FY26 Q2 SMS Newsletter

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2026 SMS SUMMIT: SAVE THE DATE

The 2026 Sustainment Management System (SMS) Summit is scheduled for week of 4-6 August 2026 at the National Academy of Sciences in Washington, DC. Virtual attendance options will be provided closer to the date.

The SMS Summit provides updates on SMS software development efforts, application usage and implementation across federal facilities, and on-going and upcoming research in SMS work. During each session, federal facilities personnel and industry practitioners are invited to explore the latest developments in SMS implementation and integration in facility asset management.

DATA DRIVEN OPTIMIZATION

Louis "Buddy" Bartels (Civil Engineer), Brayden J. Riesberg (Data Scientist), Robert B. Skudnig (Data Scientist), Joseph Wittrock (Data Scientist), and Eric R. Mixon (Computer Scientist) were awarded the prestigious L. R. Shaffer R&D Achievement Award for Outstanding Technical Achievement. The award, presented at the CERL Annual Awards ceremony in December 2025 recognizes excellence in scientific technical achievement, leadership, and collaboration. Bartels, Riesberg, Skudnig, Wittrock, and Mixon were recognized with this award for developing and deploying the Facility Investment Plan Optimization (FIPO) tool, an enterprise decision-support system that automates Army facility investment prioritization.

FIPO integrates data from multiple disparate sources to analyze and prioritize over 150 billion dollars in projects. It applies user-configurable risk-based value scoring, multiple optimization solvers (PuLP/CBC integer programming, greedy algorithms), and post-optimization wargaming to generate tiered, validated recommendations across multiple Army funding streams. This shifts the Army from manual processes to repeatable, data-driven optimization within budget constraints. Its modular framework establishes a

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scientific foundation for future enhancements, including machine learning and predictive analytics. FIPO directly improves installation readiness, soldier quality of life, and power projection capabilities by optimizing stewardship of the Army's more than $500 billion real property portfolio, aligning investments with National Defense Strategy priorities.

"It's optimizing the projects based on constraints and looking at different top-line budgets," Bartels explained. "Why are we still trying to sort things and make little manual cut lines in Excel? Let's put it in a platform where we can do true optimization."

The journey to FIPO 2.0 began as a concept within the Army Materiel Command's Analysis Group (AMCAG) and evolved into a promising prototype. It was then handed off to the CERL team, who created an interactive interface, connected the tool to the FIP database, and delivered a functioning tool.

The project was not without its hurdles. The first of which was getting buy-in for this level of data analytics. "If users don't understand where the data is coming from, [they] get nervous," Bartels said. The team utilized algorithms that take a more traditional approach instead of a truly optimized data-centric approach to allow comparison for users more familiar with traditional budgeting. FIPO 2.0 was designed for flexibility, blending powerful algorithms with human expertise. It isn't a black box dictating orders; it's a decision-support tool. As Riesberg highlighted, "this is just a tool that isn't the final say. [Leaders can] say, okay, now these projects are must-funded, and then the tool will work around those parameters and include those."

Bringing the prototype to life was challenging on several fronts. The team grappled with technical issues, including developing a front-end that allowed users to interact with the math model running in the background. As well as a phenomenon called the "curse of dimensionality," where the problem's complexity grows exponentially as more variables are added. "This project takes a really cool approach to that. It doesn't just produce one static solution, given the inputs. It's really malleable." Wittrock explained. "There are different weights that you could assign, and you can produce multiple solutions, tweak those, and then compare those side by side in built-in dashboards to see what's different."



Pictured from left to right: Brayden Riesberg, Robert Skudnig, Louis "Buddy" Bartels, Joseph Wittrock, and Eric Mixon.

Looking ahead, the future of FIPO 2.0 is bright. The transition of FIP data collection for the Active Army has been approved to move into another SMS product – VTIME – an installation planning and facility investment application suite.

MISSION DEPENDENCY INDEX

During FY25, Carrie Heishman (SMS-TCX Community Planner) provided unparalleled leadership by directing the Army's transition from the Facility Readiness Drivers (FRD) to the modern Mission Dependency Index (MDI). Her leadership earned her the LR Shaffer R&D Achievement Award for Outstanding Technical Leadership presented at the CERL Annual Awards ceremony in December 2025. Endorsed by the Government Accountability Office (GAO) and National Academies as a best practice, the HQDA-directed initiative resulted in the first validated MDI dataset for the Army's entire 1-billion-square-foot real property inventory. This achievement now enables risk-informed investment decisions for the FY26 programming cycle and beyond.

E-SMS PILOT PROGRESS

Significant progress continues as we advance through partner onboarding and pilot testing for the Enterprise Sustainment Management System (E-SMS) platform. Engagement has been strong across all participating teams, and early feedback reflects both the quality of the collaboration and the value of the platform enhancements. These milestones reinforce our shared commitment to a seamless migration and position us well for the next phase of implementation.

MEET THE NEWEST MEMBER OF THE SMS-TCX: THE SMS EXPERT MODEL

The two largest challenges our users face are the sheer volume of SMS information available to them and the numerous sources it comes from. The SMS-TCX Innovation Lab is taking on this challenge by partnering with AI to consolidate SMS knowledge and provide a single source of truth for its users.

It all started with a robot named ROSIE. ROSIE (Real-time Observational System for Infrastructure Evaluation) is an industrial delivery robot turned into a facility assessment assistant by Matt Richards (Research Information Systems) and Brayden Riesberg (Research Data Scientist). “We've attached two NVIDIA Jetsons to it. They're specialized computers meant for machine learning.” Reisberg explained, “We can hook up large language models (LLMs) or any type of neural net, and it's optimized to run those things.” The next step was teaching the model what it needed to know to assist with inspections. “[We] loaded it up with documents that describe how to inspect something, and then take a visual image, and apply the SMS way to inspect to robotics or vision systems,” said Richards.

The LLM Richards and Riesberg developed became known internally in the SMS-TCX branch as the “SMS Expert Model” and has since been utilized in numerous efforts across the team. SMS teammates regularly

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use the model to search or query complex guides and data. For example, a custom model was deployed to allow engineers to perform contextual searches across thousands of UFGS and UFCs, returning context-aware answers with document citations. In another use case, where the Army's GIS Quality Assurance Plans were used, the model functions as a query tool to locate and explain specific GIS data standards and locations.

One of the most intensive examples is when the model was utilized to support the development of cost books, which greatly accelerated the timeline for such a complex undertaking from several months to a few weeks.

Looking ahead, the SMS team is considering how the SMS Expert Model could be leveraged for other uses, such as a chatbot feature in the E-SMS web application, which would put the vast expanse of the SMS knowledgebase at users' fingertips. Other experimental use cases include loading the Enterprise Sustainment Management System (E-SMS) and Builder data dictionaries and enabling the model to generate its own data queries for targeted data mining and analysis.

And of course, the SMS Expert Model remains integral to ROSIE's development, which is designed to reduce costs and increase the frequency of building inspections by improving efficiency and reducing the level of effort required for manned inspections. "The main use case that we see for [ROSIE] is that it would work with an inspector." Richards says, "Let's say an inspector drops it off and lets ROSIE run through the building, map the building, [and] inventory the building. It checks the E-SMS database to see if components are in there. If they're not in there, then it adds the components, and then it comes back with a report for the inspector that says, here are the things that it couldn't inspect, and here's a list of things that it did inspect but need more attention."



Matt Richards (left) and Brayden Riesberg (right) pictured with ROSIE.

The SMS Expert Model provides a scalable framework for future advancements and reinforces the SMS-TCX's focus on leveraging data-driven solutions to meet mission objectives.

Attachments

- FY26 Q2 Newsletter.pdf [1.24 MB]