Digitalizing Soldier knowledge with Generative AI enhances productivity and preserves valuable experience for future missions. The Army must embrace this technology to maintain its competitive edge on the battlefield. (AI-generated image by *NCO Journal*)

Digitalize Your Brain!

By Micheal Clowser

Army Knowledge Management

Imagine taking over a position where you can access the continuity books of the 10 people ahead of you. How would you have time to read, review, and filter through the endless information? Thankfully, Generative AI (GenAI) is a developing capability to assist in such an endeavor.

GenAI is software capable of creating high-quality content by request based on data on which it was trained (Martineau, 2023). GenAI can search data and provide answers in seconds, derived from information curated over years. (One dilemma is accessing data not properly captured: Those continuity books would need to be digitized or stored in a way compatible with GenAI.)

In the March 2024 online issue of *Military Review*, Gen. James Rainey and Gen. Gary Brito wrote:

> "Our people are our number one asymmetric advantage. *We have the best soldiers, noncommissioned officers (NCOs), leaders, and commanders of any army in the world. Our priority must be to maintain this advantage, even while the character of war is in a period of rapid, disruptive change."*
>
> *(Rainey & Brito, 2024)*

Soldiers' knowledge and experience are our advantages. The Army should embrace GenAI to digitalize and manage Soldier knowledge, thereby enhancing productivity, preserving tacit knowledge, and gaining an advantage for future missions.

Importance of Soldier Knowledge

We can divide knowledge into two categories: tacit and explicit. Tacit knowledge resides in the Soldier's mind and consists of comprehension gained through study, experience, practice, and human interaction. Explicit knowledge is written or otherwise documented.

A 2018 International Data Corporation study found

that "data professionals are losing 50% of their time every week," with 30% searching for, governing, and preparing data and an additional 20% duplicating work (Probstein, 2019). Effectively managing this environment with vast volumes of information depends on available resources and an individual Soldier's ability to capture and organize incoming data.

Simply put, we are on the precipice of enhanced productivity with GenAI's assistance. The sooner the Army embraces the advantages of digitalizing Soldier knowledge, the sooner we gain the decisive advantage required to win on the battlefield beyond 2030.

Digitalizing your brain begins with each Soldier and how they document their knowledge. Christine Wormuth, the 25th secretary of the Army, emphasized the need for the Army to become more data-centric and operate in contested environments to prevail on the future battlefield (Mejia, 2023).

GenAI has revolutionized operations in many organizations and significantly enhanced efficiency by generating new and original content through models, learning patterns, and structures from existing data to produce novel data (new, original, and previously unseen data) with similar features (Ojansuu, 2023).

GenAI effectively preserves tacit knowledge often lost when departing an organization, capturing valuable insights and expertise. Effective knowledge management is critical for organizations to remain competitive in today's fast-paced world.

Personal Knowledge Management

Personal Knowledge Management (PKM) or knowledge base is how individuals manage knowledge to achieve their goals and objectives. PKM is a systematic approach to acquiring, organizing, storing, retrieving, and sharing personal knowledge (Frand & Hixon, 1998). The Army must manage its knowledge effectively to prepare for future wars.

Its current reliance on handwritten materials or the ubiquitous "green notebook" to capture tacit knowledge misses the opportunity to record learning and experiences in a way that can be searchable and quickly recalled.

Soldiers writing on notetaking material will always have the need to replace it once it's complete, causing an additional step: deciding what to do with the written knowledge. After several years, a staff officer or NCO will have several completed books in different locations. Still, none of the captured knowledge will be readily available to recall or quickly search.

GenAI can leverage a personal knowledge base using digital notetaking apps for flexible organization, creativity, note searches, and collaboration. Examples

Tacit knowledge is gained through study, experience, practice, and human interaction, while explicit knowledge is documented and easily accessible. The Army should embrace the advantages of digitalizing Soldier knowledge, as GenAI preserves valuable tacit knowledge and ensures organizations remain competitive in today's fast-paced world. (AI-generated image by *NCO Journal*)

include Microsoft OneNote, Obsidian, and Evernote.

PKM empowers individuals to capture ideas, collaborate effectively, and enhance productivity. More importantly, GenAI with a knowledge base analyzes vast amounts of data from different sources — such as satellite imagery, social media, and news reports. This analysis can help Army organizations identify patterns and trends in the data, which can generate insights and recommendations for future projects and missions.

The most significant benefits gained are in enabling lessons learned and the ability to help users understand — increasing learning speeds and reducing the time required to reach proficiency in a new role. With GenAI, the Army can efficiently manage and analyze large volumes of data.

The Army's current reliance on handwritten paper or the ubiquitous "green notebook" to capture tacit knowledge misses the opportunity to record learning and experiences in a way that can be searchable and quickly recalled. (U.S. Army photo by Spc. William Rogers)

Practical Application

In April 2024, IBM WatsonX partnered with the Army Knowledge Management Proponent (AKMP) and the Mission Command Battle Lab (MCBL) to develop a demonstration of their Large Language Model (LLM) on a proposed problem developed by AKMP.

The project focused on the Knowledge Management Qualification Course (KMQC) with the expected outcomes to include student support for knowledge product development, quick access to doctrine, assistance of learning outcomes, and support for curriculum and instructor review to increase delivery efficiency.

The data required for the LLM included existing doctrine, associated read-ahead articles, curriculum, schedules, practical exercises, grades, after-action reviews (AARs), and student interviews for three classes to help train the LLM.

The critical linkage to PKM was AARs, akin to a student's tacit knowledge of how each class was delivered and received. Queries asked of the LLM referenced precisely where the program created the answer and did leverage AARs, proving to AKMP that the student's responses were helpful in GenAI's response creation.

In addition to the LLM, the AKMP introduced a team PKM exercise using OneNote. In this exercise, the four groups wrote their thoughts on each class using a specific format provided by the instructors.

The group used one sheet owned by the team lead, where the team collaborated on their ideas. What AKMP learned from this exercise was that the collaborative input from each teammate expanded the AAR with more deliberate and thoughtful comments that were constructive for instructors.

Implementation Strategies

To fully leverage Soldiers' knowledge with GenAI, the Army should consider how individual productivity fits within the overall construct of Professional Military Education (PME). Soldiers should be taught early on how to capture and organize their notes and knowledge in a structured and logical way that increases their productivity.

Second, the Army should research additional technologies for efficient data gathering, including assessing additional storage, hardware, and software capabilities to ensure accessibility and usability for future needs.

Soldiers should carry their tacit knowledge throughout their careers and beyond, allowing them to retrieve past experiences, collaborate with peers and coming groups to produce learning opportunities, and be digital in the present.

Finally, the Army is experiencing an unprecedented explosion of available software and applications. Soldier-accessible Microsoft 365 applications offer a litany of training opportunities. Unfortunately, most of this training is decentralized, and individual end users determine which is helpful.

The Army should consider a proponent responsible for the proficiency of these applications — covering, at the minimum, the essential software standard for all. The proponent could build a training plan that includes institutional and self-domains that improve the workforce's knowledge and skills.

Conclusion

GenAI has great potential to contribute to organizations' future success, notably the Army's. The technology will help retain tacit knowledge, support vast data analysis, and provide valuable insights.

To gain a decisive advantage for the future, the Army should embrace a process for PKM that capitalizes on building productivity in Soldiers, capturing their knowledge, investing in technology that facilitates the data, and codifying the efficiency gained by embedding it into PME.

A digitalized PKM capability will increase the speed of information and ultimately give the Army a decisive advantage as it starts capturing the knowledge in a method usable by GenAI. ■

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