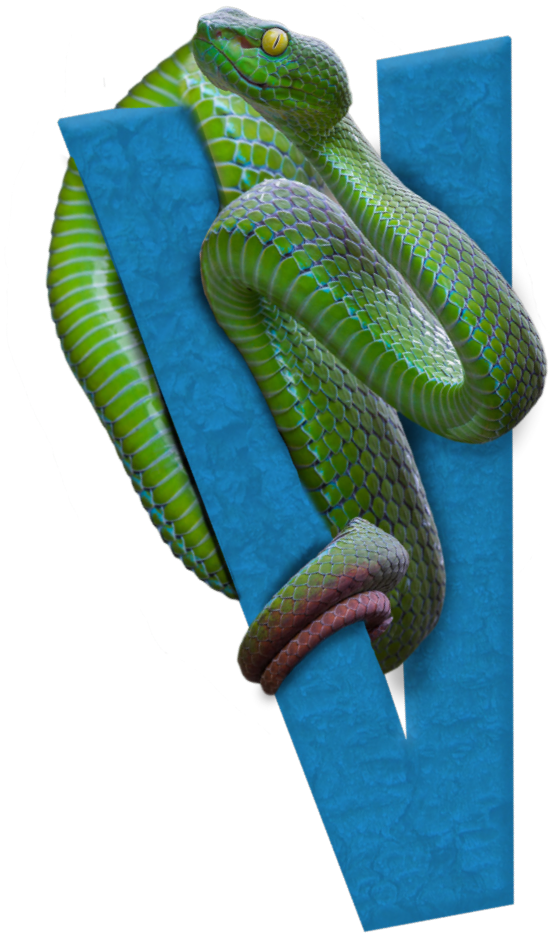


iPER

Monterey Technologies' Visual Planning, Execution and Review software lets military and commercial planners execute complex missions on the fly.

Imagine the following scenario: late one evening a United States Navy attack submarine, the USS City Fish, departs the Virginia Capes Operating Area in Virginia Beach, Virginia. The longplanned deployment, crossing the Atlantic Ocean, is first scheduled to stop in Faslane, Scotland, approximately 3,500 miles away. The operation includes multiple anti-submarine warfare (ASW) exercises, port visits, and special operations.

During a routine radio check later that night, the crew receives an urgent message. Current deployment plans are cancelled and the USS City Fish is ordered to make "best speed" to the Suez Canal for a different operation in the Arabian Gulf, more than 9,000 miles away. Retasked, key personnel gathered to create a new plan.

But there is a problem: the crew is not prepared for operations in that area of the world. Executing a major change of plan requires extensive and simultaneous re-planning of navigation, operations, weapons, engineering, and logistics. Navigation charts and environmental data, such as weather forecasts, need to be studied in detail. Complex operations, ship courses, and maneuvers must be developed using mission planning products, including Power Point charts and Excel spreadsheets (not integrated with each other), paper maps, decision briefings, Word documents, and

USMTF messages (United States Message Text Format are military standard messages).

The inordinate amount of time that it takes planning teams to create mission planning products is a fundamental challenge. Each Power Point and Excel spreadsheet requires many hours of effort. Every plan change is manually updated, possibly introducing human error, and reviewed. The process is iterative until a final plan is approved that allows the sub to reach its destination safely and on time.

Bryan Ramsey, Deputy Program Manager for Science and Technology Project Management Activity 281, Naval Air Systems Command (NAVAIR), said, "We were using grease boards, white boards, and other tools, such as Power Point. There was no single tool to plan and coordinate everything to get from point A to point B. If someone made a change, we had to go back to the whiteboard and redo everything. And if there was a mistake, there could be a disaster."

Enter Monterey Technologies, Inc. (MTI). Robert (Bob) Chamberlain, President, explained: "At issue was, and continues to be, how large planning teams go about planning for complex operations. In response to the Department of Defense's SBIR (Small Business Innovation Research) call, we proposed a digital software program to the Navy that automates those manual planning processes and automatically captures and presents the data in a familiar format. We automated the planning process so they could make a change and be sure there are no transcription errors, eliminating mistakes, and saving hours of time."

Visual Planning Execution and Review Mission Planning Application, ViPER MPA, is an elegant logistics planning application engineered by ex-Navy planners. Chamberlain said, "A handful of us had backgrounds as tactical navigators. One of them is Todd Cloutier." MTI's lead business director for mission planning systems, Cloutier is also a former submariner. Cloutier said, "My title was Plans Officer, on the USS Abraham Lincoln. I did that every day for four years. I absolutely understood the problem that ViPER solved."

"I believe in the SBIR program," said NAVAIR's Brian Ramsay. "If we had tried to do this through a regular acquisition process, it would have cost much more money."

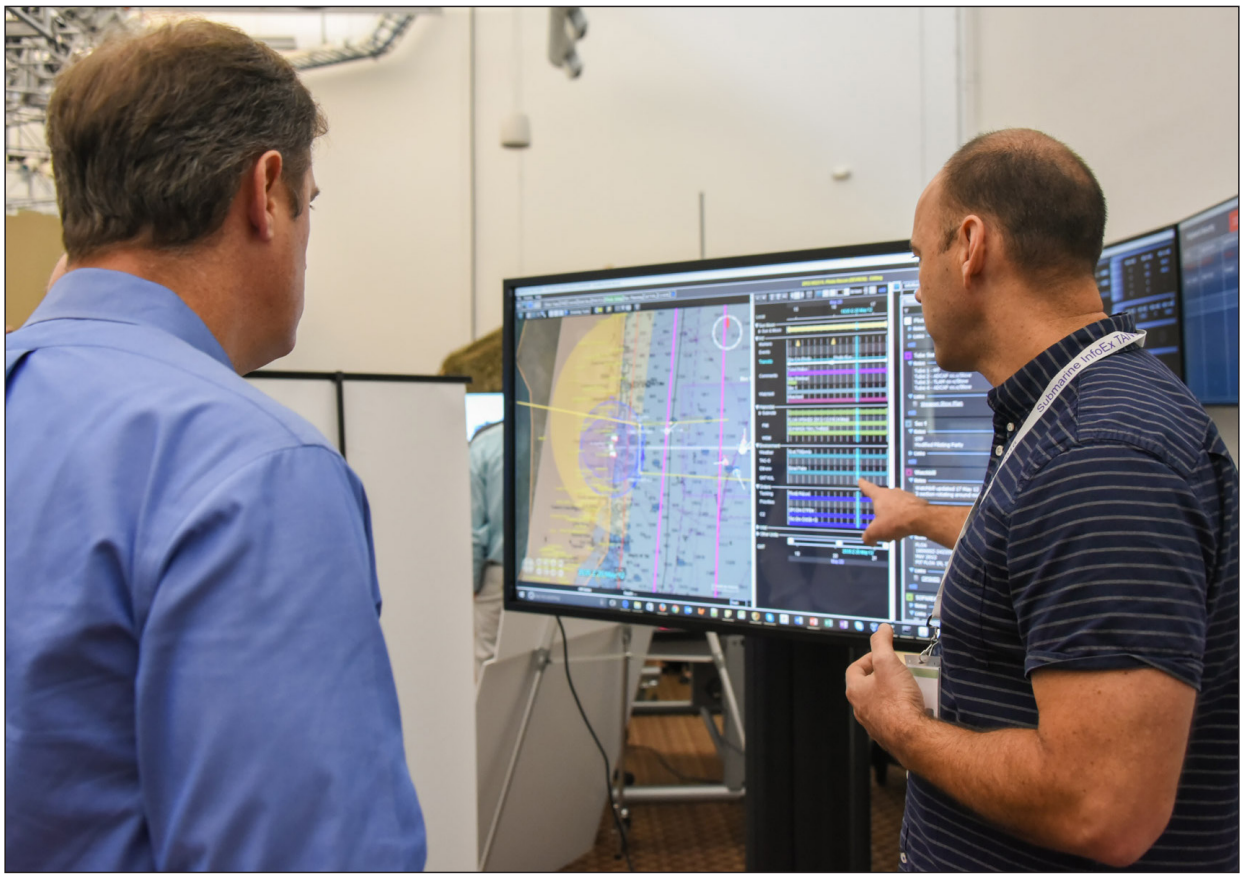
One of the tasks that Cloutier tackled, as Plans Officer, was to shuffle through seven types of charts in order to identify the shallowest points in the transit corridor. This was taking from seven to eight hours to accomplish. Using ViPER MPA, however, this same task can now be done in three to four minutes.

Cloutier said, "We wanted to ease the transition to execution. We want to say, 'Go!' and then start going. How do we do that in ViPER? The solution is all the data goes into one database."

ViPER can visualize all of the geographic and time-based constraints. It shares information digitally and automatically. It outputs flowcharts and messages, uses a plans database (routes, maps), helps define routes, performs calculations for tactical decisions, consults weather forecasts, and exports data, including screenshots and orders, and schedules of events in a small, readable file. It also prints the plan, significantly reducing the time between the Commander's order to execute a new plan and the executive order to follow it.

Bob Chamberlain

"I believe in the SBIR program," said NAVAIR's Brian Ramsay. "If we had tried to do this through a regular acquisition process, it would have cost much more money. Doing this with a small business initiative,



A Monterey Technologies team member demonstrates ViPER at a sales conference.

we saved money and taxpayer dollars. The SBIR gave us the ability to work with Bob, Todd, and Monterey Technologies. ViPER provided us with a single tool that enables electronic planning across multiple different platforms, does the coordination, and synchronizes data and messages in real time."

Based in Park City, Utah, with offices throughout the U.S., MTI is a human-centered analysis, design, and ergonomics firm that believes technology should be developed to serve the needs of the human user. Current clients include the military, defense contractors, and the commercial sector.

Chamberlain said, "There are significant non-military applications for the general ViPER product. For example, international relief efforts, like in Haiti, where a team must plan for multiple types of assets over time, determine who needs what, when they need it, where supplies are, where they need to be, how to get them there, and what the priority is for delivery. And wildfire response, like the 2017 and 2018 massive California wildfires. This is a situation where there needs to be a huge coordination effort. ViPER does exactly that."

Luckily, ViPER MPA is integrated on all Navy submarines. If the USS City Fish had been real, the crew would have simply entered the new deployment order into the system. The navigation, engineering, and operations plans would have been downloaded and safety checked against the latest chart and environmental data. The crew would have slept peacefully, and spent the next week in transit to the Arabian Gulf preparing for their new mission. And once on station, the crew would have been rested, trained, and ready to go.

Monterey Technologies, Inc.
Modernization Priority: Networked Command, Control, and Communications (C3)
Park City, UT / Monterey, CA • SBIR contract: W911W6-05-C-0006 • Agency: Army • Topic: A03-070, Merging Sensor and Stored Terrain Database Data for Rotorcraft Poor Visibility Weather Operations