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NAVY SBIR TRANSITION PROGRAM

SPOTLIGHT

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From SBIR to success: Colvin Run's mission-driven analytics solution transforms fleet maintenance scheduling

By Amie Alscheff

The U.S. Navy is actively investing in fleet maintenance and modernization initiatives to improve ship availability and reduce maintenance backlogs. With SBIR funding from the Office of Naval Research (ONR), Colvin Run Networks developed Secure Hyper Intelligent Predictive Maintenance Analytics with Technical Enhancement (SHIPMATE), a project management decision aid (PMDA) that helps the Navy's Regional Maintenance Centers (RMCs) keep maintenance work on schedule for Navy surface ships.

The SHIPMATE SBIR technology transitioned to the Ships Maintenance Data Improvement Initiative (SMDII) program of record. SMDII is a program within NAVSEA's SEA21D, a directorate created in 2019 to focus on data and metrics. The SMDII team, located within Naval Surface Warfare Center (NSWC) Corona, developed and manages a data system that makes maintenance availability schedule and cost metrics more visible and accessible to decision-makers.

Working with NSWC Corona, Colvin Run developed a series of applications to support SMDII, delivered through interactive browser-based dashboards, that answer critical questions PMs need to understand based on ship location and contractual work item information. The data framework enables integration of different data sources—e.g., varying contractor data formats, maintenance vs. modernization projects in the same ship, and more—and curates them so that PMs can address conflicts and maintain visibility into decisions impacting cost and schedule. The applications were developed with an enterprise application approach, keeping the end users in mind.

In Phase I of the SBIR project, working with Dr.

Colvin Run's interactive dashboards make maintenance availability metrics visible and accessible.

Woei-Min Lin and Rich Blank at ONR, Colvin Run focused on analyzing engine sensor data for engines still in laboratory development. As the company sought to understand the Navy's needs, Colvin Run attended the Fleet Maintenance & Modernization Symposium in 2021 and met with a maintenance team from the Southwest Regional Maintenance Center (SWRMC). "It was great," recalled Covin Run CEO Nikhil Shenoy. "They literally had a slide that looked like a blank iPad that said 'friendly user interface' on it. That's how we found out that was the problem that needed to be addressed."

For their Phase II SBIR contract, Colvin Run worked closely with NAVSEA21D under Director of Data, Metrics, & Analytics Josey Wales and with support from Commander, Navy Regional Maintenance Center (CNRMC) Innovation Lead Kirk Jenne to collect and curate individual RMC and CNRMC requirements to develop the SHIPMATE prototype.

"Colvin Run's SBIR effort was a natural fit to unravelling a pain point for the RMCs," said Jenne. "Colvin Run's agility and focus on the problem,

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with Navy personnel providing insight, was a collaborative approach that built in efficiencies and optimized the user experience."

The solutions Colvin Run created allow users to quickly and easily access information that formerly would have required manually searching multiple vast Excel spreadsheets. "We helped create a simple picture of the ship that marries four different data sets in terms of different levels of the availability," said Shenoy. "We got it to the point where you click on the ship and it tells you what's going on. With the data curated this way, you could avoid certain delays, like having hot work being done where sensitive gas work was also scheduled. The coordination had been very manual. Now the decision aid brings this together quickly and intuitively."

Colvin Run is not a software company but rather technology agnostic, developing solutions for its customers based on commercially available software platforms or tools they already have in place. During Phase I of the SBIR project, Colvin Run used software from MicroStrategy, a company they partnered with to develop analytics solutions for the Air Force and other federal agencies. As they discovered more about how the Navy intended to use the technology, however, Colvin Run learned that the SMDII program had implemented a different software platform, Tableau, offered by SalesForce. During the SBIR Phase III, Colvin Run created new PMDA prototypes in Tableau, which allowed it to function efficiently with the SMDII teams' backend databases and also enabled rapid deployment through the existing authority to operate (ATO).

"That's why we partner with a lot of software companies," said Britta Jones, Colvin Run's technology director. "We're trying to be as agnostic as possible about technology and tailor it to our client's specific needs. It could take two years to get an ATO to put new software onto their systems and networks, so we build off what they already have rather than starting fresh. It saves time at the end of the day, with faster adoption at the waterfront."

Jones led the development of SHIPMATE during the Phase II contract. She recalled how Colvin Run sought input from the end users, who are the program managers responsible for scheduling ship maintenance availability at the RMCs.

"During the SBIR Phase II, we visited four RMCs to understand the problem. We spoke to program managers to ask about the actual problems they have at the waterfront and what they need to make ships get out faster. We put that time and effort into it because we knew this was a problem that wasn't just going to go away overnight with one possible solution. It's a large problem."

Creating a solution that would be effective across RMCs was a major challenge given the differences in scale and requirements among facilities. "It's hard to do comparisons between SWRMC, which is giant, and Mayport, which is relatively small, and have the same metrics between the two. They also have different management processes. You can't have everything completely standardized. It's not possible with how they function," said Jones. "We worked with the end users, asking 'If we build this in a certain way, is this still functional? If it's prepared this way compared to that way?' Understanding why each RMC had its own ways, we came up with a standardized calculation that everyone could agree upon as a starting point for their requirements."

With the SHIPMATE prototype complete, NAVSEA21D wanted to continue working with Colvin Run. However, in 2022 the SBIR program reauthorization was in Congressional limbo until the end of the government fiscal year in late September. The Navy arranged a subcontract through prime contractor Serco, which already had a large umbrella contract with the NAVSEA21 organization. The Phase III funding for the subcontract was awarded the same week Colvin Run's Phase II contract ended. Work on the subcontract began in January 2023 and was completed in July 2024.

Working as a subcontractor to Serco was an overwhelmingly positive experience. Colvin Run now has a Defense Contract Audit Agency (DCAA)-approved accounting system and

Cybersecurity Maturity Model Certification (CMMC) Level 2, as well as a secret facility clearance. "We did some of that on our own," said Shenoy, "and it helped to have Serco ask for our costs and make us report our hours every month. I think one of the hardest things for small businesses is to have good discipline, and working with a partner like Serco and inserting ourselves into their process was very helpful.

"When we got paired with Serco for this subcontract, it turned out to be a great thing. They've been a phenomenal partner to us, specifically, Ken Long, the PM, and his team. The arranged marriage from the Navy worked out really well."

Image courtesy of Colvin Run.

SHIPMATE helps keep maintenance work on schedule for Navy surface ships.

Working under the auspices of a larger company like Serco helped Colvin Run position itself as a stronger competitor for future government contracting work, according to Shenoy. Colvin Run is growing rapidly as a company, more than tripling its staff in the past 18 months. In 2024, the company won six new SBIR awards, including two new Phase II contracts with the Navy. Colvin Run aims to build on past performance and move beyond the SBIR program; the company has established itself on Seaport and created a growth team, which has secured the company a place on the GSA Multiple Award Schedule (MAS) contract vehicle. Armed with the SBIR Phase III justification, the infrastructure they developed under Serco, and the GSA MAS vehicle, Colvin Run is now eligible for pre-competed, uncapped, sole source rapid acquisitions of their mission-driven analytics capabilities.

During the development of SHIPMATE, Colvin Run participated in Navy STP, which allowed them to showcase their technology at AFCEA WEST. "A company of our size couldn't afford a booth at WEST, but they gave us one," said Shenoy. "Britta and I got to go last year, which is awesome.

"One thing I want to emphasize is that we started commercializing from day one of the SBIR Phase II," said Shenoy. "We focused on the end user, focused on adoption being the only metric that matters. How do we get tools into the hands of people that need them? I don't think the monetary success is there yet, but we showed that an SBIR performer was able to continuously work with the Navy and build tools that people want to use. We're not going to solve a $10 billion problem alone, necessarily. We're not that company—yet. That's where the future of Colvin Run in the Navy is focused: Where can we make a difference at our customers' scale?

"We're the easy button for some of this mission-driven analytics. We're flexible; companies want to work with us. Companies that would have competed with us in the past are now looking to partner with us, and a lot of that's because of the direction the Navy gave us through the STP program."

Colvin Run is located in Tysons, Virginia, near the site of a working 200-year-old gristmill, Colvin Run Mill. The 19th-century gristmill, according to the company, "symbolized a revolution in automation since it required very little manual labor." For further information about the company visit www.colvinrun.com.

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