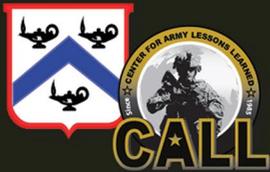
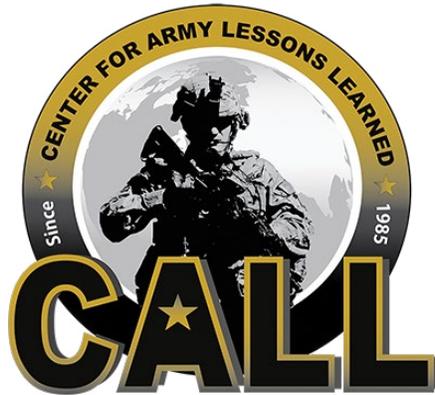


# KNOWLEDGE MANAGEMENT CASE STUDIES, VOLUME II



CENTER FOR ARMY LESSONS LEARNED

APPROVED FOR PUBLIC RELEASE  
DISTRIBUTION UNLIMITED



# Knowledge Management Case Studies Volume II

## DIGITAL VERSION AVAILABLE

A digital version of this CALL publication is available to view or download from the CALL website:

**<https://call.army.mil>**

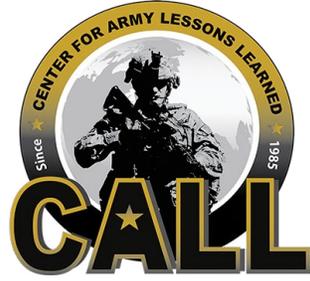
Reproduction of this publication is welcomed and highly encouraged.

**FOLLOW CALL ON SOCIAL MEDIA**



**[https://twitter.com/USArmy\\_CALL](https://twitter.com/USArmy_CALL)**  
**<https://www.facebook.com/CenterforArmyLessonsLearned>**





## Foreword

Knowledge management (KM) remains an important integrating process required of all staff officers. Commanders and staffs employ KM techniques to create, organize, apply, and transfer data and information to accelerate its transformation into knowledge and support effective decision-making.

Leaders must consider how they will organize and empower their KM trained personnel to facilitate effective decision-making. Although KM authorizations exist at theater Army, Army Service component command (ASCC), corps, and division levels, a well-organized and resourced KM working group typically requires the innovative use of additional personnel and strong leader emphasis to add real value.

These KM case studies highlight where an empowered KM officer applied KM principles to solve a problem. The case studies also illustrate the characteristics of good staff members, as outlined in Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces*, 31 JUL 2019. The KM officers in each case study achieved success by exercising initiative, applying critical and creative thinking, and ultimately delivering a capability or process that made their teams more effective and efficient.

The Army's data, information, and knowledge environment will continue to become more complex. These case studies provide illustrative examples of KM practices in action, and stimulate thinking among leaders and staffs looking to harness the power of KM in their headquarters.

Douglas C. Crissman  
Major General, U.S. Army  
Director, Mission Command Center of  
Excellence



**TABLE OF CONTENTS**

**Introduction**  
 ..... 1

**Case study 1**  
 Combined Joint Task Force – Operation Inherent Resolve and III Armored Corps  
 Knowledge Management Case Study 2017-2018..... 3

**Case study 2**  
 U.S. Army Medical Command—Regional Health Command Atlantic Three Hurricanes  
 and Situational Understanding ..... 9

**Case Study 3**  
 Building a Mature Knowledge Management Program at the U.S. Army Corps of  
 Engineers ..... 17

**Case study 4**  
 The U.S. Army Reserve Command and Knowledge Management, the Long Endeavor:  
 Organizational Culture and Effecting Change ..... 31

**Glossary**  
 Acronyms and Abbreviations ..... 39



**FIGURES**

**Figure 2-1. Example Placemat used during RHCA Operations..... 10**

**Figure 2-2. Example of RHCA Intelink Staging Site. .... 12**

**Figure 2-3. An Example of too much Data to Absorb ..... 13**

**Figure 2-4. Sample Logic Tree. .... 14**

**Figure 2-5. Connection between Dashboard and Intelink ..... 15**

**Figure 3-1. Types of Knowledge at USACE ..... 19**

**Figure 3-2. KM Battle Rhythm at USACE ..... 21**

**Figure 3-3. USACE KM Governance Model ..... 24**

**Figure 3-4. Framework for Enterprise KM Portfolio at USACE ..... 25**

**Figure 3-5. USACE KM Maturity Assessment Dashboard Example of Overall Status of One Division ..... 27**

**Figure 3-6. USACE KM Maturity Assessment Dashboard Example of Category Drill-Down for One Division ..... 27**

**Figure 3-7. Quarter 4 Fiscal Year 2016 - Fiscal Year 2020 Campaign Milestones..... 30**

**TABLES**

**Table 3-1. Lines of Effort at USACE ..... 20**

<b>Center for Army Lessons Learned</b>	
<b>Director</b>	<b>COL Christopher Keller</b>
<b>CALL Analyst</b>	<b>Eric Hillner</b>
<b>Introduction</b>	<b>David M. Van Laar</b>
<b>Case Study 1</b>	<b>LTC Andrew Dugger</b>
<b>Case Study 2</b>	<b>Cynthia Hilsinger</b>
<b>Case Study 3</b>	<b>Cindy Hubert, Ian Pfaff, John Davis, and Mark Hainsey</b>
<b>Case Study 4</b>	<b>Jason Balgos</b>

The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the Department.

**Note:** Any publications (other than CALL publications) referenced in this product, such as ARs, ADPs, ATPs, FMs, TMs, etc., must be obtained through your pinpoint distribution system.



## INTRODUCTION

### Introduction

The following four case studies look in depth at the challenges faced by knowledge management officers (KMOs) across various headquarters. In each case, the KMOs exercised exceptional staff officer qualities to meet the commander's intent for optimized information and knowledge flow to enable decision-making.

In case study one, LTC Andrew Dugger exercised exceptional staff competency as the point man for the merger of Combined Joint Task Force-Operation Inherent Resolve with the Combined Joint Force Land Component Command. LTC Dugger used his knowledge management (KM) training to assess quickly the knowledge and performance gaps that had to be addressed to achieve mission success. LTC Dugger's ability to integrate the battle rhythm of two large headquarters illustrated applied critical thinking, coupled with self-confidence and the ability to work as a team player.

Case study two shows an excellent example of KMO Ms. Cynthia Hilsinger exercising creative thinking to overcome obstacles in creating and integrating a common operational picture (COP). In this case study, Ms. Hilsinger realized that the command post processes and information flow was not providing her commander with enough shared understanding of the devastation that occurred during the 2017 hurricanes in Puerto Rico. A creative thinker, Ms. Hilsinger looked at innovative options to solve the problem of information latency, and provided her commander with a COP with real time live data streaming. She refused to be overwhelmed or frustrated by the bureaucratic requirements, and reached across the federal and Department of Defense (DOD) domains to provide a solution.

Case study three is an example of a predominately civilian organization, the U.S. Army Corps of Engineers (USACE), embarking on a deliberate change management process to raise the KM maturity level of their headquarters. Because of LTG Tom Bostick's vision, and their chief knowledge officer Ian Pfaff's forward thinking abilities, USACE engaged with the American Productivity and Quality Center (APQC) to embark on a multi-year KM strategy execution to raise the level of their headquarters' performance.

In case study four, a newly trained KMO, MAJ Jason Balgos, exercised exceptional candor and competency as he worked his way up from the "Sharepoint basement" in the U.S. Army Reserve Command (USARC) to establish a KM section and become a critical part of the USARC staff.

The common attribute in all of these case studies is hard work, competence, and effective communication to collaborate across the staff and provide solutions for each of the respective headquarters.

David M. Van Laar  
Editor  
U.S. Army Knowledge Management Proponent



## CASE STUDY 1

# Combined Joint Task Force – Operation Inherent Resolve and III Armored Corps Knowledge Management Case Study 2017-2018

**LTC ANDREW DUGGER, KNOWLEDGE MANAGEMENT OFFICER, III CORPS, AND COMBINED JOINT TASK FORCE – OPERATION INHERENT RESOLVE**

### BACKGROUND

Lieutenant Colonel (LTC) Andrew Dugger was assigned as the Combined Joint Task Force – Operation Inherent Resolve (CJTF-OIR) and III Armored Corps knowledge management officer (KMO) during III Corps headquarters' deployment to Iraq. The III Corps mission was to provide command and control as a combined joint task force (CJTF) to all military forces within its area of responsibility. Shortly after arrival, the U.S. Central Command directed CJTF-OIR to merge with the combined joint force land component command (CJFLCC) and reduce its size. The CJTF chief of staff (COS) tasked LTC Dugger, the KMO, with the challenge of merging these two large headquarters. Each headquarters had a very complicated battle rhythm, and a knowledge management (KM) challenge to maintain the same level of command and control without a reduced operational tempo for the newly merged headquarters element.

LTC Dugger immediately used a KM assessment to identify knowledge and performance gaps. He determined that to merge these two large headquarters successfully, his team needed additional skills such as computer programming and project management. Fortunately, the CJTF headquarters had a very robust team of contractors, which consisted of four Structured Query Language developers and seven SharePoint developers.

### THE HEADQUARTERS MERGER

The process to transition into a single headquarters started on 23 NOV 2017, when the COS, Brigadier General (BG) Kenneth Kamper, asked the staff to begin planning the headquarters merger with an initial operating capability date of 12 FEB 2018. The COS identified the merger as a significant planning event, and instructed the staff to focus on combining both battle rhythms. He also instructed it to establish an operational planning team (OPT) to manage the merger. As a key member of the OPT, LTC Dugger and his KM staff members quickly developed and analyzed the steps and processes required for the staff to successfully merge the battle rhythms. During the initial assessment, the KM staff outlined the two focus areas for the headquarters organizations. The CJTF headquarters focused on an “up and out” information flow. Information was primarily exchanged between the operational level of command and control and the strategic level of command and control (for example, CJTF to U.S. Central Command to the Office of the Secretary of Defense). In contrast, the CJFLCC headquarters focused on “down and in” information flow. Information in this headquarters flowed primarily from the operational headquarters to tactical headquarters (for example, CJFLCC to division to brigade). These two different information flows became a significant KM process challenge as the two headquarters merged.

BG Kamper engaged the OPT process and used a council of colonels on numerous occasions to ensure that all aspects of the proposed merged battle rhythm addressed each directorate and sub-directorate requirement. He also directed the OPT to conduct a wargame of the battle rhythm merger. The results were then socialized with the council of colonels, who subsequently completed their own wargame. During the wargames, BG Kamper issued guidance saying that if he had to assume risk, he intended to assume risk on the “up and out” functions and not on the “down and in” functions. To emphasize this, and to ensure the “down and in” functions were accomplished, the CJTF joint operations center was moved from Camp Arifjan (Kuwait) to Union III (Baghdad, Iraq). The command post (CP) in Kuwait became the support CP, the CP in Erbil (Iraq) became the tactical CP, and the CP at Union III became the main CP.

During the merger wargame, the CJTF staff was comfortable with the new land component functions but uncomfortable with the newly combined functions of doing both “up and out” and “down and in” command and control. This uneasiness was caused by the large number (59) of subordinate elements within one battle rhythm. Guidance from the CJTF commander caused the CJTF staff to relook at the task organization with the future operations (FUOPS) cell as the lead. The resulting analysis reduced the number of subordinate direct reporting units from 59 to approximately 15.

While conducting the battle rhythm analysis, LTC Dugger and the KM staff discovered that the CJTF staff understood the “up and out” information flow because of their previous mission providing information to U.S. Central Command and other appropriate government agencies. The challenge for the CJTF staff was determining the “down and in” information flow, previously performed by the former CJFLCC staff members. The merger of roles meant the CJTF now had to work both roles. LTC Dugger wanted to make sure the staff did everything possible to reduce or minimize any issues when it came to the proposed merged headquarters battle rhythm.

## **FIXING THE BATTLE RHYTHM**

The scope of this challenge for the KM staff members was assessing the 96 CJTF and 87 CJFLCC battle rhythm events and merging them into 144 combined events in time for a newly merged headquarters. The initial operating capability was set to take place on 12 FEB 2018. LTC Dugger and his KM staff realized that when the merger was complete, the new headquarters would be approximately the same size as the old headquarters, but conducting one and a half times the number of battle rhythm events. Adding to this complexity was the problem of conducting both the “up and out” information flow and the “down and in” information flow of the newly formed headquarters.

These new additional headquarters functions caused LTC Dugger and his KM team to lead an initiative to assess and streamline the reporting process while current operations (CUOPS) simultaneously tracked all reports coming into and out of the headquarters (subordinate units through CJTF to U.S. Central Command). The results of this initiative helped create a new and updated consolidated reporting annex, with a SharePoint solution that incorporated a dashboard graphical interface for each classification enclave. It provided “bins” for all reports by directorate with a calendar to facilitate CUOPS tracking. This solution allowed CJTF-OIR, the command group, and the higher headquarters to find reports easily.

The commanding general (CG) issued guidance identifying the battle rhythm as a process for early implementation in the merger of the two headquarters. To accomplish this, LTC Dugger

and his KM staff members had to work backwards from every CG decision point on the battle rhythm. The next step analyzed all the inputs and outputs to account for all the “up and out” and “down and in” information flows that lead to those decisions. This analysis resulted in KM staff members identifying critical paths or “swim lanes” for decisions based on staff or warfighting function.

Initially, LTC Dugger and his staff members started with four “swim” lanes, or critical paths, for the CG’s decision points that were categorized according to the following functions: operations and targeting, assessments, partner force development with key leader engagements, and requirements and sustainment. The battle rhythm had to be operational early in the merger, so the KM staff members had to quickly capitalize on “buy in” from the primary staff principals. This provided time to rewrite the battle rhythm, and all the processes and tools that supported the battle rhythm.

The KM staff members conducted four update briefings to the COS and two update briefings to the deputy commanders. These briefings were used as a forcing function to familiarize and socialize the staff before the battle rhythm rehearsal of concept (ROC) drill, which was 10 days before implementation. LTC Dugger was determined to merge the headquarters’ activities onto one battle rhythm calendar. His earlier KM assessment identified the ability to link SharePoint to Outlook with coded battle rhythm colors and categories as a KM gap. KM staff members overcame this challenge by taking the manual processes of inputting calendar data separately on PowerPoint and Excel, and recoding the input using the SharePoint collaborative digital environment. This effort provided the new CJTF-merged headquarters with one calendar that was accessible from three different places: SharePoint, Outlook, and a dashboard. The KM staff members also provided the capability for the newly merged headquarters staff members to find information on the 7-minute drills, meeting notes, or slides on the appropriate website enclave within three clicks from the front page of the CJTF-OIR SharePoint Portal on the Battlefield Information Collection and Exploitation Systems (BICES).

A key personnel asset in this endeavor was the CJTF Deputy KM, Captain (CPT) Mario Petrone, an Italian Air Force information technology (IT) officer. At home station, his position required coding skills, a Program Management Professional (PgMP) certification, and other civilian software certifications. Using a partially developed code solution, CPT Petrone applied his coding skills and certifications to design and pilot a solution in less than two weeks. He fixed a broken PowerShell script which allowed him to input the battle rhythm colors and categories into Outlook. This allowed the KM team to get the CJTF headquarters to one battle rhythm calendar, and conduct tests with the staff principal’s computers to show how the newly merged headquarters could consolidate one battle rhythm calendar.

Another gap was the lack of resources and conference rooms to facilitate battle rhythm events. About three weeks before the battle rhythm events went live, the KM staff realized it did not synchronize resources to the planned events. The discovery of this new gap facilitated the rebuild of the CJFLCC conference room calendar. This calendar provided the staff with one location for determining which rooms were available when meetings were bumped because of distinguished visitors or other events. The KM staff did a quick turn-around in the rebuilding of the conference room calendar. Its first goal was to have every directorate and command group conference room available on one site. After the KM staff built the calendars, they pre-populated battle rhythm events to force directorates to get used to the new requirement. The KM staff refined this with input from the directorates, and provided a lock-in date before the ROC drill with BG Kamper. From the ROC drill to the initial operating capability date, combined joint KM opened the calendars up to the directorates for them to schedule internal meetings. Once the implementation

date arrived, the KM staff members removed the links for the old calendars, and the new calendars went online. The new calendar implementation saved the headquarters staff time by allowing a streamlined method to determine room availability. During the implementation, LTC Dugger ensured all conference rooms were on the building map. Each conference room had a diagram that listed the number of seats and capabilities, and included instructions on how to coordinate for the conference rooms.

To the KM staff's surprise, the new battle rhythm implementation went off with only a few glitches. LTC Dugger contributed this success to the hard work of the entire staff ensuring that the new battle rhythm supported operations in both Iraq and Syria. The resulting headquarters merger and evolution combined several battle rhythm events, resulting in a total of 144 events. This was a 50 percent increase of events for the newly merged headquarters, but still fewer than the total number of events of the two separate headquarters. While rebuilding the management and access to information processes, the KM staff was able to correct deficiencies and reduce friction points, which resulted in a new system that required less time to manage. Key technical aspects for easy access of battle rhythm event information came from the dashboard, the SharePoint Calendar, and linkage to Outlook. LTC Dugger's team built the workflow so regardless of whether a user clicked on an event from the dashboard, Sharepoint, or Outlook calendars, all the information for that event would display in the 7-minute drill format. This included links to slides, meeting minutes, and other 7-minute drill information.

The newly merged CJTF-OIR headquarters became a 3-star level headquarters that was responsible for both "up and out" and "down and in" information coordination. These functions required the synchronization and integration of assets from U.S. Central Command and other government agencies to the Department of Defense (DOD) and Congress (operational to strategic). An immediate concern was that logistics required a lot more "down and in" (operational to tactical) information coordination. The "down and in" functions required information coordination and synchronization, and the integration of reports and returns which helped to support subordinate task forces with the necessary enablers to accomplish their missions.

During the battle rhythm one calendar implementation, the KM staff members used their contractors to integrate every directorate and link all users with the battle rhythm calendar. The KM staff members migrated as many people to one calendar as possible, to reach shared understanding of the battle rhythm. This integration was possible through the rework of all the systems for the battle rhythm during the merge. This was one of the CJTF's quick wins, because the merger of the battle rhythms caused the headquarters staff members to look at every process, from conference rooms to information flow. LTC Dugger realized that the increasingly distributed command and control environment caused by the merger meant the digital systems had to be rock solid and more reliable than they were before the merger. The newly merged headquarters had to be able to access more information across a larger geographically distributed environment than either headquarters had done before. This put a large strain on the technical systems.

## **CONCLUSION**

This case study highlights the challenges involved in the merging of two large coalition and joint military headquarters, with the added complexity of integrating a battle rhythm in a digital network. Fortunately, LTC Dugger had a robust contract team that consisted of a functional area 57 LTC, one coalition Italian CPT, and 21 contractors (11 SharePoint, 5 Combined Information

Data Network Exchange [CIDNE], 2 Mitre employees, and 3 knowledge engineers). LTC Dugger and his team's success at effectively leading change from the middle can be attributed to properly categorizing the stakeholder's needs and expectations. This was accomplished by effectively using the battle rhythm as a forcing function for change, and meeting all the projected deadlines for change.

## RECOMMENDATIONS

During this deployment, LTC Dugger identified a need for how the Army sources and trains personnel on digital collaborative services (for example, SharePoint) across the Army. There is not a standard responsibility for which staff elements own the tasks and responsibilities for these collaborative staff portals. In some organizations, the G-6 staff owns the portal, and in other organizations the KM staff owns the portal. Both areas require subject matter experts to use the digital collaborative systems effectively (sharing information and supporting the commander in reaching shared understanding). In the future, doing research on the following questions could prove very useful. How does the Army intend to do the myriad of tasks associated with digital collaborative systems such as SharePoint and KM tasks? What kind of training is necessary for KM to manage these digital systems? When the CJTF Army staff members returned to III Corps at Ft. Hood, Texas, they had different contractors working on their systems. They also had SharePoint portals on the Non-classified Internet Protocol Router Network (NIPRNET), the SECRET Internet Protocol Router Network (SIPRNET), and the tactical networks. Who fills the technical void at the division and corps level during a deployment when there is no pre-existing contract? How does the corps or division headquarters address this issue? The III Corps headquarters is working solutions, but all solutions involve contracting for digital collaborative services (for example, SharePoint) subject matter experts. This is a known capability gap at the division level and higher that needs to be identified and addressed in an integrated fashion through a doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) analysis by Department of the Army (DA) staff personnel developers and talent management experts, the Mission Command Center of Excellence (MCCoE), and the U.S. Army Cyber Center of Excellence (CyberCoE).

LTC Dugger subsequently recommended to the U.S. Army Center for Lessons Learned (CALL) that all division KM sections contract at least two SharePoint contractors, and corps KM sections contract at least five SharePoint contractors. The reason for the large number of contractors results from the Mission Partner Environment, where there are multiple networks, and SharePoint sites are broken out by classification. This results in triple the number of sites that units are used to operating in at home station. Contractor support is critical to develop and sustain SharePoint sites where information can be shared and staff elements and subordinate units can collaborate.

In addition, KMO training should include project management and change management. Understanding how to keep a project that is needed to resolve a requirement gap for the headquarters on track is a key function of a knowledge manager.

## REFERENCES

The facts and story from this case study were taken primarily from the CALL News from the Front, *Knowledge Managers Perspective*, January 2019.

Van Laar, D.M. (2019). Personal interview with LTC Andrew Dugger. March 19, 2019.



**CASE STUDY 2****U.S. Army Medical Command—Regional Health Command Atlantic Three Hurricanes and Situational Understanding****CYNTHIA HILSINGER**

In 2017 three hurricanes devastated the United States in quick succession. Hurricane Harvey made landfall in Texas on 25 AUG 2017, Hurricane Irma made landfall in Florida on 10 SEP 2017, and Hurricane Maria hit Puerto Rico on 20 SEP 2017. The three hurricanes caused catastrophic damage throughout the Caribbean and Gulf of Mexico. This resulted in the deployment of more than 81,000 Federal Emergency Management Agency (FEMA) and National Guard personnel to Texas, Florida, and Puerto Rico for disaster recovery operations.

Cynthia Hilsinger, the chief knowledge officer for Regional Health Command-Atlantic (RHCA), was detailed to the RHCA operations section to assist the operations staff. Their area of responsibility included the states from the Mississippi River east to the Atlantic Ocean, and included both Puerto Rico and the U.S. Virgin Islands. Hurricane Irma's impact ran the entire length of Florida, and Hurricane Maria devastated Puerto Rico. As concern mounted over the status of RHCA hospitals in the area, the commanding general (CG), Brigadier General (BG) Scott Dingle issued orders for the evacuation of various affected hospitals and facilities. BG Dingle also received information on the closure of roads and airports, and made decisions that shifted doctors and medical staff from non-affected regions to affected regions. A major concern was the status of the Regional Health Command's hospital at Ft. Buchanan, Puerto Rico. As additional federal agencies entered the operational area, the coordination tasks grew and the difficulty of maintaining situational understanding increased.

The battle rhythm for the RHCA G-3/5/7 operations staff was focused on providing updated information for BG Dingle's daily update brief at 1500. At 1700, there was another update brief for the Army Surgeon General, Lieutenant General (LTG) Nadja West. As the crises continued, the operations section staff members had to report to work earlier and earlier to cut and paste screen shots from information and weather websites into an 11x17 piece of paper called the placemat. The placemat contained the significant actions and critical information requirements that were needed to conduct the daily update brief. A major knowledge management issue with this brief was the paper placemat, as paper is challenging to share. Once the placemat was pieced together and scanned for use in a Defense Collaboration Services (DCS) conference room, any last-minute changes and updates were unmanageable. The inability to make changes resulted in the information often becoming outdated before the briefs, because of the fast moving events and the speed of the fast moving hurricanes.

Selecting information and images and querying locations by phone or email added to the administrative burden of creating the placemat. Each staff member had a different way of selecting websites and downloading images. Requests for information grew as the impact widened, as did the number of agencies requesting information, and communications and coordination tasks increased. Answering internal questions from various directorates would halt work on the placemat. Ms. Hilsinger soon realized that if she could decrease the number



single attribute of the many attributes needed to support a decision. Federal data is typically large and diverse, and requires collecting data on several critical elements to support decision-making and knowledge collaboration. Ms. Hilsinger then reviewed the critical knowledge and listed the associated elements, and familiarized herself with the command's information requirements and bed status reports.

The placemat was valuable because it visually presented contextual information in a single place. Ms. Hilsinger wanted to keep that attribute, but make it time-bound. One problem with the placemat was that it did not indicate a time reference for when each data element was reported. Ms. Hilsinger wanted all the elements to be standardized, reproducible, authoritative, and time referenced. Once they were standardized and time referenced, the data and information could be used in trends and response analysis. The placemats concentrated on information received within Army information systems. However, this information was only a small sub-set of the total data available across the entire federal government. Ms. Hilsinger set out to find the owners and creators of data elements.

Working across many federal agencies, most of them non-Department of Defense (DOD), proved to be a challenge for Ms. Hilsinger. She discovered the federal government does not have a unified network. Each agency has their own cyber and information sharing policies. They all use different software that captures and configures data differently. A simple date and time reference stamp has several different display and reporting methods across federal agencies.

Ms. Hilsinger wanted to download data onto her government furnished laptop, and needed to develop a location on her command's servers to house this data. For this, she went to the G-6 (information technology [IT]) department. The G-6 chief information officer would not approve the use of RHCA's network, software, hardware, computers, personnel, or contractor support. Additionally, he stated there were no funds to commit to this effort. Ms. Hilsinger was faced with an urgent demand, no resources, and compressed deadlines. The knowledge existed, but getting access was a challenge. Ms. Hilsinger could not store the knowledge data, or even find a way to download it. The policies of the IT department stated she was not allowed to involve anyone at the command or any of the systems or software. An external federal cloud seemed to be the only choice, and the only support Ms. Hilsinger had was herself. This task needed the full strength of knowledge management tools such as sharing, collaboration, capture, innovation, storytelling, visualization, and discovery.

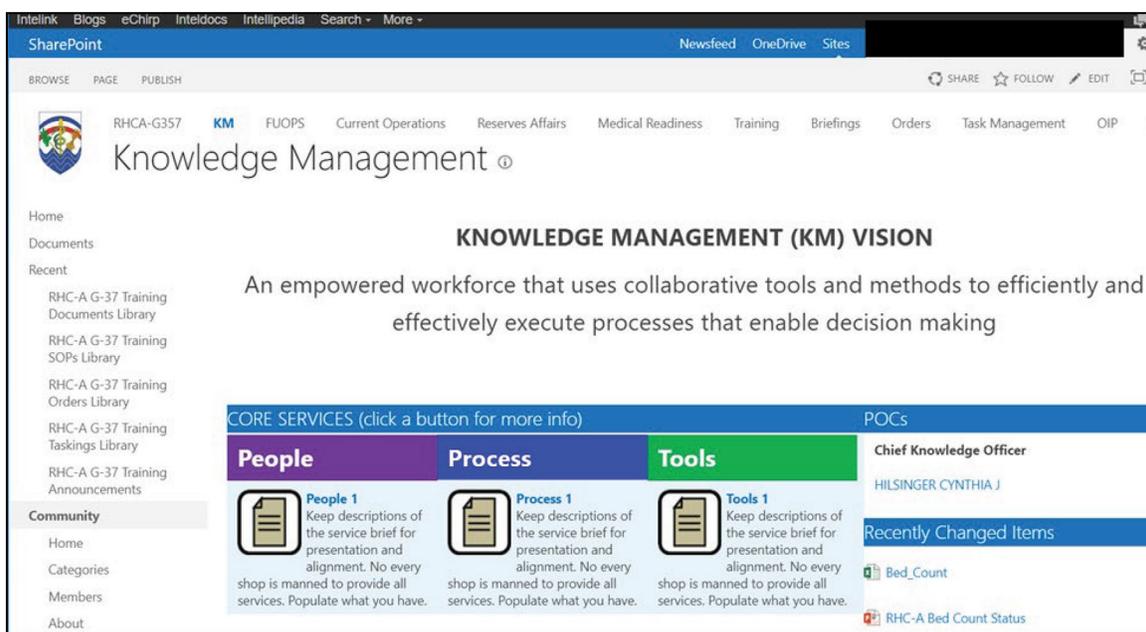
Ms. Hilsinger knew that the National Geospatial-Intelligence Agency (NGA) had mapping expertise and immediately contacted them. Unfortunately, the NGA could not support this request because it is an intelligence agency, and could not surveil within U.S. borders. If Ms. Hilsinger had requested mapping data from outside the U.S. borders, it would have been granted. However, there was a loophole. The NGA could provide intelligence support to the Department of Homeland Security (DHS) for domestic disaster relief, but the request must come through the DHS. Ms. Hilsinger contacted individuals she knew at DHS, and they referred her to the Science and Technology Directorate.

Ms. Hilsinger also asked U.S. Northern Command (USNORTHCOM) for support. USNORTHCOM had mapping products similar to those of the NGA. She applied for disadvantaged user permissions, which would allow space on the server to create a mapping function, but would not allow data stream into USNORTHCOM's server. The systems and servers were powerful, but Ms. Hilsinger was unable to see USNORTHCOM's data or stream non-DOD data. She had to attempt another method.

Ms. Hilsinger’s dashboard vision would be a proof-of-concept collaboration for a humanitarian development and disaster response project. The DHS Science and Technology Directorate provided the permission to proceed with a cloud platform at the NGA. Ms. Hilsinger then began the quest for skills within NGA to support the dashboard. To elicit collaboration and support, Ms. Hilsinger needed her story. It was not the facts that moved people, it was the human connection to the struggle for life in the face of the ongoing hurricanes. Ms. Hilsinger wanted her team to be on the side of success, developing a dashboard to help win the struggle against these hurricanes. With each story she shared, an office, agency, or resource became part of the dashboard. She knew the government could do more as a team when it had a common shared approach.

Ms. Hilsinger continued to gather assets until she reached a critical mass of people, skills, and, data. Knowledge sharing became spontaneous in support of the shared vision. This was followed by calls to the National Weather Service, Federal Emergency Management Agency, the National Response Crises Center, and the Department of Transportation to get real-time data feeds from each agency.

The creation of the medical common operational picture (MedCOP) was a 2-step process. Initially Ms. Hilsinger required the cloud collaboration platform. This provided a place for live links and test data feeds. While the NGA dashboard was in development, Ms. Hilsinger created an Intelink site. (See Figure 2-2).



**Figure 2-2. Example of RHCA Intelink Staging Site**

Using Intelink (available to authorized common access card [CAC] users), Ms. Hilsinger was able to contact federal agencies across the globe. She researched information and communicated with coders, but traditional intranets kept her outside their digital perimeters. She asked for help from various DOD and information assurance organizations, and exchanged leading practices and gained knowledge of previous experiences. She also shared code, staged documents and information, and shared URLs and screen-shots. Later she linked the two independent clouds.

The data call was a major concern for mapping. Ms. Hilsinger wanted to avoid showing everything or nothing. Showing too much made understanding the data difficult. Not having enough data in context would be the equivalent. (See Figure 2-3).

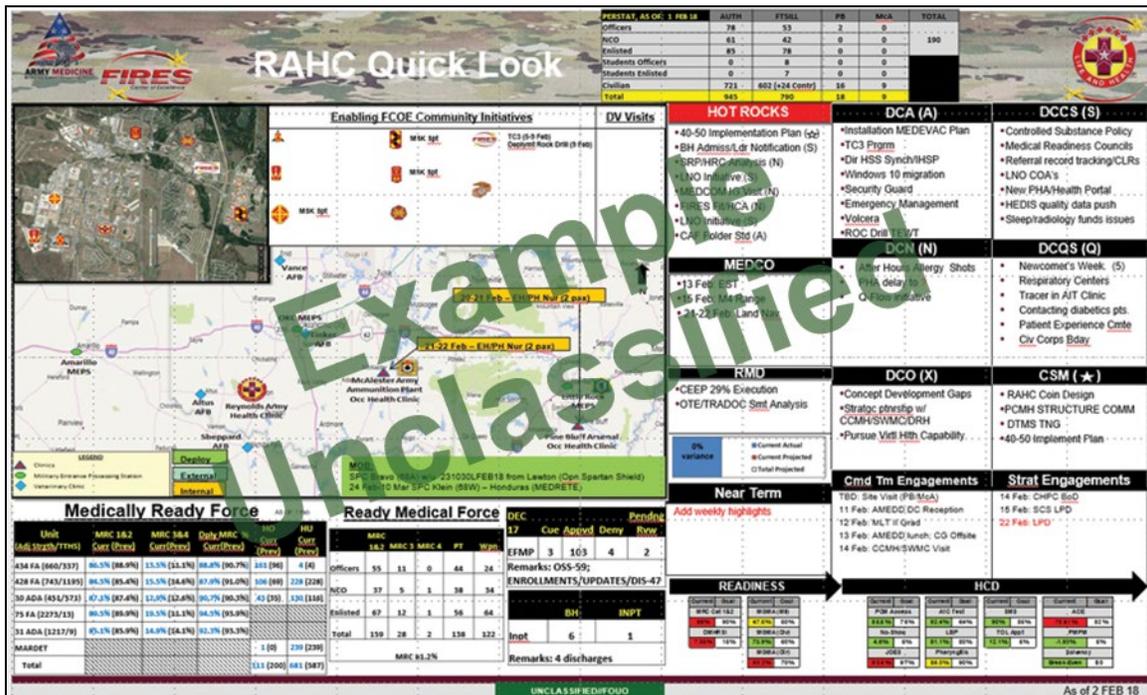
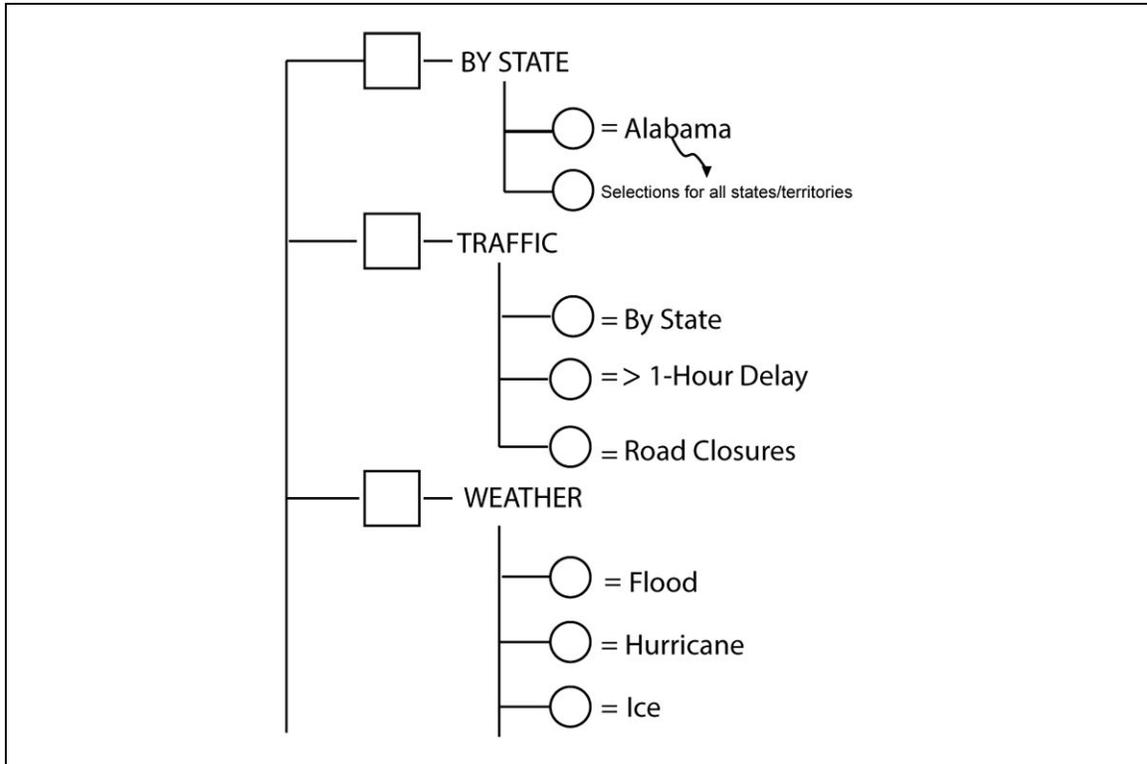


Figure 2-3. An Example of too much Data to Absorb

She wanted the data to be revealed intuitively. The deeper an individual drilled into the data, the more data could be revealed as a smaller subset. A logic tree was built to understand the hierarchical arrangement. (See Figure 2-4).



**Figure 2-4. Sample Logic Tree**

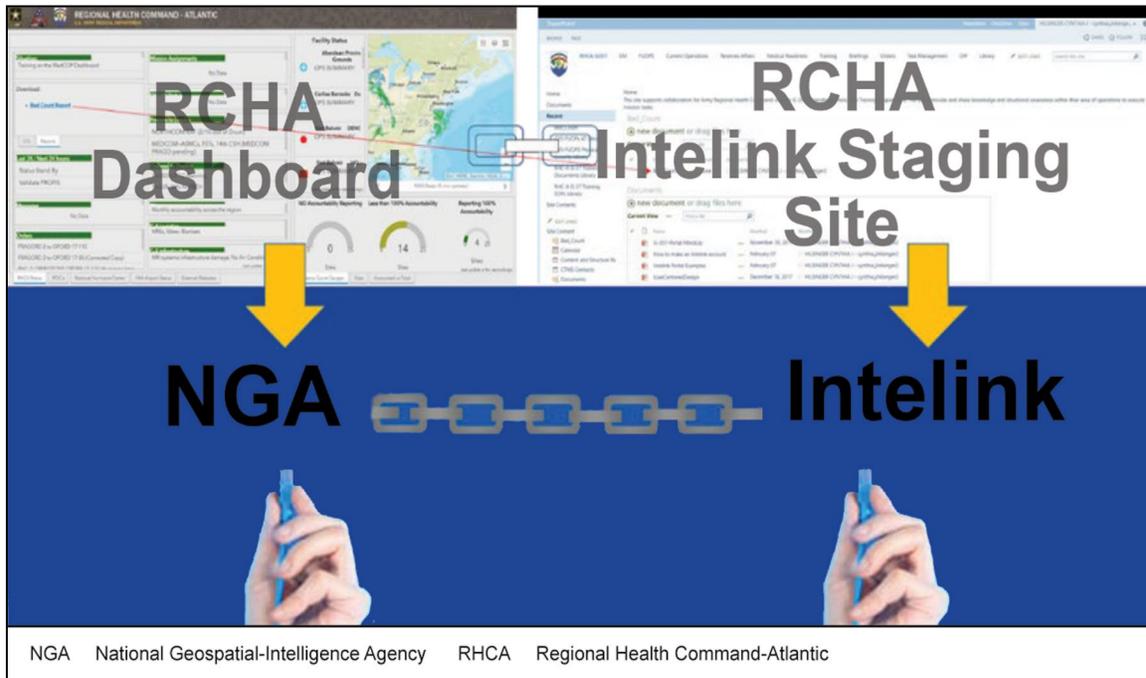
Automated data feeds were incorporated into the evolving dashboard. Ms. Hilsinger worked with the CUOPS team and Colonel James Reynolds, director of G-3/5/7, to develop key elements the CG required. This became the MedCOP. Every green titled box could be expanded independently for data flow, and each tab was an automated machine data streaming element. The map could be enlarged to fill the screen and stream real-time data of traffic alerts and conditions.

Every medical agency across the country was mapped, and included each medical agency's capability, trauma status, and contact information. A formal knowledge gap assessment of the MedCOP was presented to U.S. Army Medical Command (MEDCOM). The analysis showed five major gaps in the MedCOP:

- The MedCOP lacked real-time data feeds.
- Time referenced data was not current.
- Mapped data referencing locations and conditions were missing.
- Authoritative data was not consistent and repeatable.
- Data was too complex and unmanageable.

Ms. Hilsinger contacted Defense Health Agency emergency operations and shared the MedCOP with them so they could be closer to achieving an updated status of Army medical assets in the RHCA area of responsibility. The following questions arose: Could all of the regions be mapped? Could the military medical facilities across the world be mapped? The answer to both questions was yes.

Ms. Hilsinger had a cloud platform, Intelink, which could house controlled unclassified information such as the command’s bed count status. She was able to link Intelink to different cloud sites, such Amazon Web Services Federal Cloud at the NGA. Ms. Hilsinger wanted the bed count to be housed on the Intelink cloud, but be triggered by data call from NGA. (See Figure 2-5).



**Figure 2-5. Connection between Dashboard and Intelink**

This case study illustrated that the knowledge management officer plays a key role when knowledge gaps and resources hinder shared understanding during an ongoing crisis. The knowledge management officer can assist in integrating solutions to gain a shared understanding of the crisis. This case study highlights the importance of taking initiative to integrate data in real time for the commander and staff to provide relevant real-time information to answer commander’s critical information requirements (CCIRs) and positively impact the commander’s decision cycle.

The goal was to get decision support information to the CG as quickly as possible. Contextualizing and simplifying the information made decision-making easier. A knowledge officer’s goal should be to quickly convert data and accurate information into knowledge to allow the commander to make a decision.

**REFERENCES**

Some references listed are only accessible to authorized users and/or CAC holders.

Center for Army Lessons Learned (CALL) News from the Front, *Hurricane Maria Relief Operations*, 05 JAN 2018.

CALL Bulletin No. 18-27, *Hurricane Season 2017*, June 2018.



### CASE STUDY 3

## Building a Mature Knowledge Management Program at the U.S. Army Corps of Engineers

AS PREVIOUSLY PUBLISHED BY THE AMERICAN PRODUCTIVITY AND QUALITY CENTER ON JUNE 7, 2017

CINDY HUBERT, IAN PFAFF, JOHN DAVIS, AND MARK HAINSEY

The U.S. Army Corps of Engineers (USACE) has approximately 37,000 civilians and Soldiers delivering engineering services to customers in more than 130 countries. USACE is tasked with building infrastructure, reducing the impact of natural disasters, restoring ecosystems, providing U.S. hydropower capability, and building military facilities, and is the world's largest public engineering, design, and construction management organization. Its 2016 budget included 4.7 billion dollars in gross discretionary funding. In short, USACE's mission is to deliver vital public and military engineering services.

The agency's knowledge management (KM) program coordinates cross-disciplinary programs such as continuous process improvement, Lean Six Sigma, organizational development, and quality management while discovering and deploying critical knowledge. All nine USACE divisions, and the majority of the 43 USACE districts around the country, are engaged in the effort to ensure the agency's KM program matures. USACE chief knowledge officer (CKO) Ian D. Pfaff and John Davis, the KM representative for the Southwestern Division of USACE, spoke with American Productivity and Quality Center (APQC) executive director Cindy Hubert about the organization's KM journey to increasing maturity.

### DEVELOPING A KNOWLEDGE MANAGEMENT STRATEGY AT THE U.S. ARMY CORPS OF ENGINEERS

Established in 1775, USACE has been managing knowledge for some time. The impetus for KM at USACE included anticipated retirement and loss of tacit knowledge, the frustration over information silos/information sharing-barriers and/or employees not easily being able to find the information they need to do their jobs, and a strong desire to operate more efficiently and effectively by leveraging knowledge, expertise, best practices, and lessons learned in a budget-constrained environment.

USACE began working with APQC in 2012 to optimize its formal KM activities. In 2013, USACE approached APQC to help it gauge its capabilities using APQC's KM capability assessment tool (CAT) and to set a baseline for its maturity goals, which was then at Level 1 on APQC's levels of KM maturity. Among the 146 measured capabilities, USACE found pockets of excellence, good examples, and the need to ramp up its ability to ensure knowledge flows across the enterprise.

Setting the stage for the participation in the KM CAT and the development of an enterprise KM strategy at USACE at the time was the (then) commanding general's articulated belief of the value of critical knowledge flow to the enterprise. Lieutenant General (LTG) Tom Bostick (now retired) made KM a priority action for USACE and initiated the relationship with APQC. At the time, LTG Bostick had recently read *The New Edge in Knowledge: How Knowledge*

*Management Is Changing the Way We Do Business*, authored by APQC's chief executive officer (CEO), Dr. Carla O'Dell, and the executive director of advisory services, Cindy Hubert. Because of LTG Bostick's vision, USACE engaged with APQC to complete the KM CAT assessment, the results of which continue to drive the organization's KM activities. Quickly improving USACE's KM maturity level became part of the commanding general's core campaign plan, with key resources allocated for improvement. The KM processes and intent catalyzed by LTG Bostick in 2012/2013 continue to be supported by USACE senior leaders today.

By 2014, USACE had appointed Mr. Ian D. Pfaff as CKO and begun benchmarking with APQC for world-class KM practices. The agency also launched targeted initiatives and selected division-level personnel for training as KM representatives (KMRs). USACE created its own KM value proposition: USACE is an innovative and creative workforce that enthusiastically shares information across the entire enterprise to provide engineering solutions for the nation's toughest challenges.

These efforts launched a groundswell of interest in KM and understanding of what the agency needed to achieve. Divisions were directed to identify key value drivers and critical success factors for knowledge flow. They were required to identify critical knowledge, and the CKO was mandated to build into the core of all USACE activities systems, processes, and initiatives that foster an environment. This was to solve problems and improve performance by discovering and deploying critical knowledge, ultimately unleashing the productivity, creativity, and innovation of the entire workforce to meet current and future mission requirements.

At the headquarters level, the enterprise KM office developed a formal, documented KM strategic plan, which is approved and available for the enterprise to implement, along with an associated KM road map. The enterprise KM strategic plan links the mission/vision of enterprise KM to the overarching mission/vision of the USACE campaign plan that all business units and mission areas execute.

In summer 2015, USACE again took APQC's CAT to gauge its progress in moving toward Level 2 maturity. The KM program was assessed at Level 1 and showed progress toward its goal, closing the performance gap with peer institutions. APQC found pockets of early adopters and innovators and a demand for KM capabilities. The second assessment helped USACE pay attention to higher maturity level concerns. USACE incorporated the resulting actions and recommendations from this assessment into its KM strategic plan and roadmap.

USACE's KM strategic plan established a framework and road map for implementing a formal enterprise KM program and promoting KM competencies in people, processes, and technical design. The agency aimed for KM approaches and practices to:

- Be embedded in work flow processes.
- Increase access to real-time information and experts.
- Improve cross-functional decision-making.
- Enhance enterprise collaboration.
- Create value through KM measures that link to key business objectives.

### Knowledge Management Value Proposition

USACE also spelled out a KM value proposition driving the focus on critical knowledge (see Figure 3-1). USACE adapted a business case template from APQC to standardize how employees collect information, map knowledge, understand the value of knowledge flow, and connect to others. (Specifically, the knowledge maps were a significant factor in identifying critical knowledge needs.) Formally, the business case outlines how sharing knowledge supports the business, its potential value, and the types of measures to gauge impact.

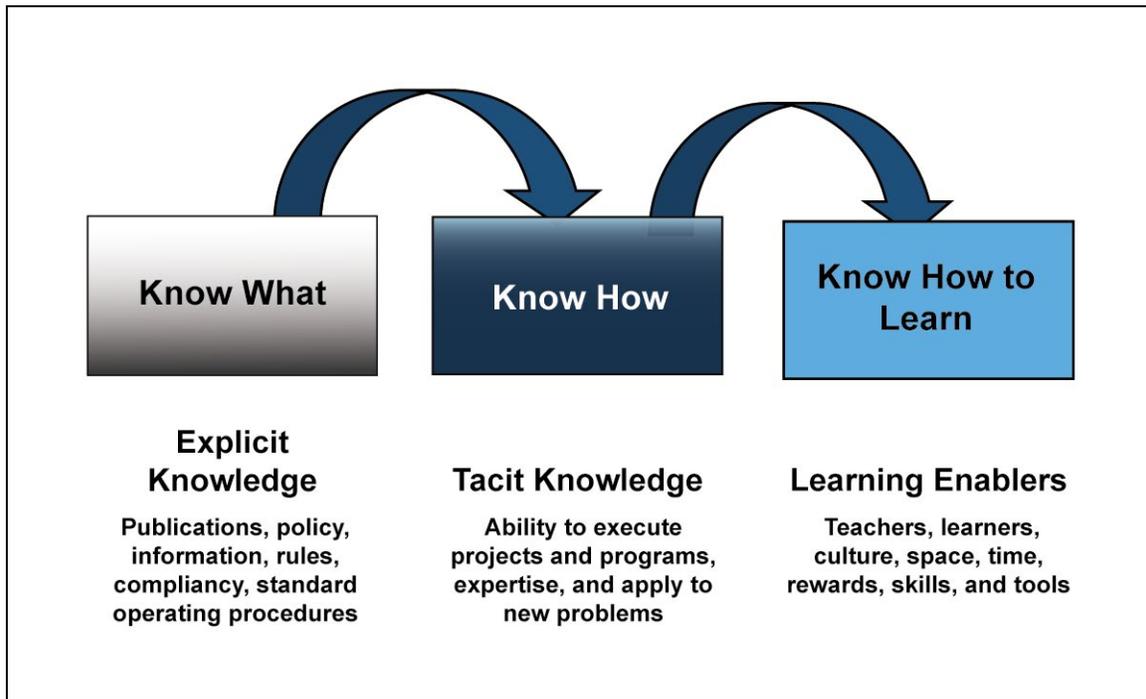


Figure 3-1. Types of Knowledge at USACE

### Knowledge Management Strategy Execution

A KM operations order with corresponding lines of effort (LOEs) (see Table 3-1) provided specific guidance on the implementation of the USACE KM program. LOEs focus USACE teams on the specific KM and KM-related initiatives that constitute the KM campaign plan. The LOEs are the overarching efforts that will enable the organization to achieve the goals set by the KM strategic plan and follow-on guidance, with the overarching goal for USACE to achieve APQC Level 3 maturity on the KM CAT by the end of 2017.

**Table 3-1. Lines of Effort at USACE**

Line of Effort Number	Line of Effort Name	Line of Effort Goal
1	KM strategy and leadership	Codify USACE policy and infrastructure changes to implement the KM strategy
2	Community of practice	Establish requirements for and improve quality of USACE communities of practice
3	KM infrastructure	Establish team-based learning across USACE and launch prototype efforts
4	Lessons learned/best practices	Update USACE lessons learned program and establish a best practices program
5	Knowledge flow and process improvement	Improve the understanding of critical knowledge and how that knowledge moves through USACE
6	Expertise	Develop processes and procedures to identify, validate, and locate subject matter experts in specific disciplines across USACE
7	Content and records management	Develop an interim taxonomy and metadata approach for the USACE SharePoint document repository
8	Strategic communications	Ensure that aims and objectives of the USACE KM strategy and its implementation are clear and understood

The KM operations order and its related documents direct the entire USACE workforce on how to specifically execute KM. Rather than publish top-down edicts, USACE gathered employees from every level in early 2016 to work off-site for one week and establish guidelines for how KM would play out. Senior leaders asked employees, “How do you want to do the work? What problems should we solve? If this is going to be policy that is directing you to do something, what is the best way to write it? How are you going to be able to execute it?”

USACE executes KM in accordance with a KM battle rhythm (see Figure 3-2). Battle rhythm is the terminology used by USACE employees to denote a deliberate, disciplined cycle that commanders, directors, managers, and their staff use to make decisions. The battle rhythm is the process set in place for strategic to tactical execution. It is the process to be able to address the KM requirements that are being identified and addressed across the organization. It represents how USACE put KM requirements into the business process, got them adjudicated, got them approved, and recommended implementation actions back to the CKO office.

The KM battle rhythm incorporates input from meetings, subordinate organizations, higher headquarters, internal feedback, effects of ongoing missions and operations, and the commander’s intent to synchronize current and future KM activities. It sequences KM actions and events and facilitates the sharing of information. The KM battle rhythm’s purpose is to manage the flow of information needed to make better, more effective decisions.

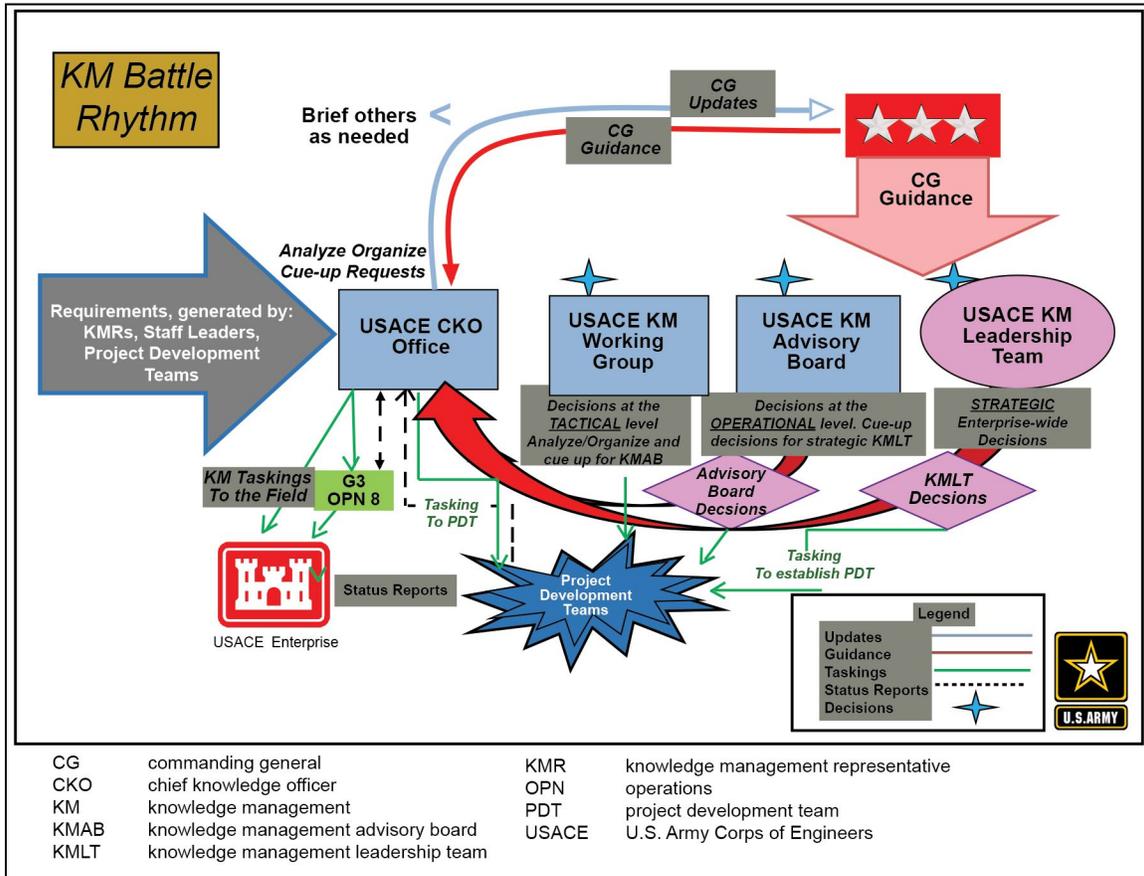


Figure 3-2. KM Battle Rhythm at USACE

The thin red arrow in Figure 3-2 represents leadership guidance back to the KM office for implementation and execution. Looking at the picture from left to right, the requirements from the field come into the CKO office. Issues or questions that cannot be resolved within the CKO office are pushed to the KM working group for a tactical discussion. If an issue or discussion needs more ‘horsepower’ behind it for decision-making, the KM working group goes to the USACE KM advisory board, which is like a council of colonels and serves as a higher-level decision-making group. If a decision warrants greater analysis or a higher level of approval, it is recommended to the KM advisory board for further adjudication. Likewise, if a decision or activity requires executive level adjudication it lands with the KM leadership team, who ultimately makes the decision. Then, the red arrow swoops back to the CKO office for execution.

The CKO office leverages a synchronization matrix as one of the components of the USACE KM campaign plan (along with the battle rhythm and the KM strategic plan) and as a tool for management and execution of the USACE KM campaign plan. It reflects a time-phased approach, articulating specific campaign milestones, to accomplish those activities necessary to achieve Level 3 KM maturity by the end of fiscal year 2017. It also ensures that USACE migrates into a collaborative, knowledge-sharing organization.

With 146 capabilities examined in APQC's CAT, USACE is an example of an organization scrutinizing each effort and its data, which led the agency to focused effort and targeted investments. With the feedback from the assessments, the agency designed a plan to close gaps and elicit results from its divisions. Senior leaders participated in a future search facilitated effort with APQC to assess the organization's past, current, and desired state of KM. This exercise helped the agency articulate what Level 3 KM maturity would look like at USACE. The first assessment was positive motivation to find the baseline. USACE focused on the business, developed the business cases, established the KM representative to get the strategy developed, and set the foundation.

The KM program aims to fully partner across the U.S. Army organizational spectrum, identify resource constraints hindering execution, synchronize USACE leaders behind KM efforts, and coordinate with both headquarters and local offices. The program also aims to communicate goals and activities through videos, Twitter, brochures, newsletters, training, and established strategic communications. For USACE, Level 3 will involve KM representatives at every level and division, collaborative partnerships among divisions, monthly KM representative workshops and summits, a KM portal with optimal search capabilities, formal lines for feedback from leaders, established guiding principles for KM, and an engaging KM brand. Ultimately, a Level 3 maturity rating will reflect a standard knowledge flow process, replicable KM approaches, and standardized supporting tools. APQC has found that Level 3 is the most important milestone in an organization's KM journey because it denotes standardization. Once an organization reaches Level 3, its previously ad hoc and localized efforts start to integrate knowledge sharing and collaboration into daily operations. Senior leaders allocate resources to KM, and employees use consistent approaches and technologies to capture, transfer, access, and reuse institutional knowledge. Research has found that such improvements help more mature organizations achieve two times better financial performance than organizations at a lower maturity level.

More specifically, USACE will be able to measure and see results that have strategic ownership and a KM core team with defined roles and responsibilities. Each division will support enterprise KM efforts, and key performance indicators will monitor the health and effectiveness of these efforts. The agency will have uniform, reliable processes for enabling the flow of knowledge. The goal for USACE is to make KM a part of its day-to-day working culture, serving as a model for the Army.

This goal is especially relevant within the government sector, where the average overall maturity is Level 2. Specifically, among government and military entities that have used APQC's KM CAT, average performances are at levels 2 or 1 for strategy, content and information technology (IT), people, and processes. (Some top performers have reached Level 5 in specific categories.) USACE aims to be among the top performers, which average Level 3 in strategy and process and Level 2 in people and content IT, and then proceed beyond these benchmarks. With its strategy and approaches developed as a result of its assessments against the KM CAT, USACE understands the magnitude of the challenge facing the enterprise (and others like it) and has crafted an executable way ahead to learn from the lessons of other organizations and provide a repeatable enterprise-wide process that can be leveraged across the military and government sectors.

## KNOWLEDGE MANAGEMENT CAPABILITIES AT THE U.S. CORPS OF ENGINEERS

### Knowledge Management Structure and Staffing

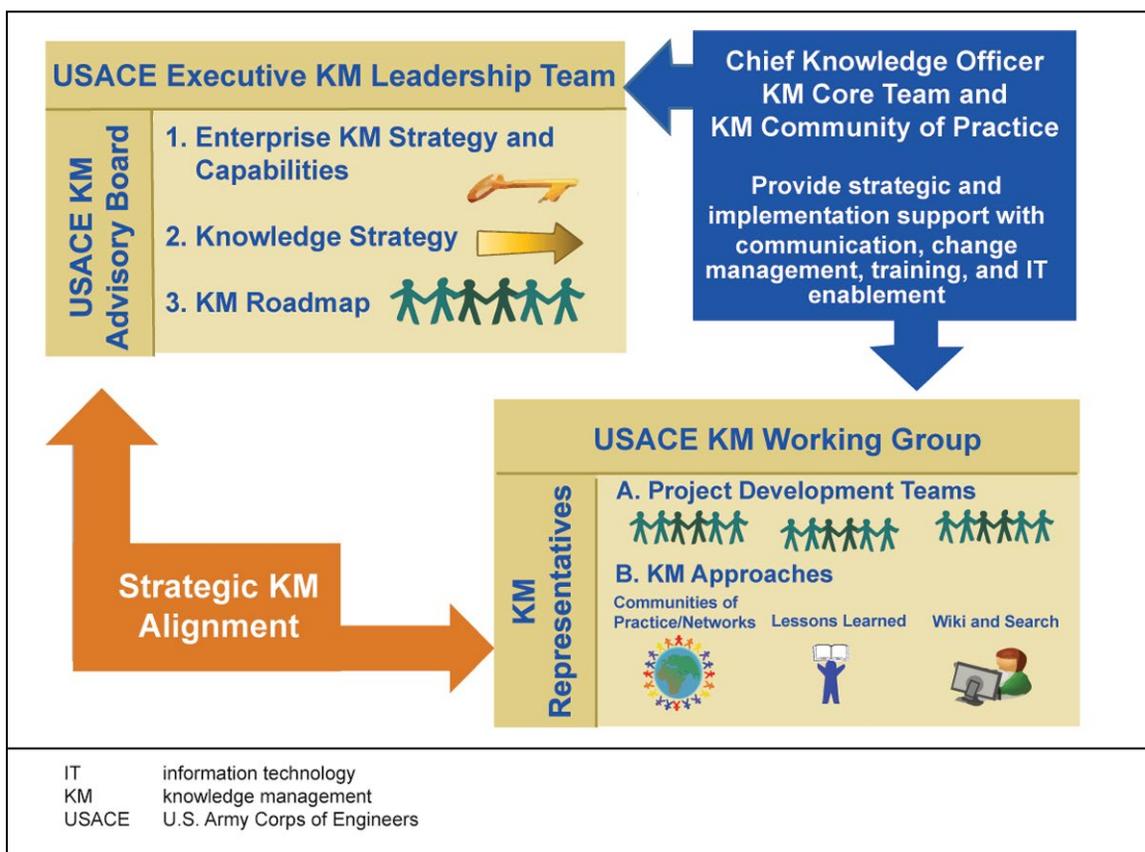
The KM battle rhythm, described in Figure 3-2 on page 22, is the model for KM execution at USACE, receiving requirements, achieving buy-in, and providing decision-making support to senior leaders. The KM battle rhythm consists of five core groups or actors arranged in a sequential series of meetings that receive, vet, and recommend KM initiatives, and then prioritize and allocate resources at the appropriate levels. The battle rhythm provides disciplined oversight and drives collaboration at all levels of USACE. The goal is to make decisions at the lowest level possible.

The core players involved in the KM battle rhythm are:

- The USACE Commanding General. Creator of the KM vision and chief impetus behind the plan to transform USACE into a knowledge-based organization that serves as a model for the Army.
- The KM leadership team (strategic focus). The KM leadership team is a leadership and governance body for USACE KM to address issues and provide guidance, direction, and decisions to USACE's KM enterprise. Chartered by the commanding general, the KM leadership team consists of USACE executives overseeing KM strategy and capabilities. The team makes decisions that affect how resources are allocated at an enterprise level. The leadership team develops strategic direction, monitors KM initiatives, promulgates best practices, and provides critical KM direction including rules and procedures. It provides support by securing funding, minimizing barriers, approving initiatives, and promoting knowledge sharing.
- The KM Advisory Board (operational focus). The KM advisory board guides the implementation of the USACE KM campaign plan and focuses on improving enterprise policies, processes, and procedures within its respective functional areas that influence the way USACE conducts its business. The KM advisory board includes all KM representatives' supervisors, who are functional leaders of related initiatives such as quality management and continuous improvement, as well as representatives from resource management, corporate information, military missions, and civil works.
- The KM working group (tactical focus). The KM working group is a small, cross-disciplined team that coordinates KM activities, develops governance, and implements actions in support of the USACE KM campaign plan. The KM working group has a tactical focus and acts as links between the leadership team and the KM representatives conducting daily KM work. The team is led by the CKO and provides program management to gauge progress on the agency's maturity goals and implement the leadership teams' doctrine. It provides strategic and implementation support with communication, change management, training, and IT support, as well as coordination, templates, facilitation, training, guidelines, and best practices.
- The USACE CKO office. The CKO office, led by Mr. Ian Pfaff, acts as the principal KM advisor to the USACE commanding general. The CKO is responsible for the development and implementation of the USACE KM campaign plan. The CKO coordinates KM-related activities across USACE.

- Knowledge Management Representatives. Established in every division, the KMRs were tasked with creating a business case for their respective divisions so that USACE could understand local problems. The KMRs had the initial KM training from USACE, and are responsible for collaborating across the agency, monthly summit meetings with other representatives, and targeted KM activities. Within each division, the KM representative works across the division and with the districts, including the regional business center, so that KM activities are coordinated across the region, including the regional command center, the regional management board, the acquisition and strategies board, the project management teams, and accounting. The regional management board, with senior executives from both business management and programs, identifies priorities for its KM representative. Therefore, there is a governance infrastructure at the local level, as well as local responsibility to engage districts and divisions in KM activities and executive initiatives.
- Project Delivery Teams. The project development teams execute some of the tasks created by the KM core team.

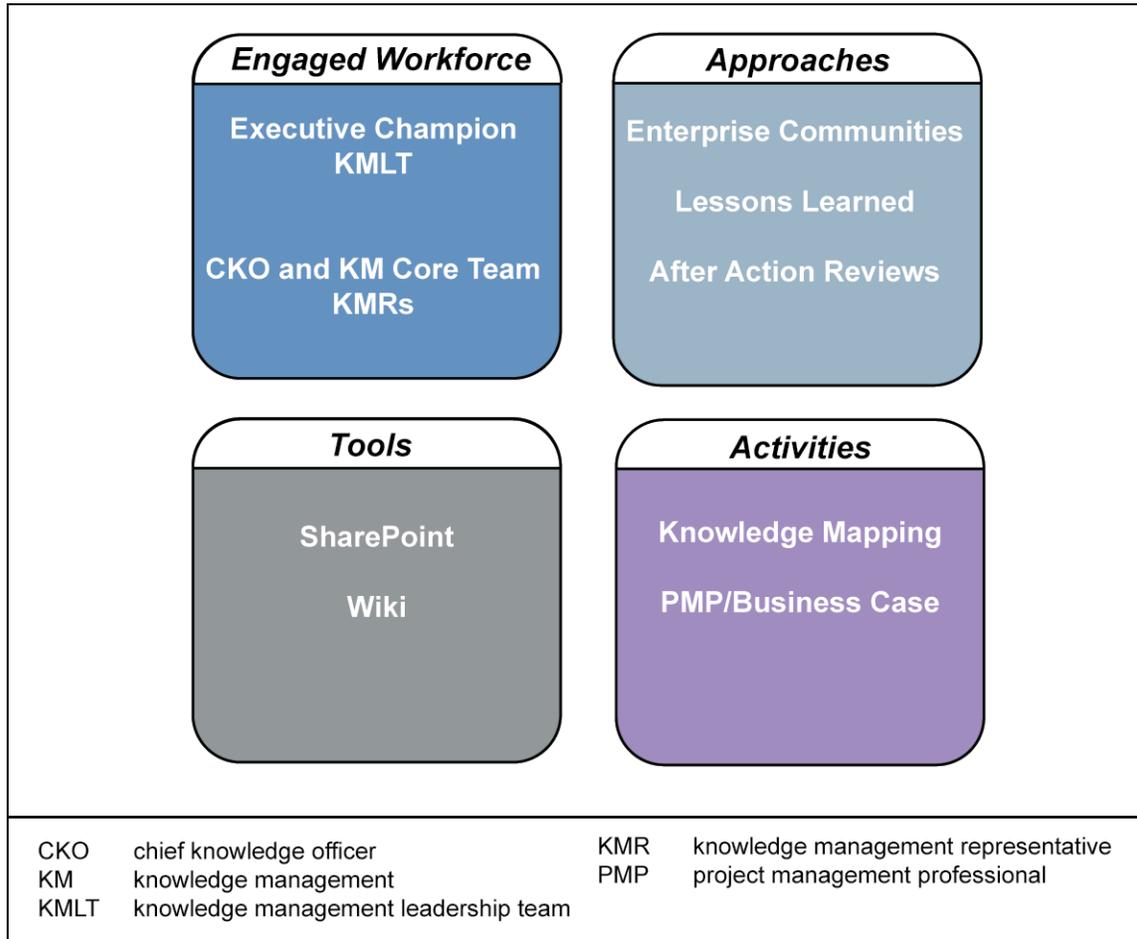
The USACE enterprise-level KM governance support structure is summarized in Figure 3-3 below.



**Figure 3-3. USACE KM Governance Model**

**KNOWLEDGE MANAGEMENT TOOLS AND APPROACHES**

USACE has a portfolio of KM tools and approaches including communities of practice, technical and social networks, SharePoint, lessons learned, a project Wiki, and Enterprise search capabilities for a federated KM portal. Ranging in nature from self-service to process-based to transferring best practices and expertise, the approaches are increasingly standardized across the agency to support knowledge reuse and expose barriers to seamless knowledge flow. Figure 3-4 depicts a framework for the USACE enterprise KM portfolio.



**Figure 3-4. Framework for Enterprise KM Portfolio at USACE**

For example, in terms of communities of practice, USACE has more than 50 official communities of practice (such as the technical excellence network, a fully facilitated community of practice for engineering and construction), which have more than 400 sub-communities of practice on more specific topics. USACE views these as the ideal vehicles to identify, capture, and transfer critical knowledge. The communities provide a framework for locating experts and identifying critical knowledge. The KM core team launched a KM-focused community of practice in October 2016.

For such activities, USACE uses SharePoint 2010 (plans are to migrate to SharePoint 2016) to support its intranet, communities of practice, technical excellence networks, team sites, and publications. It also offers Wiki, Enterprise search, and knowledge mapping support tools. The KM portal and Enterprise search tool called “Discover USACE” provides centralized access to

all KM tools, activities, and support contacts. By the time it reaches Level 3, USACE aims to have information systems, collaboration tools, expertise-location tools, data-analysis tools, and search-and-discover tools through a central portal. USACE also leverages a KM community of practice on milBook which links USACE to all KM practitioners across all of the Department of Defense (DOD). DOD employee access is free, and they are welcome to join the USACE KM community of practice.

Such KM tools connect to other USACE IT support products, including dashboards and project management tools. For example, employees can overlay maps that show where their projects are with the anticipated paths of storms in order to prepare for the event. With everything connected through a central portal, employees can customize their viewer to their own projects. This is a simple way for leadership to connect. APQC's executive director Cindy Hubert was impressed with the collection of content, information, and lessons that run behind USACE's KM program.

## **MEASUREMENT**

Measurement plays a role in management oversight of USACE's KM program. For example, at the commanding general's request, the KM office created a dashboard viewer of KM activity, project status, and feasibility by region (see Figures 3-5 and 3-6 for screenshots of the dashboards). To accomplish this, USACE leveraged the Army strategic management system, integrated with the APQC KM CAT. USACE basically integrated every single metric across all of the categories of the CAT and placed them into this strategic management system. Every single KMR at the division level can, if they choose to, allow their districts to have access to the system. The KMRs themselves can track their progress and enter that data, and that solves many of the standardized performance discrepancies within the CAT. It also gives the KMRs the opportunity to see what other KMRs are doing across the divisions. There is an entire Army organization that can take the CAT and make it a standard part of their business process. USACE is basically doing its own little 'mini assessments' internally on a quarterly basis. Not only is it using the CAT as a benchmarking tool, it is using the CAT to drive its business process and the activities of its KMRs at the division level, and their respective districts.

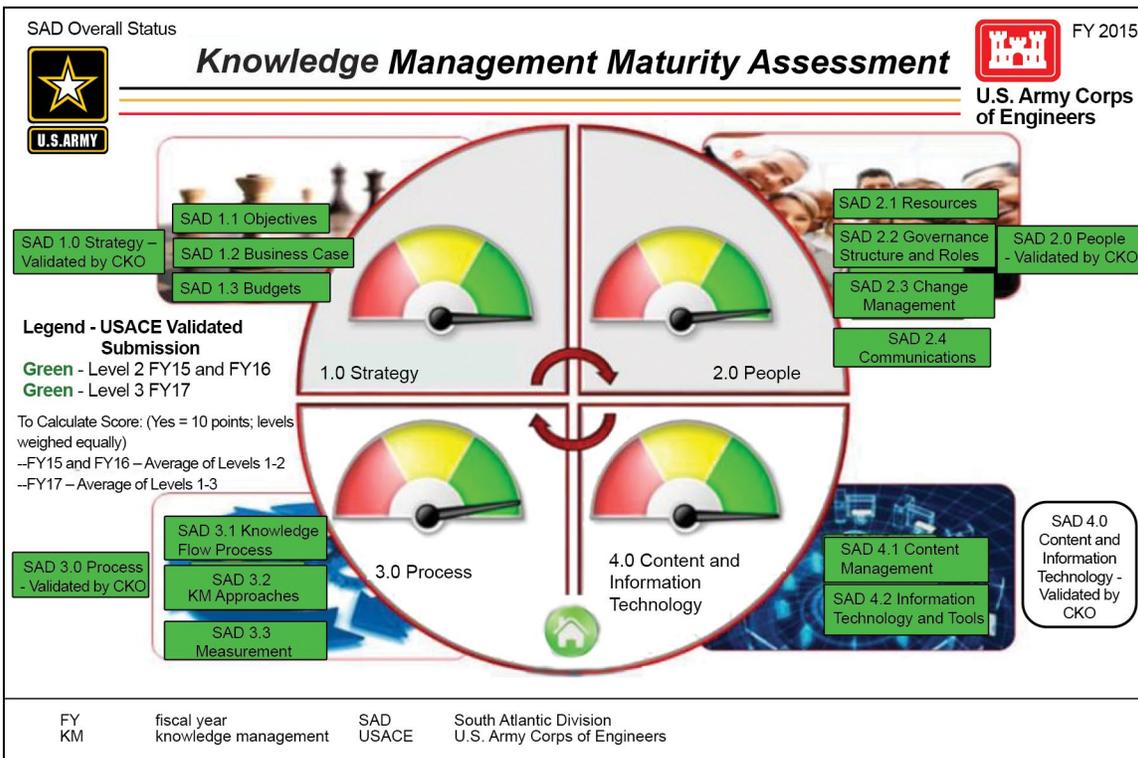


Figure 3-5. USACE KM Maturity Assessment Dashboard Example of Overall Status of One Division

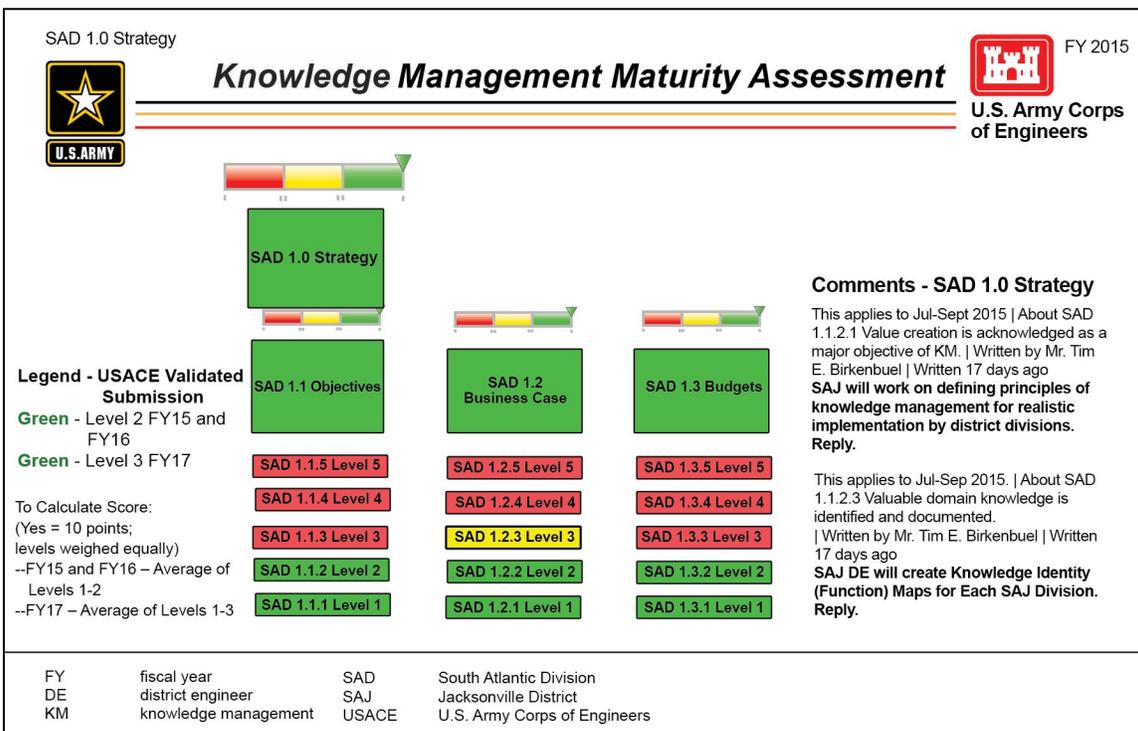


Figure 3-6. USACE KM Maturity Assessment Dashboard Example of Category Drill-Down for One Division

Leveraging this tool, decision-makers can pull information from the system regarding milestones, status, and KM factors such as lessons learned. With this information, senior leaders regularly engage employees regarding KM participation. For example, the division KMR and local KM team participate in a command week in which senior leaders and division heads conduct policy meetings. During this week long session, each district demonstrates how it incorporates KM into the flow of project work. By tracking regional participation, senior leaders keep employees motivated to implement KM.

USACE also compares its internal measures to external benchmarks. The agency earnestly seeks best practices in core business processes and KM capabilities to apply best practices across their divisions. The result is a strong KM infrastructure at USACE with a wide range of useful tools.

To share lessons learned in preparation for new projects in other divisions, USACE engages in a team peer assist process which involves inviting relevant project teams to see firsthand how things are working. These team peer assists are a critical KM approach at USACE for sharing lessons from one project to the next similar project. As result of the team peer assists and sharing of lessons learned from projects, USACE estimates that it has already saved a significant amount of resources in other projects.

Because of its efforts to improve its KM maturity, USACE has quickly progressed in its KM efforts. It has moved fast and it continues to do so. When USACE says it is going to focus on the performance gaps, it addresses them very seriously.

USACE has begun assessing itself in a methodical manner quarterly while also tracking all KM efforts at the divisional and district levels. The agency has already been able to demonstrate KM in the flow of work through numerous examples. In USACE's fast-moving journey to Level 3 maturity, the KM core team has facilitated rapid innovation, cost savings, process improvement, risk avoidance, and improved quality.

## **LESSONS LEARNED AND FUTURE PLANS**

USACE is an excellent example of how standardizing KM activities and tools can energize and propel a KM program's capabilities. USACE learned from the early efforts within its districts and divisions, and then created a supportive centralized governance structure to communicate common goals.

Other government agencies, as well as other engineering organizations, can learn from the agency's tenacious approach to assessment. USACE scrutinized the details of its status for every KM capability and developed very specific goals and deadlines using a thorough governance structure to ensure action and accountability. Its progress goals were ambitious, but possible given the cross-enterprise focus and the appreciation for KM's ability to help USACE achieve these goals.

In rapidly formalizing, expanding, and standardizing its KM efforts, USACE tracked key lessons and critical success factors. USACE provided the following recommendations:

- Focus efforts on the knowledge that matters to the business.
- Do not reinvent KM best practices.
- Embed knowledge-sharing approaches in the flow of work.
- Use people approaches to make system approaches work.

- Balance connecting people and collecting knowledge.
- Demonstrate tangible value.
- Fully integrate change management principles throughout the implementation of a KM strategic plan.
- Think enterprise-wide.
- Require training and the commitment of business directors.
- Tackle high-impact projects, but do not mandate perfection.
- Encourage grassroots efforts with responsive leadership.
- Coordinate all knowledge-based efforts by integrating KM with quality management, Lean Six Sigma, etc.
- Accelerate partnerships by targeting wherever KM can deliver the most value.

APQC's KM CAT results helped USACE focus on key accelerators of KM maturity. By instilling a strong governance structure, mapping knowledge, standardizing KM approaches, communicating efforts, benchmarking and assessing progress, and using change management principles, USACE learned how to accelerate its KM program capabilities.

To achieve Level 3 maturity by the end of fiscal year 2017, USACE plans to carry out its KM battle rhythm while ensuring the KM strategy continues to align with the agency's strategy. USACE knows this process is successful because it has achieved APQC Level 2 KM maturity for fiscal year 2016.

For the CKO, a major part of moving forward is continuing the agency's grassroots-level KM work. USACE approaches everything from a grassroots approach. It stumbled in the beginning because it had the top-down approach, however now, it does not make any decisions without involving the workforce. They are the ones closest to problems that USACE wants to solve. USACE includes everything from the workforce's perspective in what it does.

Building from this lesson learned, the KM battle rhythm at USACE outlines key milestones moving forward. (See Figure 3-7).

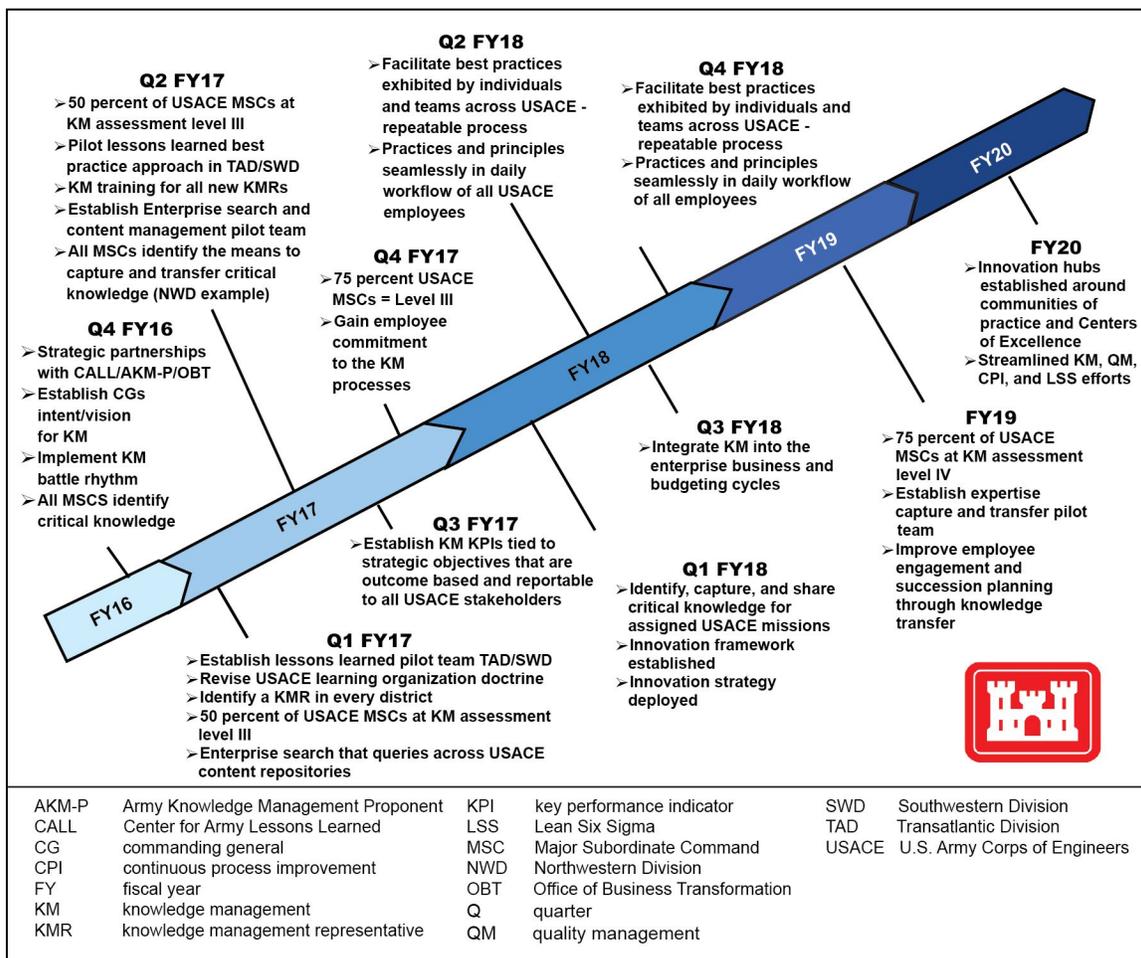


Figure 3-7. Quarter 4 Fiscal Year 2016 - Fiscal Year 2020 Campaign Milestones

USACE is on track to reach these milestones. It can rapidly close the gaps to achieve that Level 3. There is a wall there, but the goal is to blow through it. USACE is made up of engineers, and that is what they do.

### ABOUT APQC

APQC helps organizations work smarter, faster, and with greater confidence. It is the world’s foremost authority in benchmarking, best practices, process and performance improvement, and KM. APQC’s unique structure as a member-based nonprofit makes it a differentiator in the marketplace. APQC partners with more than 500 member organizations worldwide in all industries. With more than 40 years of experience, APQC remains the world’s leader in transforming organizations. Visit APQC at [www.apqc.org](http://www.apqc.org), and learn how to make best practices.

Members of APQC can find the original case study on the APQC website here: <https://www.apqc.org/resource-library/resource-listing/building-mature-knowledge-management-program-us-army-corps>

## CASE STUDY 4

# The U.S. Army Reserve Command and Knowledge Management, the Long Endeavor: Organizational Culture and Effecting Change

JASON BALGOS

All names in this case study, with the exception of MAJ Balgos, have been changed.

### THE BEGINNING

My early days in the U.S. Army Reserve Command (USARC) were difficult. USARC used a completely different language. I did not know what a troop program unit (TPU) was, or what active duty for operational support or contingency operation for active duty operations support were. Although I had briefly served on active duty with the National Guard, I had never been a “traditional” one weekend a month guardsmen or reservist. I did not know what it meant to be a TPU, M-Day, or traditional reservist. As I started getting more involved in the USARC staff, I realized that the Army Reserve is a complex animal that has a global mission with Soldiers who are expected to balance their Army responsibilities with their civilian families and careers.

As I began my tenure as the deputy chief knowledge officer (CKO), I inherited the digital files of two previous majors that had done the legwork of the acting CKO. A draft operation order and a chief of staff (COS) memorandum for record had been submitted to give authority to the establishment of a USARC knowledge management (KM) section. Unfortunately, none of this changed things overnight. Along with my new responsibilities, I had inherited one contractor, Mr. Behr, to support the new KM mission. Mr. Behr was the coder in charge of making sure the local SharePoint ran smoothly.

A few months later, another contractor, Ms. Grey, joined the team. Upon the arrival of Ms. Grey, I learned that she was a part of a different contract company and had been sent to backfill the recent departure of a SharePoint expert. I had briefly known the person she was replacing, but did not realize that she and Mr. Behr were from two different companies. The situation was made more complex by the fact that Ms. Grey’s contract was going to expire soon, and would not be renewed by the USARC. Also, while I was in Ft. Leavenworth, Kansas, for the Army Knowledge Management Qualification course, Mr. Behr submitted his two-week notice. This departure left Ms. Grey and me by ourselves for about four months. While we supported the KM mission for the USARC, Ms. Grey had to re-interview for another contract position with the company supporting the USARC KM support mission.

Another twist to the early USARC KM saga was the fact that funding was set to run out on Ms. Grey’s position unless I got a military interdepartmental purchase request (MIPR) approved. If I did not know anything about contractors, I certainly did not know anything about contracting. I could not even spell MIPR let alone tell you what it stood for or how to put one together for approval.

My initial MIPR effort came down to the closing hours of a Friday afternoon. I had successfully walked the packet around the USARC headquarters (HQ) getting signatures prior to the deadline the following Monday. While I was able to save the KM contract position, I still had to support

USARC KM solo for 10 duty days while Ms. Grey transitioned to the new company, which would become the foundation of USARC KM support. Those 10 days were telling, as various help requests continued to come in and all I could do was keep pushing forward with establishing KM's presence in the Army Reserve.

## **THE U.S. ARMY RESERVE COMMAND KNOWLEDGE MANAGEMENT CAMPAIGN**

With one KM support position guaranteed for at least a year, the USARC KM office was able to begin solidifying its place on the USARC staff. However, the fight for credibility was not over, as the COS had changed out with a new two-star general taking the USARC staff reins, and ultimately holding the fate of KM in her hands. Things were physically changing too, as Ms. Grey and I had to find a new physical home for our KM operations. The original acting CKO was set to retire and begin terminal leave. Simultaneously, I was to begin reporting to the deputy COS for day-to-day purposes. I had also convinced the director of continuous process improvement to allow us to temporarily establish a KM footprint in her area. Change was the order of the day. A necessary tap dance to ensure KM's survival in the Army Reserve.

While having Ms. Grey for support was huge, we were beginning to be overwhelmed by the help requests we were receiving. I was being asked to participate in more meetings and thus perform as a director. This was validated when the deputy COS instructed me to begin sitting in on the COS weekly meetings with the leadership, i.e., the COS director's meeting. The first meeting I sat in set the tone as the deputy COS turned to me to speak, offering me an opportunity to address the staff leaders in the room. This was a milestone as the USARC KM shop was now publically acknowledged as a legitimate organization with an acknowledged mission.

Testing these waters, Ms. Grey and I decided to push the button on a project we had been working for several months, the re-design of the Army Reserve Network SharePoint landing page. The very first place Army Reserve Network users see when they open the Internet on their government issued computers. The original landing place was a dumping ground of random stuff, broken links, and had no logical purpose. Ms. Grey and I collaborated on different layout ideas and functionality concepts, finally deciding on a tri-column format with a central graphic and navigation tabs in the middle. It was clean, functional, and added value to the user's SharePoint experience. We launched it in June 2016 while I was attending the Lean Six Sigma Black Belt course.

During the spring of 2016, I had been waging a political dance with the USARC chief information officer (CIO)/G-6. The back and forth was necessary as they provide the network infrastructure for the tools that KM helps people use to share knowledge. The G-6's role is critical to any organization's mission, and a positive relationship with them was necessary for the KM section to do its job in assisting the staff. Our G-6 adventures had begun with a memorandum of agreement (MOA) for what the KM and G-6 scopes of responsibility are for the SharePoint. An MOA is a fairly routine document that would normally take a month or two at most. Not so for our MOA with the G-6. It took approximately nine months and became blatantly apparent that some in the food chain did not want to allow KM a seat at the table with the rest of the staff. This MOA was necessary because it was our ace in the hole when we launched the new landing page. The MOA clearly spelled out that front-end content and design was overseen by KM, while back end server access and administration was controlled by the G-6.

In June of 2016, while I was sitting in the Lean Six Sigma Black Belt course, the flood of compliments regarding KM's re-design of the SharePoint landing page came rolling in. The USARC KM section was here to stay and the landing page had put us on the map. It was a simple but effective visual impact that the USARC KM section had implemented in a matter of seconds once I gave the word to Ms. Grey to pull the trigger. KM was here and serious about making a difference.

## **U.S. ARMY RESERVE COMMAND KNOWLEDGE MANAGEMENT AND THE LONG ENDEAVOR**

At the same time as these early battles, I was still running 90 mph to fund our operations. Every day was about showing our value, building credibility, and doing whatever the staff needed to help their mission. All of this was in the name of providing value to the USARC organization as a whole. "You need a milSuite group? No problem. SharePoint training or assistance? Too easy. Knowledge management representative training? Coming up." We did whatever was needed to help the staff perform better. This was necessary to garner approval for more positions, with a second MIPR just a few months after the first one. This MIPR would enable USARC KM section to show what it was capable of when properly resourced.

During the fall of 2016, I received a significant funding boost by the USARC command executive officer that allowed the KM team to bring on several more people. The first person to join the team was Mr. Roberts. He had already been working on a project with our U.S. Army Forces Command (FORSCOM). Mr. Roberts initially split time with us and another project, but immediately made an impact as he was experienced in both the military and contract work. He had been around our organization in the local area for several years so he knew many of the players. His arrival was a good complement to Ms. Grey and I as we were both new to the contract world and USARC.

When Mr. Roberts joined the team, Ms. Grey and I had already started codifying much of what we believed the USARC KM section should look like. There were many things that we were doing simply because we knew they needed to be done, but we had not yet captured what was guiding us in writing. We needed foundational documentation published by authority figures to provide legitimacy to the various things we were doing.

The first document we started compiling was the USARC SharePoint governance. We started with this because it supported something everyone could understand. Many Army personnel are non-combat oriented, and work on staff in a support role. This means that their daily "weapon" in support of the Army is a computer. Therefore, why is there not more emphasis on learning about software? The effects of these personnel not learning their 'weapon' have had a detrimental effect on the modern Army staff. This is why we chose to start our publications effort with the USARC SharePoint governance.

The composition of the SharePoint governance shed light on something that everyone that has ever worked in a senior HQ knows that staffing something for signature is an ordeal. Plain and simple, it is mentally and emotionally exhausting. The writing of a product, while rewarding, can be difficult. However, it is easy when compared to getting that product signed through the staffing process. Upon reflection, the staffing process became symbolic of a larger issue with senior level governmental organizations—implementing change.

## THROUGH THE LENS OF KNOWLEDGE MANAGEMENT

Throughout the USARC KM section's first full year of operations, we began a relentless analysis of everything happening in the USARC HQ. Why are you doing that? What says you are supposed to do that? What are the commander's priorities? Where are the commander's priorities? Where are the commander's critical information requirements (CCIRs)? Where are the commander's priority intelligence requirements (PIRs)? Our KM questions were non-stop in an attempt to dive into an assessment of the USARC staff operations.

The findings revealed that many staff members could not answer some of the most basic questions. For example, it took several attempts to find someone that could show me where the last published CCIRs were located. It took four different people clicking six layers into the share drive to find an inconspicuously titled folder. In any Army organization, CCIRs should be a reference that all reporting requirements can find.

This example (one of many) led me to begin codifying a series of KM questions written in plain language that anyone could understand. This resulted from an early discovery that could not be ignored: people did not understand what KM is or what KM does. While identified as an Army universal task<sup>1</sup>, as well as a specified task of the command and control warfighting function<sup>2</sup> KM can seem very esoteric and "squishy" to most people. It is defined in the Army Techniques Publication (ATP) 6-01.1, *Techniques for Effective Knowledge Management*, 06 MAR 2015, as, "The process of enabling knowledge flow to enhance shared understanding, learning, and decision-making"

## KNOWLEDGE MANAGEMENT DETECTIVE

Despite several quick wins, the USARC KM section was still in a battle for its survival. The USARC commanding general (CG) and Chief, Army Reserve (CAR) was changing, which led to a change of my immediate supervisor, the deputy COS. During the 12 months between January 2016 and January 2017, the USARC KM section was directly impacted by the changing out of the CG/CAR, the COS, the deputy COS, and the acting CKO. Every one of these key leader changes led to a new campaign of having to prove our relevancy, and despite my best efforts the reality of the situation was that no one wanted to hear from a captain. It was evident that I needed to find a new O-6 to assume the position of USARC CKO.

During the fall of 2016, I was in the market for an O-6. Not just any O-6, but a KM-qualified O-6 that was available to assume the role of USARC CKO. In every Army organization there is a need for personnel with specialty training: arms room, safety, equal opportunity, sexual harassment/assault response and prevention (SHARP), master driver, environmental, master gunner, etc. How do you know who has these qualifications? This is a concept taught in KM—expertise knowledge capture. In the fall of 2016, I started the detective work to locate 1E KM-qualified personnel in the USARC.

My first two stops while hunting for USAR 1Es were the G-37 training directorate and the G-1. In G-37, I immediately went to the Army Training Requirements and Resources System (ATRRS) manager and asked her to go back 10 years and find every reserve Soldier that had graduated from the Army KM qualification course in Ft. Leavenworth, Kansas, and been awarded the 1E additional skill identifier (ASI) of KM professional. I then went to the all-knowing expert, the chief warrant officer 4 (CW4) in G-1 and had him look up every reserve member with the 1E skill identifier. With these lists in hand, I spent two weeks going name-

by-name and validating whether or not they were still in the USARC, where they were, and the location of their current assignment. It was a long and tedious task, but critical to begin building our 1E ASI tracking, which would establish the beginning of synchronized KM efforts across the USARC.

I established a list of approximately 50 qualified 1Es across 11 of the major subordinate reserve commands. This data allowed me to build a more informed picture for the potential leadership of the USARC KM office. In July 2016, I began calling select people of influence in the KM community. This ultimately led me back to Ft. Leavenworth, the home of Army KM at the Mission Command Center of Excellence (MCCoE). After a series of phone calls, Mr. Michaels, a dual status Department of the Army civilian and Army Reserve colonel with a 1E ASI, agreed to come on board in a TPU traditional reserve status as the USARC CKO. It was a critical victory and instantly lent credibility to everything we were trying to do.

### **MOVING FORWARD**

After securing a part time 1E qualified colonel to lead the KM section, I had to seize the momentum and push KM forward at the senior staff levels. This moment occurred in September 2016 when I was requested to participate in the COS directors meeting. This weekly meeting was the cyclical calendar event for all of the staff director's to discuss ongoing operations and have face time with the COS. Being invited to participate as a regular member was a significant step in normalizing KM across the staff. Seeing KM brief the COS every week quickly elevated our credibility and lent substantial weight to our efforts. I now had a voice and platform to preach KM to the masses.

However, the deputy COS, my immediate supervisor, was leaving. A new deputy COS was coming in, and there were questions about where KM would land following the leadership changes. In December 2016, the deputy COS change was underway and the new CKO, Colonel Michaels, came to USARC for a week. An office call was also set to meet with the COS about the role of the KM office. This meeting, and the buy-in of the COS, was a critical point for the USARC KM office.

The meeting went well, and Colonel Michaels and I left with an endorsement to continue our efforts, as well as a mandate to initiate an official USARC KM staff analysis. We would also continue our reporting chain to the deputy COS, which was key to remaining in line with Army KM doctrine<sup>3</sup>. This would allow us to continue operating at the command level, and not hinder our efforts under multiple layers of staff.

### **KNOWLEDGE MANAGEMENT AT 90 MPH**

Following the 2016 holidays, the USARC KM office was up and raring to go. We had the endorsement of the COS, we were funded, and we had Colonel Michaels on board for top cover, so all we needed now was to build the team. Now that we had Colonel Michaels as our CKO, we could begin to effect significant change and create a thirst for KM. However, we had to be careful because we were getting to a point where it was too much for us to handle.

One of our recent projects had been briefed to the USARC leadership. Our content management efforts had been captured and they clearly displayed a 60 percent reduction in the SharePoint data storage. This was important because it was the first quantifiable impact of the USARC KM office. This irrefutable statistic drew a spotlight to the KM office that reinforced the need to fill the ranks of our team.

Enter Mr. Keaton, who was already working in another part of the building. He and KM had established a warm relationship and I quickly recognized that if the opportunity ever arose, I wanted him on our team. This became a reality in February 2017 and instantly magnified USARC KM's abilities.

In 2017, the demand for our support increased exponentially. One of our first efforts was the synchronization and integration of several directorate's calendars across multiple digital and physical locations. Simultaneously, multiple directorates began requesting assistance in expanding their digital presence on milSuite. These efforts kept us busy, in addition to side projects we knew needed to get done for the good of USARC as a whole.

I was also inundated with requests from subordinate USARC units that wanted to grow their own KM programs. One of these was a training command that wanted me to physically come there for a week to teach KM and do an unofficial assessment of their staff. This was the point where necessity demanded I begin stepping back from a direct KM support role, and shift the majority of my focus to a governmental leadership role. However, in order for me to do that we still had vacant positions to fill.

### **BUILDING CAPABILITIES AND KNOWLEDGE MANAGEMENT MATURATION**

Ms. Brown joined the USARC KM team in March of 2017. Her arrival provided a new perspective, as her previous body of work included project management, quality assurance, resourcing, and regulatory requirements management. This addition raised the bar of the team's effectiveness and increased our level of professionalism. This was an important step as we were receiving more attention from senior leadership.

We still needed to publish a USARC KM standard operating procedure (SOP). Ms. Grey and I had begun drafting this SOP in February of 2016, and by March of 2017, we were trying to get it published. It was a necessary step to continue formalizing KM in USARC.

The increased attention from outside of the USARC HQ had also led to a capabilities expansion at the Office of Chief, Army Reserve (OCAR). In April 2017, while I was on leave, I began receiving text messages and phone calls from a Mr. Jacobs at OCAR. Mr. Jacobs had been placed at OCAR in response to a request by a senior member of the OCAR staff. Unfortunately for us, the leadership at OCAR had not all been on the same page. This confusion by the OCAR staff led to a great deal of re-briefing and re-working material that had been completed months prior.

Because of the OCAR confusion I was called to brief the USARC COS on what exactly had transpired. This briefing led to another close look at the USARC KM section and what we do, and how it benefits the USARC.

In preparation for the COS briefing, I coordinated to have Colonel Michaels physically present, which meant getting him travel orders. I also built a half a dozen information binders on Army KM and our directorate's history to that point. An unexpected and added twist to the briefing was the attendance and participation of the deputy CAR. Fortunately for the USARC KM section, the briefing went well and the CAR approved our continued operations, and more importantly, funding.

## **SUMMERTIME KNOWLEDGE MANAGEMENT**

In the summer of 2017, the USARC KM section was humming. During this time, the external requests for KM visits increased. We had a full schedule of training events that included an assortment of classes, multiple working groups, and several special projects.

We were also joined by Mr. Zumwalt and Mr. Horace. The addition of these two teammates increased our capabilities exponentially and took the USARC KM section to the next level. The timing of Mr. Horace's arrival was perfect because I had several general officer briefings scheduled and his background included a wealth of senior leader experience. His input and guidance proved invaluable with these types of engagements.

Mr. Zumwalt's arrival was beneficial because his technical skills were critically needed. Some of the immediate needs included various tracker systems for general officers in the command group. Fortunately, Mr. Zumwalt happened to be an expert on advanced Microsoft Excel capabilities and was able to show immediate return on investment by developing automated tracker spreadsheets that were conceptually approved on the first review. An instant win for the USARC KM office.

Mr. Horace's immediate value had nothing to do with anything he physically did, but his knowledge base and experience. I immediately knew he was the right person to lead the KM support team. The arrival of Mr. Horace and Mr. Zumwalt also signified the change in my own role. I transitioned to more of a leader, planner, and strategist role.

## **FIGHTING FOR A KNOWLEDGE MANAGEMENT FUTURE**

By October 2017, the team had come together in their roles. This growth had not come without setbacks, but we were able to overcome the differences and become an extremely effective team that successfully assisted the USARC staff during a record-breaking hurricane season. The KM section had been acknowledged by multiple senior leaders for their contributions.

Mr. Horace was the support team's manager. Mr. Roberts was his deputy and the day-to-day job manager. Ms. Grey, Mr. Keaton, and Mr. Zumwalt were the technical executors, along with Mr. Roberts. Ms. Brown conducted quality assurance/quality control measures to ensure the program was meeting mission and in compliance. We all taught various classes and led various meetings at different times.

My role in all of this was to identify areas for the team to focus their efforts, prioritize projects, and facilitate their ability to execute support to the Army Reserve. My official title was deputy chief knowledge officer for the Army Reserve. In reality, because the CKO, Colonel Michaels, was a weekend reservist, I was the KM program officer, project manager, KM planner, resource officer, contract representative, and administrative officer for the day-to-day USARC KM office operations. When I needed "top cover" to converse with the O-6s, I could count on Colonel Michaels to dial in on a teleconference or meeting and lend credibility to our efforts.

The biggest part of my job was building relationships, identifying areas that the team could help the USARC, and identifying areas that the USARC could take to modernize its mission command systems. I began to focus my efforts in this area after the shift in my role. One of the first things I needed to do was link up Colonel Michaels, the CKO, with the new USARC CIO/G-6. It was critical for us to build a positive relationship with him. Fortunately we were able to do that quickly when Colonel Michaels came to Ft. Bragg, North Carolina, in the first week of October 2017. A 20-minute scheduled office call with the CIO/G-6 turned into an hour of collaboration and discussion. It was brought out in this meeting that the G-6 had previously served as a KM officer (KMO).

With this new relationship and support, the USARC KM office was armed with the necessary backing to take a more assertive role in addressing the KM gaps throughout the organization. The deliberate and analytical approach to categorizing our stakeholders allowed us to capitalize on building relationships, showing value in our efforts, building credibility, and overcoming critical changes in key personnel with minimal impact to mission.

The USARC KM office published a KM strategy, a content management governance, and initiated an Army Reserve common operational picture (COP) that directly increases mission command capabilities. Additionally the KM team averaged over 50 help requests a month, and trained over 2,000 staff members in various collaboration systems that led to a \$400,000 cost avoidance.

Most importantly, the USARC KM office built a reputation for leading change. Change began with the G-6 MOA and resulted in KM's first win that was noticed by the entire Army Reserve—the SharePoint landing page. That win helped establish credibility that allowed the KM team to form relationships built on trust. Those relationships helped shape a culture that was ready for change. Without that trust, the KM team would not have been able to influence the budget, hire a contract support team, and become an example that other organizations, such as the OCAR and 80th Training Command, wanted to emulate.

### **Endnotes**

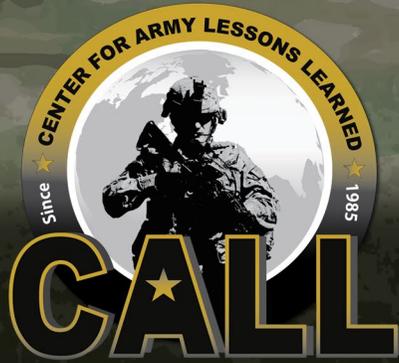
1. Army Doctrine Reference Publication (ADRP) 1-03, *The Army Universal Task List*, 02 OCT 2015.
2. Army Doctrine Publication (ADP) 3-0, *Operations*, 31 JUL 2019.
3. ATP 3-92, *Corps Operations*, 07 APR 2016.

## GLOSSARY

### Acronyms and Abbreviations

<b>ADP</b>	Army Doctrine Publication
<b>ADRP</b>	Army Doctrine Reference Publication
<b>APQC</b>	American Productivity and Quality Center
<b>ASCC</b>	Army Service component command
<b>ASI</b>	additional skill identifier
<b>ATP</b>	Army Techniques Publication
<b>ATRRS</b>	Army Training Requirements and Resources System
<b>BG</b>	Brigadier General
<b>BICES</b>	Battlefield Information Collection and Exploitations Systems
<b>C2</b>	command and control
<b>CAC</b>	common access card
<b>CALL</b>	Center for Army Lessons Learned
<b>CAR</b>	Chief, Army Reserve
<b>CAT</b>	capability assessment tool
<b>CCIR</b>	commander’s critical information requirement
<b>CEO</b>	chief executive officer
<b>CG</b>	commanding general
<b>CIDNE</b>	Combined Information Data Network Exchange
<b>CIO</b>	chief information officer
<b>CJFLCC</b>	combined joint force land component command
<b>CJTF</b>	combined joint task force
<b>CJTF-OIR</b>	Combined Joint Task Force – Operation Inherent Resolve
<b>CKO</b>	chief knowledge officer
<b>COP</b>	common operational picture
<b>COS</b>	chief of staff
<b>CP</b>	command post
<b>CUOPS</b>	current operations
<b>CW4</b>	chief warrant officer 4
<b>CYBERCOE</b>	U.S. Army Cyber Center of Excellence
<b>DA</b>	Department of the Army
<b>DCS</b>	Defense Collaboration Services
<b>DHS</b>	Department of Homeland Security
<b>DOD</b>	Department of Defense
<b>DOTMPLF</b>	doctrine, organization, training, materiel, leadership and education, personnel, and facilities

<b>FEMA</b>	Federal Emergency Management Agency
<b>FORSCOM</b>	U.S. Army Forces Command
<b>FUOPS</b>	future operations
<b>HQ</b>	headquarters
<b>IT</b>	information technology
<b>JOC</b>	joint operations center
<b>KM</b>	knowledge management
<b>KML</b>	Keyhole Markup Language
<b>KMO</b>	knowledge management officer
<b>KMR</b>	knowledge management representative
<b>LOE</b>	line of effort
<b>LTC</b>	lieutenant colonel
<b>LTG</b>	lieutenant general
<b>MCCOE</b>	Mission Command Center of Excellence
<b>MEDCOM</b>	U.S. Army Medical Command
<b>MedCOP</b>	medical common operational picture
<b>MIPR</b>	military interdepartmental purchase request
<b>MOA</b>	memorandum of agreement
<b>NGA</b>	National Geospatial-Intelligence Agency
<b>OCAR</b>	Office of the Chief, Army Reserve
<b>OPT</b>	operational planning team
<b>PgMP</b>	Program Management Professional
<b>PIR</b>	priority intelligence requirement
<b>RHCA</b>	Regional Health Command-Atlantic
<b>ROC</b>	rehearsal of concept
<b>SOP</b>	standard operating procedure
<b>SME</b>	subject matter expert
<b>TPU</b>	Troop Program Units
<b>USACE</b>	U.S. Army Corps of Engineers
<b>USARC</b>	U.S. Army Reserve Command
<b>USNORTHCOM</b>	U.S. Northern Command



**CENTER FOR ARMY LESSONS LEARNED**  
10 Meade Avenue, Building 50  
Fort Leavenworth, KS 66027-1350

<https://call.army.mil>



**U.S. ARMY  
COMBINED  
ARMS CENTER**

<https://usacac.army.mil>



**MISSION COMMAND  
CENTER OF EXCELLENCE**

NO. 20-550

**APPROVED FOR PUBLIC RELEASE  
DISTRIBUTION UNLIMITED**