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Building a shipshape supply chain for the U.S. Coast Guard

Synergy delivers B2B integration project on time using webMethods

Customer success story



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– LT Travis Gillum | Government Program Manager



Customer profile

Founded in 2005, Synergy Business Innovation & Solutions, Inc. is an IT firm specializing in Agile development, system integration, business process re-engineering, cyber security and mobile solutions. A Software AG partner, Synergy supports the U.S. Coast Guard on more than 90 applications that ensure maritime security, safety and mobility, protection of natural resources and national defense.

The U.S. Coast Guard protects America's economic, national and border security as one of the nation's five military services and an agency of the U.S. Department of Homeland Security.

New challenges

- Modernize mission-critical process in 365 days to improve the Coast Guard's supply chain efficiency
- Map hundreds of legacy ID codes to mandated new standard
- Overcome development complications, such as outdated documentation and lack of end-to-end testing environment
- Meet stringent risk assessment and security procedures of the Department of Homeland Security

Software AG solution

webMethods for B2B integration

Key benefits

- Project delivered three times faster using webMethods
- B2B transactions now compliant with government standard
- Easier integration with more suppliers via industry-standard EDI
- No business disruption in cutover to modernized process
- Significant cost savings in support and when legacy logistics systems are retired

Modernization & the race against time

As America's maritime first responder, the U.S. Coast Guard is always on watch and under time pressure. Whether tracking down drug smugglers at night, making life-saving rescues during storms or locating lost fishermen at sea, the Coast Guard must be ready and responsive.

Behind the scenes, that takes a reliable supply chain to assure every asset, from cutters and tugboats to icebreakers and aircraft, has the proper parts. Thanks to Software AG's webMethods and the ingenuity of Synergy Business Innovation & Solutions, that supply chain now runs like a high-speed coastal patrol.

In just 365 days, a Synergy development team led by Project Manager Kshiti Desai modernized a legacy logistics process, streamlining B2B communications for the Coast Guard. Hundreds of document ID codes were converted to EDI codes using webMethods—a team record.

“It really helped to have a product like webMethods,” Desai explained, especially with the short deadline, massive conversion volume and complexity of unforeseen circumstances.

From MILSTRIP to modern order processing

Overdue was the Coast Guard's transition from the legacy Military Standard Requisitioning and Issue Procedures (MILSTRIP) to the new defense logistics management standard.

As part of the modernization requirement, the U.S. Government acknowledged the “industry has been using the ASC X12 standards (EDI) for more than 30 years, and equivalent XML schemas have been in use for 15 years. This modernization will allow for the unification of the many diverse systems, organizations, procedures, and policies that comprise DoD logistics” and added they had “initiated the modernization effort under the previous contract but it was not successful.”

Using the legacy MILSTRIP code was not only tedious, it was incomplete. For example, it didn't include the shipping address to fulfill an order. That meant the Coast Guard had to communicate manually with suppliers multiple times and in multiple ways for a single purchase.

The logistics process was cumbersome and also costly, requiring the huge expense of maintaining legacy systems. Needless to say, the stakes were high!

Welcoming webMethods onboard

By 2019, the U.S. Coast Guard had not yet landed on making the update. Twice the Coast Guard had tried to transition to the new standard and failed—in one case, because its approach was custom coding the entire solution.

Synergy's mission, explained CTO Chandan Mukhopadhyay, was to use EDI as the communication layer between Coast Guard, the Department of Homeland Security and the Defense Logistics Agency, which handles all B2B communications, such as purchasing and invoicing.

“We looked at the problem and knew it would be too expensive and time consuming to parse, convert, map and generate EDI by custom coding,” Mukhopadhyay said. “We needed an automated tool to help, and knew webMethods was right for the job. webMethods has a robust EDI adapter, one of the best in the market, and also comes with a great platform for business-to-business communication and exchange. The webMethods EDI adapter provides out-of-the-box support for parsing and validating EDI, which is key for meeting the aggressive deadline and ensuring accuracy in generating mission-critical EDI data.”

Mission accomplished—with the right tool and talent

Along eight sprints on the 12-month journey, the Synergy development team hit “rough seas” many times—lack of available training on the legacy systems, outdated documentation that required reverse engineering, inconsistencies in mapping guides, and no end-to-end testing environment prior to production deployment, among other complications.

webMethods helped the team pick up the pace, said Synergy Analyst Ann Marel. Technical Lead Zhen Zhou agreed, “Our developers quickly learned webMethods and its built-in EDI translation capabilities were essential.” The webMethods GUI made it easy to monitor transactions. Tasks were scheduled in one mouse click.

“We were done with development and one round of testing by Sprint 7,” Desai added. “There were many times we had to go back and update our code. When we had all these challenges, we were able to make the changes in webMethods easily. webMethods was the least of our concerns!”

Synergy created its own internal testing processes, and webMethods helped there too. Zhou created webpages so that converting the 80-character codes to EDI codes was a simple “copy and paste” exercise. In the future, the Coast Guard has the flexibility to turn on conversions already in webMethods that aren’t yet needed.

“We knew webMethods was a great tool,” Mukhopadhyay said. “Not using webMethods would have required three times the number of resources to deliver the same capabilities. On top of that, we were very fortunate to have a talented team to deliver this project in the tight one-year deadline.”

The government was highly pleased, according to LT Travis Gillum, Government Program Manager. “The MILSTRIP modernization effort is extremely complicated and Synergy has managed it expertly throughout,” he said. “I absolutely believe that without the right people, tool and technology, this effort would have been at much greater risk of failure. I’m extremely grateful and wanted to express my appreciation for everything they have put into this effort.”



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