

Insitu Accelerates CMMI Maturity for Software Engineering With Integrity

"IT'S CRITICAL THAT OUR SOFTWARE ENGINEERING ENVIRONMENT DELIVERS PRECISE, HIGH QUALITY CORE APPLICATIONS AND DEPENDABILITY AS A CRITICAL COMPONENT OF SYSTEMS. INTEGRITY SUPPORTS OUR SOFTWARE ENGINEERING LIFECYCLE FROM REQUIREMENTS MANAGEMENT TO TEST MANAGEMENT, AND IS A KEY CONTRIBUTOR TO OUR CMMI COMPLIANCE."

- GARY VIVIANI, VICE PRESIDENT ELECTRONIC SYSTEMS, INSITU

Company Overview

Insitu Inc. is a wholly owned subsidiary of The Boeing Company located in Bingen, Washington. A leader in the design, development and production of small autonomous aircraft for Unmanned Aircraft Systems (UAS), including integrated command, control, and video tools for Intelligence, Surveillance and Reconnaissance (ISR). Small pilotless aircrafts, such as GeoRanger, Insight, and ScanEagle, have been developed and manufactured for the aerospace and military industry by Insitu since its founding in 1994. These miniature robotic aircraft are used for commercial and government applications.

The Challenge

Building unmanned aircraft requires a compliant and strict software engineering environment for engineers and developers to work within. Mastering the complexity of Insitu's software engineering projects requires a sophisticated and mature requirements management and test management solution that complies within an SEI Capability Maturity Model Integration (CMMI).

Insitu searched for a technology that would provide an automated, streamlined process for continuous monitoring through each level of maturity. Therefore, it was critical for Insitu to find a single application that would integrate and meet the needs of Systems Engineering, Product Development, Software Engineering and Supplier Sourcing.

Insitu conducted an extensive trade study of multiple Application Lifecycle Management suites and solutions. Insitu looked to construct repeatable processes and workflows tuned to CMMI compliance initiatives. An increase in CMMI maturity improves Insitu's ability to continue winning contracts for their unmanned aircraft systems.



Additionally, senior engineering staff would be able to access detailed measures of performance on defects, requirements, functional specifications, and project completion statistics over time.

Key Capabilities Needed:

- Full traceability from requirements and functional specifications to test management
- Flexible Process-Centric Architecture to construct repeatable processes and workflows that are easily modified and tuned to Capability Maturity Model compliance initiatives
- Management Reporting will provide engineering staff with detailed measures of performance on defects, requirements, and project completion statistics over time
- Extensively customizable test artifacts and automated test result notifications
- And finally, real time metrics reports and dashboards across the full lifecycle of software engineering

The Solution

Insitu chose Integrity to accelerate their adoption of the SEI CMMI (Capability Maturity Model Integration) and quickly achieve CMMI Level 3 compliance. Given the nature of its products, Insitu had to ensure the highest levels of product and software quality. With an initial goal of achieving CMMI Level 3, Insitu evaluated a variety of product lifecycle management (PLM) and application lifecycle management (ALM) solutions. After conducting a study involving numerous vendors, the organization decided on Integrity after it scored well in the study for its scalable architecture and process flexibility.

Integrity is being implemented to ensure consistent, repeatable adoption and monitoring of progress through each level of CMMI.

Engineering companies such as Insitu, find they need the powerful Test Management capability, process engine, and full traceability to ensure continued on-time delivery of systems. Moreover, Integrity is facilitating effective reuse of software requirements within Integrity software engineering projects, providing the organization a cost-effective system. Insitu is also using Integrity to manage some of their product lifecycle.

“We create various types of software used in the control of autonomous aircraft. As our company grew, so did our need to efficiently manage complex hardware and software development. Defect tracking and test case management tools from a previous supplier weren’t meeting our needs.”

- Mark Derbecker, Director, Systems Development, INSITU

The Results

For multiple requirements across the organization, Integrity provides control, visibility and collaboration -- through a common management platform.

Integrity allows Insitu to capture, store, and validate software requirements, linking them to testing activities while managing this information through a unified process.

“Our team can collaborate effectively in a secure environment, knowing that Integrity keeps an audit trail of the changes

implemented. Plus, our management may track changes to requirements allowing more precise determination of the requirement management effort,” says Mark Derbecker, Director Systems Development. “We are very excited at the possibilities for broad-based process management, the use of Test Management capabilities and automation that PTC can enable.”

“Integrity was chosen due to its modern architecture and flexibility. Integrity provides a single application for our engineers, administrators, and management team to access for project status. Insitu received dependable and knowledgeable help request responses from PTC. Particularly impressive is the degree to which support engineers track open issues and follow up regularly to drive things to closure.”

- Mark Derbecker, Director, Systems Development , INSITU



ScanEagle, which is used by the U.S. and Australian and Canadian militaries for surveillance in Iraq and Afghanistan, was developed in partnership with Boeing. The collaboration was so successful that Insitu was acquired by the aerospace giant in September 2008 making Insitu a wholly owned subsidiary of Boeing Integrated Defense Systems' Military Aircraft division. UAS's are by far the fastest-growing segment of the aeronautics industry.

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