

Figure C-1. Example Annex Q (Knowledge Management) format (continued)

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Appendix D

Knowledge Management Program Checklist

This appendix includes a checklist for the KMO to implement a KM program. It can be tailored to meet the needs of the unit and provide an initial set of steps to guide implementation. It first provides references to ensure doctrinal consistency. It then provides a structured set of tasks that guide action.

PROGRAM REFERENCES

D-1. KMOs base their programs on information provided in doctrinal publications and training web sites. KMOs require these references and resources:

- ADP 6-0.
- FM 6-0.
- KM Net at https://www.milsuite.mil/book/community/spaces/apf/kmnet.
- AKM Signal Portal at https://www.milsuite.mil/book/groups/akmsignal .
- Army Knowledge Management Classroom at https://www.milsuite.mil/university/army-knowledge-management-class/.

PROGRAM CHECKLIST

D-2. Tables D-1 through D-4 are checklists to aid the KMO in the initial steps needed to implement a KM program. It includes initial observations, starting a KMWG, supporting documents and tools, and promoting the program.

INITIAL IMPRESSION ASSESSMENT AND START-UP ENABLING TASKS

D-3. The KMO conducts an informal initial assessment and gets command support for the KM program. When starting a KM program, KMOs have several tasks to perform. (See Table D-1 for a list of initial KM tasks.)

Table D-1. Initial assessment and enabling tasks

Task
Conducted an initial meeting with primary staff members and unit to assess organization climate on knowledge systems and sharing.
Briefed commander or chief of staff to establish intent and purpose of knowledge management program.
Requested a signed memorandum from the commander, chief of staff, or executive officer establishing a knowledge management program. The desired end state is to have knowledge management program implemented through the operation orders process.
Reserved a seat at the following Army Training Requirements and Resources System course: 9E/920-SI/ASI-1E (MC) or school-trained knowledge management officer assigned with additional skill identifier/1E.
Identified unit's key documents to include mission and vision for the unit, commander's priorities, commander's critical information requirements, lines of effort, battle rhythm schedule and relevant policies and procedures for information sharing.

KNOWLEDGE MANAGEMENT WORKING GROUP

D-4. A fully functioning KMWG ensures staff involvement and feedback. When establishing a KMWG, the KMO has several tasks to perform. (See Table D-2 for a list of initial tasks to be completed when forming a KMWG.

Table D-2. Establishing the knowledge management working group

Task
Knowledge management representatives (KMRs) are selected from each staff section formally and tasked or appointed by the commander or chief of staff or assigned with an operation order.
KMRs are trained in their roles and responsibilities. (See chapter 1 for more information on KMR training.)
KMRs are appointed from each staff section conducted staff level preliminary assessments to provide input into the knowledge management working group.
Battle rhythm events are scheduled for the ongoing knowledge management working group to conduct business.

SUPPORTING DOCUMENTS AND TOOLS

D-5. Once the KM program is established by the commander or chief of staff, certain documents and tools are required to maintain a healthy program. (See Table D-3 for a listing of KM supporting documents and tools.)

Table D-3. Supporting document and tools

Task
KMO developed a knowledge management (KM) action plan using a formal KM assessment which is nested with command priorities.
KMO created a standard operating policies and procedures document using the knowledge management working group. (See Appendix B and search KMNet milSuite for examples of KM policies.)
KMO accessed the unit's KM maturity using the KM Maturity Model. Score recorded to determine areas to improve and track progress on over time. (See chapter 5 for more information on sustaining a knowledge management program.)
KMO performed a gap analysis using the assessment chart. (See Table 2-5 on page 2-15 for more information on the steps of design.)
KMO developed knowledge map of the unit's KM tools to include collaboration platforms, nondigital tools, and command and control (C2) information systems.
KMO created battle roster containing all the assigned operators of C2 information systems and information platforms in garrison and tactical environments.

PROMOTING AND SUSTAINING THE KNOWLEDGE MANAGEMENT PROGRAM

D-6. Commanders, units, and KMOs must sustain the KM program over the long term. This requires a deliberate effort by the KM section to promote successes and keep those involved in the KM program motivated to continue. (See Table D-4 for a list of tasks to perform to promote and sustain a KM program.)

Table D-4. Promoting and sustaining the knowledge management program

Task
Developed at least one solution (at start-up) to use as a “quick win” to get immediate visibility of the program.
Conducted knowledge management (KM) information briefs to the unit during routinely scheduled company training events or workshops.
Conducted periodic training for the KM working group to ensure new KM representatives are trained and using KM tools properly.
Created collaboration tools to promote KM ideas internally and update staff members. Collaboration tools may include milSuite, SharePoint Online, TEAMs, social media, newsletters, and virtual meetings.
Updated all KM policies, rosters, and internal documents annually.

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Appendix E

Working Group or Steering Committee Charter

This appendix discusses a KM charter. It also provides an example of a KM charter.

PARTS OF A CHARTER

E-1. The KM charter contains five parts. These parts are the administrative information and headings, including project name, date prepared, preparing person, the purpose, (which outlines the need for a charter, membership, roles and responsibilities) and finally, the meeting agenda.

ILLUSTRATED CHARTER

E-2. Figure E-1 on page E-2 is an example of a charter. It can be modified as necessary to meet the needs of the unit.

DEPARTMENT OF THE ARMY
Organizational Name or Title
STANDARDIZED STREET ADDRESS
CITY STATE 12345-1234

15 September 2023

OFFICE SYMBOL

MEMORANDUM FOR XX Organization Staff

SUBJECT: Establishment of a Knowledge Management Steering Committee and Working Group Charter

1. Purpose of the Knowledge Management Steering Committee (KMSC) and Knowledge Management Working Group (KMWG). The primary function of the KMSC is responsible for the feasibility, business case, and the achievement of outcomes of the knowledge management (KM) program and KMWG. The KMSC will monitor and review the program status and provide guidance and oversight on KMWG activities or project deliverables as required.

2. KMSC Strategy. The KMSC provides a stabilizing influence so organizational concepts and directions are established and maintained with a visionary view. The steering committee provides insight on long-term strategies supporting the organization's mission, vision, strategic objectives, and transformation objectives. Members of the KMSC ensure business objectives are being adequately addressed and the KM program and KMWG projects remain under control.

3. Responsibilities. KMSC responsibilities are responsibilities are carried out by performing the following functions:

a. Monitoring and review of the KM program or KMWG projects at regular steering committee meetings.

b. Controlling project scope as emergent issues force changes to be considered, ensuring that scope aligns with the agreed business requirements of project sponsor and key stakeholder groups.

c. Providing guidance or assistance to the KMWG or projects when required.

d. Resolving project conflicts and disputes and reconciling differences of opinion and approach.

e. Formal acceptance of KM program and KMWG project deliverables.

4. Approval Responsibilities. The steering committee is responsible for approving major KM program and KMWG project elements. These include—

a. KM program elements including assessments, strategies, and various policies or plans.

b. Prioritization of KMWG project objectives and outcomes as identified in the project business case.

c. Project deliverables as identified in the project scope statement.

Figure E-1. Example knowledge management working group or steering committee charter

d. Budget, ensuring that effort, expenditures, and changes are appropriate to stakeholder expectations.

e. Schedule, ensuring reasonable milestones, costs, schedule, and performance metrics are established.

f. Risk management strategies, ensuring that strategies to address potential threats to the project's success have been identified, estimated, and approved, and that the threats are regularly re-assessed.

g. Project management and quality assurance practices.

5. Steering Committee and KMWG Membership**.** In addition to project sponsors, leads, or managers serving as ex-officio members. The KMSC chair or project sponsor as required may identify any additional Stakeholder members. The steering committee will consist of the following stakeholder members:

Name (Position)	***Role***	***Agency***
Chief of Staff (COS)	Chair	Headquarters (HQ)
Deputy Chief of Staff (DCOS)	Asst Chair	HQ
Knowledge Management Officer (KMO)	Office of Primary Responsibility (OPR Facilitator)	HQ
Command Chief Warrant Officer (CCWO)	Member	HQ
Command Sergeant Major (CSM)	Member	HQ
Secretary of the General Staff (SGS)	Member	HQ
Assistant Chief of Staff – G-1 (ACOS G-1)	Member	HQ
Assistant Chief of Staff – G-2 (ACOS G-2)	Member	HQ
Assistant Chief of Staff – G-3 (ACOS G-3)	Member	HQ
Assistant Chief of Staff – G-4 (ACOS G-4)	Member	HQ
Assistant Chief of Staff – G-5 (ACOS G-5)	Member	HQ
Assistant Chief of Staff – G-6 (ACOS G-6)	Member	HQ
Assistant Chief of Staff – G-9 (ACOS G-9)	Member	HQ
Assistant Chief of Staff - Comptroller (ACOS COMP)	Member	HQ
Public Affairs Officer (PAO)	Member	HQ
Name (Position)		
Case basis - as projects are assigned (ex-officio)	***Role***	***Agency***
Case basis - as projects are assigned (*ex-officio*)	Project Sponsor	HQ
Case basis - as projects are assigned (*ex-officio*)	Project Lead	HQ
	Project Manager	HQ

6. Role of a Steering Committee and KMWG Member. The steering committee leverages the experiences, expertise, and insight of key individuals at organizations committed to building professionalism in KM and project management. Steering committee members are not directly responsible for managing project activities, but they provide support and guidance for those who do. Thus, individually, steering committee members should—

a. Understand the strategic implications and outcomes of initiatives being pursued through project outputs.

b. Appreciate the significance of projects for some or all major stakeholders and represent their interests.

Figure E-1. Example knowledge management working group or steering committee charter (continued)

c. Have a broad understanding of project management issues and approach being adopted.

d. Learn and understand the key components of the KM program (organization, people, processes, tools).

e. Become familiar with common Army and joint doctrine and references governing KM.

f. Review the status of the KM program and KMWG projects, including the following:

(1) Conduct KM assessments.

(2) Implement KM strategy and roadmaps KM action plans.

(3) Develop KM content management plans.

(4) Develop and oversee KM training plans.

(5) Write and update the KM standard operating procedure (SOP).

(6) Write the KM annex if required (to organization plans).

(7) Develop project management Plans.

(8) Integrate risk management.

(9) Ensure the project's outputs meet the requirements of the business owners and key stakeholders.

(10) Help balance conflicting priorities and resources.

(11) Provide guidance to the project team and users of the project's outputs.

(12) Consider ideas and issues raised.

(13) Check adherence of project activities to standards of best practices both within the organization and in a wider context.

(14) Foster positive communication outside of the team regarding the project's progress and outcomes

(15) Report on project progress to those responsible at a higher level

(16) Progress any whole-of-Government issues associated with the KM program or projects.

Figure E-1. Example knowledge management working group or steering committee charter example (continued)

7. Steering Committee and KMWG Meeting Schedule and Process. The KMSC will meet quarterly or as required to keep track of issues and the progress of program implementation and project support to its stakeholders. Specifically, the recurring meeting will be held on the 2nd Thursday during the first month of each fiscal quarter, from 1100-1200 hours, in the command conference room (building number and room number). The chief of staff chairs the steering committee and the knowledge management officer (KMO) facilitates the steering committee meeting. The KMSC will follow modified Roberts Rules of Order in the conduct of meetings, motions, discussions, and voting.

8. Meeting Agenda. At each meeting, the KM program and project status will be reported to the KMSC by the KMO and responsible project managers using an agenda outline similar to the following:

a. Introductory Items such as:
(1) Introductions.
(2) Review agenda.
(3) Minutes from last meeting.
(4) Review of actions arising from previous steering committee meetings.

b. Review project status
(1) Overall status.
– Scope status.
– Schedule status.
– Budget status.
– Reason for deviation from green.
(2) New issues arising since the last KMSC meeting.
(3) Review and approval of project change orders.
(4) Budget.
(5) Milestone review.
(6) Formal acceptance of deliverables.
(7) Accomplishments against last meeting's plans.
(8) Plans for the next reporting period.
(9) Outstanding issues, open points, project conflicts.
(10) Specific requests for assistance of the steering committee
(11) Consideration of other items relevant to the project
(12) Review and summarize new actions from this meeting
(13) Plans, date and location for next meeting

9. POC for this action: Mr. John Doe at (provide web address) or at (provide phone number).

Encl

SIGNATURE BLOCK
Colonel, GS
Chief of Staff

Figure E-1. Example KM working group or steering committee charter (continued)

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Appendix F

Interviewing For Knowledge Management Assessment

Effective interviewing techniques are as essential to KM assessments as they are in identifying lessons after operations. This appendix provides interviewing techniques to use in these situations.

PURPOSE OF INTERVIEWING

F-1. The objective of an interview is to capture and record a person's knowledge, perspective, and judgment concerning aspects of the organization's KM program. The goal is to acquire and record this information to identify knowledge gaps and potential solutions.

ROLE OF THE INTERVIEWER

F-2. Interviewers accurately record the results of their interview and put it to effective use. Skilled interviewers able to fulfill this responsibility have—

- Experience.
- Knowledge of the organization.
- Analytic skills.
- Ability to listen.
- Ability to ask relevant questions.

F-3. To those being interviewed, an interviewer owes trust and respect. Interviewers look for each person's experiences, and what has been learned from their mistakes. Gaining this information requires gaining the Soldier's trust. Gaining that trust begins with showing the Soldier respect.

F-4. Often, the issues uppermost in an interviewee's mind differ from the ones with the greatest learning potential. Interviewers often need to probe situations to some degree. Effective interviewers look on interviews as voyages of discovery for both the interviewer and interviewee. Productive interviews are more than just an information dump. An interview allows sharing of experiences that lead to more effective operations.

F-5. Interviewers owe their leaders information that is relevant, accurate, and in context. Meeting this obligation begins with thorough preparation. Before the interview, interviewers determine the information they need and the issues the commander or their superiors want to learn about. Obtaining the information they need also requires interviewers to maintain control of the conversation throughout the interview. To do this, interviewers ask questions and manage the conversation so that useful answers emerge. Interviewers strike a balance between a free-ranging conversation and a narrow focus on subjects. (Table F-1 on page F-2 lists examples of questions interviewers may use to do this. Table F-2 on page F-2 lists some things to avoid.)

Table F-1. Example interview questions

• Why do you think you were so successful (or unsuccessful)? • What would be your most important pieces of advice for the next person facing this mission? • What was the missing area of process that caused that problem to occur? • What did you put in place to ensure success? • What makes you say that? • How did you achieve that? • Why? What were the reasons for...?

Table F-2. Things to avoid when interviewing

• Interviewers do not send the interviewee a list of questions beforehand; send a list of topics instead. • Interviewers do not settle for inadequate or vague answers, such as, "you have to allow enough time for planning." Instead, they look for specifics. One example is, "how much time do you think you needed for planning? • Interviewers do not ask closed questions, such as, "Was it a success?" Instead, they ask open questions such as "What made it a success?"

PREPARE FOR THE INTERVIEW

F-6. Successful interviews require careful preparation. When preparing for an interview, the interviewer—

- Prepares interview questions in advance, but the reviewer is prepared to deviate to explore new information presented.
- Sets the stage to foster comfort for the interviewee (selects a location to limit distractions; arranges a time most appropriate for the interviewee; and determines whether a group or individual interview is most appropriate).
- Provides time for a brief introduction of the interviewer and the interviewee to set the stage and make the interviewee comfortable.
- Explains the purpose of the interview and the uses of the information collected from the interview (such as unit specific or use for a larger audience outside the unit).
- Explains the general agenda for the interview.
- Discusses confidentiality and anonymity as applicable to the interview.
- Requests permission to record the interview and explains how the data will be safeguarded.
- Informs the interviewee that the interviewee will have time at the end of the interview to ask questions.

THE INTERVIEW

F-7. An interview is more than a one-time conversation. Each interview is a project that includes—

- Preparing for the interview.
- Performing and recording the interview.
- Transcribing the interview.
- Sending the raw transcript to the interviewee.
- Asking questions similar to—
  - "Can you check that I have recorded your words correctly?"
  - "Is there anything you would like to change at this stage?"
- Refining the transcript, distilling it, and packaging the result.

- Sending the result back to the interviewee and asking the interviewee to check it to ensure that the statements in the interview are presented correctly.
- Submitting the results to the directing authority to incorporate into a report or publication (See Table F-3 for tips on how to produce a useful interview product.)

Table F-3. Tips for a successful interview

• Record the interview electronically or in writing. Revising the transcript can take two to five times as long as the interview itself. • Use direct quotes wherever possible. • Take a photograph of the interviewee. Pictures have tremendous value. • Include a short audio or video summary by the interviewee to add context to a Web site. • Use an assistant for a crucial interview.

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Appendix G

Knowledge Management Standard Operating Procedures

This appendix provides a recommendation for content that can be used as a basis for the development of unit-specific KM SOPs. This appendix discusses Army doctrine and policy to support SOP content development.

STANDARD OPERATING PROCEDURES DEVELOPMENT

G-1. An operating procedure is the approved process to complete a complex, recurring task. A procedure consists of a series of detailed steps—or subordinate tasks—and carrying out those steps ensures a desired result. SOPs provide the instructions to perform tasks. Writing down instructions to perform tasks is essential for units to achieve the desired results easily and repeatedly.

G-2. Authoring SOPs involves three general stages of development. In the first stage, the author determines the optimal product expected from establishing or revising a procedure. This becomes the objective—it could be anything from a rapidly assembled piece of equipment, to synchronizing of schedules, to a complex intelligence product. In the second stage, the author establishes an optimal process for achieving the objective. This becomes the established procedure. This hands-on stage involves research, collaboration, and synthesis. In the third stage, the author explains in detail how to carry out the procedure, usually in a computer-generated document. The commander's approval makes this document the SOP. This stage involves formulating and writing down instructions consistent with appropriate writing processes and style requirements. (See ATP 3-90.90 for more information on SOPs.)

G-3. SOPs help with C2. These procedures serve two purposes. Internal SOPs standardize each command post's internal operations and administration. External SOPs developed for the entire force leverage best practices and standardize interactions among command posts and between subordinate units and command posts. For effective procedures, all Soldiers must know their provisions and train to their standards. The overall goal for SOPs is to facilitate mission accomplishment and warfighting functions integration.

G-4. The creation of unit KM SOPs involves creating or modifying a set of instructions covering those tasks and functions that lend themselves to a definite or standing procedure without a loss of effectiveness; the SOPs are in effect unless ordered otherwise to meet altered conditions.

G-5. KM professionals refer to ATP 3-90.90 for additional resources when developing the unit KM SOPs. KM Net is also a potential good source for examples. Soldiers may use the portal as a resource when developing unit SOPs to support operations. Soldiers refer to ATP 3-90.90 to improve processes for establishing and revising SOPs and for discussing best practices in general.

G-6. Regardless of SOP type, authors use the format required by their command, which must be consistent with appropriate military doctrine and regulations. As discussed in ATP 3-90.90, unit SOPs normally contain the following categories of information:

- Name of the SOP, activity, unit, and classification.
- Subject of the SOP (this is the overall topic).
- References pertinent to the procedure. Citations must be accurate and thorough (including title, type, number, and date of publication for formal publications), and contain online links, if appropriate, and information for correspondence or meetings.
- Purpose of the SOP (to ensure result X by giving instructions for performing task Y).
- Short summary of the SOP (a few sentences, placed near the beginning but composed last).
- Scope (to whom the procedures apply and possibly under what conditions or circumstances).
- Definitions (sometimes needed to explain terms new to readers or to interpret acronyms).

- Responsibilities (brief, descriptive sentences telling exactly who is responsible to ensure what outcomes or provide what resources).
- Detailed instructions for the procedure, explaining—
  - Who performs exactly what tasks and why.
  - When and where to perform the tasks, including under what conditions (such as during tactical versus garrison situations), in what sequence, how often or how many times, at what time of day, and before or after what other event or procedure.
  - How to perform the tasks such as using what equipment or supplies, alone or together with whom, to whom or upon what, according to what security and safety requirements, and in what manner or at what pace.
  - A reason to perform the tasks (if this information aids comprehension, execution, or compliance).
  - What the result is as each subordinate task is completed (if this information is concrete and factual, and it aids comprehension, execution, or compliance).
  - Alternating actions to take in likely changes of circumstances.
  - How or to whom Soldiers report completion of the procedure.
  - Recordkeeping requirements.
  - Enclosures.

STANDARD OPERATING PROCEDURES ADDITIONAL CONSIDERATIONS

G-7. Additionally, there are considerations that may or may not be suitable for inclusion in the unit KM SOPs. Some of these are—

- Applicability and interoperability considerations with unified action partners.
- Organization and setup of the section and working group.
- Staffing and shift plans for the section.
- Eating and sleeping plans for the section.
- Section-specific physical security and operations security concerns.
- Section priorities of work.
- Orders production and dissemination procedures.
- Section journals and log maintenance.
- Section internal battle drills.
- Section shift-change briefings, reports, and returns.
- Battle rhythm and the working group meetings.
- Individual and collective responsibilities including roles and duties of the KMO, information management officer, and KM section.
- Responsibilities and procedures for the working group and KMRs.
- Unit battle rhythm and meeting procedures.
- Information systems integration using PACE plan.
- Knowledge products, content management, file taxonomy, and metadata requirements.
- KM tools including use of SharePoint, other collaboration methods, and digital systems.
- Responsibility for sharing best practices (both internally and externally with the Army and centers of excellence).

Appendix H

Army Learning Organization Maturity Model

This appendix provides a complete ALOMM with subordinate dimensions.

ARMY LEARNING ORGANIZATION MATURITY MODEL CHARACTERISTICS

H-1. Army organizations striving to become learning organizations have similar characteristics. They include having a culture where learning is supported by everyone. They are moving toward a shared future that everyone participates in. They continually explore new perspectives on how to solve problems. They use tools and processes organized and synchronized to achieve goals and objectives. Lastly, they have a deliberate program to manage knowledge assets.

ARMY LEARNING ORGANIZATIONS

H-2. Several Army learning organizations exist. They include organizations that continuously orient themselves towards processes or activities to facilitate learning by collectively acquiring skills and knowledge and adapting in response to learning outcomes to achieve a shared vision of the future. (See Table H-1 on page H-2 for a listing of ALOMM dimensions, attributes, and behaviors.)

Table H-1. Army learning organization maturity model

Dimension	*Attribute*	*Behavior*
Dimension 1: Cultivation of Learning Support Maintaining a culture that is conducive to continuous learning for individuals and teams by providing resources, removing obstacles, and incentivizing and modeling behaviors that support learning.	Attribute 1	Communicates the value of learning, new ideas, and open dialogue across all levels of the organization.
	Attribute 2	Recognizes and rewards initiatives to generate and share new knowledge.
	Attribute 3	Encourages learning that promotes continuous self- and organizational- improvement.
	Attribute 4	Provides resources and opportunities to enable learning and development.
Dimension 2: Orientation toward a Shared Future Creating a shared organizational vision and a common understanding of how learning is used to collectively achieve the commander's vision.	Attribute 1	Collaborates to define strategies for learning to achieve shared goals.
	Attribute 2	Demonstrates a unified purpose for how learning is used to create change and achieve a shared organizational vision.
	Attribute 3	Works together to integrate learning into daily operations.
Dimension 3: Exploration of New Perspectives Searching continuously for new perspectives and information and challenging current thinking to give rise to improvements.	Attribute 1	Conducts ongoing assessment of the organization to determine where learning is needed.
	Attribute 2	Challenges current practices and generates new methods for achieving objectives.
	Attribute 3	Applies new ideas that lead to innovation.
	Attribute 4	Builds a foundation of trust to encourage generation and implementation of new knowledge.
Dimension 4: Synchronization of Capabilities Aligning capabilities and resources to achieve interdependencies that promote learning and enhance effectiveness.	Attribute 1	Integrates capabilities across the organization to achieve a common goal.
	Attribute 2	Leverages diverse perspectives and experiences to create value for the organization.
	Attribute 3	Considers the complex relationships among environmental and organizational elements when identifying courses of action.
Dimension 5: Management of Organizational Knowledge Engaging in ongoing activities to identify, capture, store, transfer and apply knowledge to address knowledge gaps and optimize performance.	Attribute 1	Maintains processes for knowledge exchange and continuity of operations.
	Attribute 2	Connects communities of interest to promote knowledge exchange and integration.
	Attribute 3	Leverages systems to share knowledge that aligns with work requirements.
	Attribute 4	Captures and disseminates lessons learned.

Appendix I
Onboarding and Continuity Checklist

A continuity book checklist is part of the onboarding program. This appendix first explains the purpose on a continuity checklist. Then it breaks down the parts that a continuity book includes.

PURPOSE OF A CONTINUITY CHECKLIST

I-1. This checklist provides all the information needed to complete the transfer of knowledge from the out-going personnel to the incoming personnel to maintain continuity efforts. The questions are developed from the five parts and subcategories. Out-going personnel sign the continuity checklist. Incoming personnel need a copy within 15 days of arrival to the unit. All necessary forms can be attached to be recorded and archived.

PARTS OF CONTINUITY CHECKLIST

I-2. The continuity checklist has seven parts and subcategories. These consist of—

- Administrative data needed.
- Operational knowledge needed.
- Equipment or supplies.
- Training requirements needed.
- Leader guidance needed.
- Out-going personnel contact information.
- Incoming checklist and new personnel documents needed.

PART 1: ADMINISTRATIVE DATA NEEDED

I-3. Administrative data includes key information about the individual and the duty position. This data includes—

- Incoming person's full name, rank or grade, and report date.
- MTOE or TDA position being filled, unit identification code, and section phone numbers.
- Unit address
- Duty position title and description as listed on DA Form 67-10-1 or DA Form 2166-9-2.
- Any assigned additional duties for this position.
- Incoming person's supervisor, senior rater, and reviewer if needed.

PART 2: OPERATIONAL KNOWLEDGE NEEDED

I-4. Operational knowledge includes information specific to the job requirements and items new personnel need to know to accomplish. Operational knowledge includes—

- Unit or section mission statement.
- Processes and personnel for which the section has responsibility or oversight.
- Any accounts or special permissions needed on information systems.
- 3 to 5 projects the section is currently working and deadlines.
- Points of contact for each project listed.
- Any internal or external organizational contacts needed such as duty title, phone numbers, and building and room numbers.

- Physical or digital location of pertinent operational data (such as SOPs, concepts of operations, and memorandums).
- Short-range calendar events or conferences that need to be attended.
- Long-range calendar events or conferences that need to be attended or created.

PART 3: EQUIPMENT OR SUPPLIES

I-5. The equipment or supplies section includes information regarding equipment new personnel are assigned and responsible for and the status of that equipment. This includes—

- Any equipment or items personnel will be responsible for along with the location or room number (such as weapons, computers, vehicles, containers, and keys).
- A list and the location of any devices or items that need to be secured (such as room keys, computer locks, storage bins, security codes, and badges).

PART 4: TRAINING REQUIREMENTS NEEDED

I-6. The training requirements section includes any specialized training required to complete the job assignments. It identifies—

- Any technical skills needed and schedule any required training to perform work duties, including all military training, baseline certifications, or specialty training.
- Any professional military education or professional development courses scheduled or needed to conduct work duties.

PART 5: LEADER GUIDANCE AND COMMENTS

I-7. The leader guidance and comments section includes any specific guidance that may have been given by the supervisors. For example, it—

- Provides an area to summarize any relevant work-related concerns (such as lack of resources, personnel, or organizational changes).
- Provides an area to write daily check list, weekly battle rhythm, and list weekly products due.

PART 6: OUT-GOING PERSONNEL CONTACT INFORMATION

I-8. The out-going personnel contact information includes contact information for the out-going person that the in-coming person is are replacing for future questions. This information includes—

- Out-going personnel full name and rank.
- List of contact phone numbers and email addresses of key personnel.
- An area for out-going personnel to digitally or hand sign record.
- An area to attach documents.

PART 7: IN-COMING CHECKLIST AND NEW PERSONNEL DOCUMENTS NEEDED

I-9. The in-coming checklist and new personnel documents section includes a checklist of documentation to track the onboarding process and other documents pertinent to the assignment. A sample of items needed for Soldier accountability, and to ensure proper in-processing documentation, includes—

- Incoming personnel were given updated alert roster.
- Incoming personnel equipment hand receipt updated and signed.
- Newcomers' orientation briefing was scheduled by unit.
- Supervisor or senior rater interview scheduled with new personnel.

Appendix J

Virtual Communities

This appendix identifies the participants of virtual communities. It then discusses the types of virtual communities.

PARTICIPANTS OF VIRTUAL COMMUNITIES

J-1. Virtual communities are groups of people that enter a virtual network environment to solve problems, share information, collaborate, and create products. They create tools, standards, concepts, designs, and publications. Members accumulate knowledge and through virtual communities form ties that result in a learning organization. Virtual communities are social knowledge networks that pass both tacit and explicit knowledge without regard to time and geographic location through the internet. This has broadened the Army's reach back capabilities and has allowed the Army to operate asymmetrically.

TYPES OF VIRTUAL COMMUNITIES

J-2. Army virtual communities take many forms, based on their purpose and type of interaction among members. Some focus on accomplishing a specified set of objectives. Others focus on job-related solutions. Some allow access to broad information repositories, link members to leading experts, and facilitate document sharing. Others inform and link groups with which members share interests. Each virtual community has a life cycle and serves a specific purpose. Army virtual communities focus on task, purpose, and organizational objectives. There are six types of virtual communities. These are communities of purpose, communities of practice, knowledge centers, knowledge networks, communities of interest, and informal networks. (See Figure J-1 for a listing of the purposes and goals of each community.)

Purpose		Goals
Achieve goals	Community of purpose	Coordination
Knowledge transfer and creation	Community of practice	Learning and innovation
Exchange content	Knowledge centers	Translation and local adoption
Exchange content and ideas	Knowledge networks	Learning and innovation
Chat	Community of interest	Support of individual members
Inform	Informal networks	Social, entertainment and news

Figure J-1. Purpose and goals of virtual communities

COMMUNITIES OF PURPOSE

J-3. A community of purpose is a group of Soldiers and leaders tasked to accomplish a specific objective. These virtual communities' life spans are usually limited to the time required to accomplish a specific objective. Communities of purpose are valuable for project teams and working groups. They are usually hierarchically structured, and they provide managed conversation and document sharing. Collaboration within these communities may be both synchronous and asynchronous using multiple platforms and tools.

An important component of communities of purpose is the vitality of the asynchronous threaded conversation with which members communicate both within and outside the communities.

J-4. An effective community of purpose can link subject matter expertise to solve a specific problem. Tools for a community of purpose may include desktop video teleconference, repositories, expertise locators, wikis, conference call tools, and web-based meeting tools.

COMMUNITIES OF PRACTICE

J-5. Communities of practice also serve a functional purpose. Members of each community assist each other by sharing experiences, suggesting strategies, and exchanging information on topic specific issues or projects, including, for example, simulation operations, KM techniques, or Stryker techniques.

J-6. Communities of practice refer to groups of people with a common interest who collaborate over an extended period to share ideas, find solutions, and encourage innovation. They build knowledge networks and develop innovative ideas that can lead to organizational change. Communities of practice are widely seen as cost-effective ways to develop organizational knowledge, create new knowledge, stimulate innovation, and share existing tacit knowledge.

KNOWLEDGE CENTERS

J-7. A knowledge center is a site on the network where vetted documents are shared. A knowledge center's purpose is to help people find or share documents related to a specific topic, project, or task. There are little or no collaborative asynchronous threaded conversations, and the site resembles a document library.

KNOWLEDGE NETWORKS

J-8. A knowledge network shares the characteristics of knowledge centers described in paragraph F-7, but it links multiple organizations by serving as a centralized repository for information that crosses organizations. Some knowledge networks share characteristics of a professional Army forum or a community of purpose.

COMMUNITIES OF INTEREST

J-9. A community of interest is a group of people who share a common interest or hobby. These people exchange ideas and thoughts about the subject but have no organizational or professional ties with each other. Nonetheless, participation in a community of interest can be compelling and educational. Members may return frequently to exchange information for educational purposes.

INFORMAL NETWORKS

J-10. Social media such as websites for social networking and microblogging are informal networks. These forms of electronic communication give users online communities to share information, ideas, personal messages, and other content such as pictures and videos. These informal networks consist of people who communicate with one another over commercially owned social media. The *Army Social Media Guide* discusses social media tips, checklists for establishing an account, and guides for how to post effectively on official Army social media accounts.

J-11. During crisis management, KMOs work with the public affairs officer and the operations staff section to communicate with stakeholders using social media. This provides speed, reach, and direct access. Social media is an important collaborative tool to engage both the public and important stakeholders to focus efforts during crisis management.

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Glossary

The glossary lists acronyms and terms with Army or joint definitions. Where Army and joint definitions differ, (Army) precedes the definition. Terms for which ATP 6-01.1 is the proponent are marked with an asterisk (*). The proponent publication for other terms is listed in parentheses after the definition.

SECTION I – ACRONYMS AND ABBREVIATIONS

AAR	after action review
ABCANZ	American, British, Canadian, Australian, and New Zealand
ADP	Army doctrine publication
ALOMM	Army learning organization maturity model
APQC	American Productivity and Quality Center
AR	Army regulation
ATP	Army techniques publication
C2	command and control
CALL	Center for Army Lessons Learned
CCIR	commander's critical information requirement
CMI	classified military information
CJCSM	Chairman of the Joint Chiefs of Staff memorandum
COP	common operational picture
COS	chief of staff
DA Form	Department of the Army Form
DA PAM	Department of the Army Pamphlet
DOTMLPF-P	doctrine, organization, training, leadership and education, personnel, facilities, and policy.
FEMA	Federal Emergency Management Agency
FM	field manual
G-1	assistant chief of staff, personnel
JP	joint publication
KM	knowledge management
KM3	knowledge management maturity model
KMCAT	knowledge management capability assessment tool
KMO	knowledge management officer
KMR	knowledge management representative
KMWG	knowledge management working group
LSS	Lean Six Sigma
MDMP	military decision-making process
MOE	measure of effectiveness

MOP	measure of performance
MTOE	modified table of organization and equipment
NATO	North Atlantic Treaty Organization
NCO	noncommissioned officer
OPTEMPO	operating tempo
PACE	primary, alternate, contingency, and emergency
SITREP	situation report
SMCT	Soldier's manual of common tasks
SMS	strategic management system
SOP	standard operating procedure
STANAG	standardization agreement
STP	Soldier training publication
TDA	table of distribution and allowances
U.S.	United States
XO	executive officer

SECTION II – TERMS

assessment

The determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. (JP 3-0)

battle rhythm

(Army) A deliberate cycle of command, staff, and unit activities intended to synchronize current and future operations. (FM 6-0)

command and control

The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. (JP 1, Volume 2)

command and control system

(Army) The arrangement of people, processes, networks, and command posts that enable commanders to conduct operations. (ADP 6-0)

command and control warfighting function

The related tasks and a system that enable commanders to synchronize and converge all elements of combat power. (ADP 3-0)

data

In the context of decision making, unprocessed observations detected by a collector of any kind (human, mechanical, or electronic). (ADP 6-0)

***explicit knowledge**

Codified or formally documented knowledge organized and transferred to others through digital or non-digital means.

information

In the context of decision making, data that has been organized and processed in order to provide context for further analysis. (ADP 6-0)

information exchange requirement

A set of characteristics that define who exchanges what information with whom, why the information exchange is necessary, and how the information exchange must occur to support an operational process or function. (JP 3-33)

interoperability

The ability to act together coherently, effectively, and efficiently to achieve tactical, operational, and strategic objectives. (JP 3-0)

knowledge

In the context of decision making, information that has been analyzed and evaluated for operational implications. (ADP 6-0)

knowledge management

The process of enabling knowledge flow to enhance shared understanding, learning, and decision making. (ADP 6-0)

***learning organization**

An organization characterized by a continuous orientation towards comprehensive learning, disseminating, and adapting to what is learned to achieve a future-oriented shared vision.

measure of effectiveness

An indicator used to measure a current system state, with change indicated by comparing multiple observations over time. (JP 5-0)

measure of performance

An indicator used to measure a friendly action that is tied to measuring task accomplishment. (JP 5-0)

military decision-making process

An iterative planning methodology to understand the situation and mission, develop a course of action, and produce an operation plan or order. (ADP 5-0)

mission command

(Army) The Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation. (ADP 6-0)

operations process

The major command and control activities performed during operations: planning, preparing, executing, and continuously assessing the operation. (ADP 5-0)

risk management

The process to identify, assess, and control risks and make decisions that balance risk cost with mission benefits. (JP 3-0)

***tacit knowledge**

What individuals know; a unique, personal store of knowledge gained from life experience, training, and networks of friends, acquaintances, and professional colleagues.

troop leading procedures

A dynamic process used by small-unit leaders to analyze a mission, develop a plan, and prepare for an operation. (ADP 5-0)

understanding

In the context of decision making, knowledge that has been synthesized and had judgement applied to comprehend the situation's inner relationships, enable decision making, and drive action. (ADP 6-0)

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