



Defense Contractor Earns CMMI L3 Rating, Raises Productivity by Up to 25 Percent

Overview

Country or Region: United States

Industry: Professional services—
Defense

Customer Profile

InnovaSystems International was founded in 1997 and employs roughly 300 people at its San Diego, California, headquarters and 17 other locations.

Business Situation

To bid on a growing number of contracts, InnovaSystems needed to earn the Capability Maturity Model Integration Level 3 (CMMI L3) rating.

Solution

InnovaSystems launched a major initiative to earn CMMI L3 and, to help manage it, deployed Microsoft Visual Studio Team Foundation Server.

Benefits

- Access to more contracts
- Productivity gains of up to 25 percent
- More efficient resource allocation
- More engaged and motivated workforce
- Stronger competitive position

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Jim Kilty, Director of Test, InnovaSystems International

InnovaSystems International provides software solutions for decision support, readiness reporting, training management, and more to the U.S. Department of Defense and other federal entities. One key to the company’s success is its commitment to continuous improvement and product quality, and, in keeping with that commitment, the company decided to pursue a Capability Maturity Model Integration Level 3 (CMMI L3) rating. InnovaSystems deployed Microsoft Visual Studio Team Foundation Server, including the Microsoft Solutions Framework for CMMI Process Improvement. Subsequently, InnovaSystems implemented process improvements that not only helped the company achieve the CMMI L3 rating, but also led to productivity gains of up to 25 percent, a streamlined approach to resource allocation, a higher level of job satisfaction among employees, and a strengthened competitive position.

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Chris Wollerman, Chief Executive Officer,
InnovaSystems International

Situation

Headquartered in San Diego, California, InnovaSystems International is a leading provider of information technology and software-engineering services and solutions for the U.S. Department of Defense and U.S. Department of Homeland Security. The company’s core competencies include analysis, architectural design, data warehousing, database design, multitier web-based applications, and service-oriented architecture. InnovaSystems employs nearly 300 people at 18 offices and support sites, 15 of which are located at U.S. naval bases.

InnovaSystems has sustained an almost continuous growth path since its founding in 1997, due largely to its commitment to Agile and other methodologies that support frequent deliveries of high-value software to users and stakeholders. As a Microsoft Gold Certified Partner, the company is also committed to using the Microsoft Visual Studio development system and other Microsoft tool sets and technologies. On its first project, for example, the company demonstrated the effectiveness of the Microsoft Visual Basic development system to a customer base that had just begun moving away from a mandate for using a different high-level language for software development. The success of that early project was a fundamental driver of growth at InnovaSystems.

Another driver of growth at InnovaSystems systems is an executive-level commitment to continuous process improvement, which is essential for any company delivering sophisticated software solutions for defense and homeland-security applications. Emblematic of that commitment was the

company’s pursuit of a Capability Maturity Model Integration Level 2 (CMMI L2) rating, a benchmark measuring an organization’s competence and commitment to process improvement based on a stringent set of criteria. InnovaSystems earned the CMMI L2 rating in 2007, and soon after, set its sights even higher: on the CMMI L3 rating.

“At the time, CMMI L3 had recently become a requirement for bidding on many Department of Defense contracts,” explains Chris Wollerman, Chief Executive Officer at InnovaSystems International. “Although we were pleased with the process improvements we had implemented to earn the CMMI L2 rating, we knew that to continue growing as a company we needed CMMI L3.”

Solution

After achieving the CMMI L2 rating, Wollerman and his colleagues understood the magnitude of what they were facing: a two-year-plus-long initiative that would require everyone at the company to contribute many hours of time while continuing the day-to-day work of meeting customer deliverables. To help manage the endeavor, Wollerman’s team considered using the VersionOne development environment that they had deployed to support the CMMI L2 initiative.

Team members changed their minds, however, after looking more closely at a product that was part of the larger Microsoft Visual Studio family of technologies: the Microsoft Visual Studio Team Foundation Server collaboration platform, including the Microsoft Solutions Framework (MSF) for CMMI Process Improvement, a process template consisting of principles and

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disciplines for implementing the CMMI model within an organization.

The Importance of Automation

What Wollerman and his colleagues liked best about Visual Studio Team Foundation Server was the process guidance it provides. “We remembered how challenging it was to earn the CMMI L2 rating, and so for our CMMI L3 effort we wanted to automate as much of the work as we could,” Wollerman says. “Compared to what we found in VersionOne, the process guidance in Team Foundation Server defines far more of the required activities for CMMI L3, so we figured that it could help us automate our work to a far greater extent.”

In late 2007, a team led by Michael McCoy, Chief Technology Officer at InnovaSystems, deployed Visual Studio Team Foundation Server, including the MSF for CMMI Process Improvement process template. To ensure the process improvements they achieved with CMMI L3 would align with customer needs, team members created customized reports, work-item templates, and display forms; extended the Team Foundation Server data warehouse; and integrated the data warehouse with the company’s human-resources database. Team members also customized the MSF process template specifically so that they could apply feature-driven development, extreme programming, and other Agile concepts to their CMMI L3 efforts.

In late 2008, InnovaSystems passed the first of three formal appraisals required to earn the CMMI L3 rating by demonstrating completeness of the process template. This includes a clear mapping between the 18 process areas encompassed in the CMMI L3 template

and the evidence, direct and indirect, that is to be produced as processes in each area are executed to produce software solutions. A year later, the team passed the second appraisal by demonstrating through Team Foundation Server that it understands how to produce that evidence.

In mid-2010, the team passed the final appraisal required for the CMMI L3 rating: evidence that the team can follow the process template on each Agile iteration. Throughout the endeavor, InnovaSystems employees submitted ideas for increasing the efficiency of adopting the new process template, particularly related to work-item automation: creating tasks, performing estimation, and promoting interproject consistency.

Early Across the Finish Line

As Wollerman had anticipated, with the process guidance that is part of Visual Studio Team Foundation Server, McCoy and other CMMI L3 team members automated the work of earning the CMMI L3 rating far beyond what their predecessors had been able to do while earning CMMI L2. Key to this automation was the ability to maintain full documentation in electronic format, which was due to the extensive integration of Team Foundation Server with the Microsoft Office system and Microsoft SharePoint services.

“We learned that every other company seeking the CMMI L3 rating had provided at least some evidence, typically meeting logs, in paper format,” McCoy says. “Through Team Foundation Server we were able to present all of our CMMI L3 evidence in electronic format. As a result, we completed our final

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appraisal two days ahead of the regular 10-day period that is allocated for it."

In addition to supporting an extensively automated approach to documenting the CMMI L3 endeavor, McCoy's team used the process guidance in Team Foundation Server as a common framework for tracking and communicating progress status among project teams at InnovaSystems. For example, all project teams at InnovaSystems are storing meeting minutes and various work items consistently. This enables individuals to start effective collaboration earlier on a new project, and once the project is ongoing, it simplifies follow-up because work-item updates can be exchanged easily in Microsoft Outlook.

"Interproject consistency was the main thing that we needed to move from an L2 to an L3 rating, and for that we had to have a common framework for communication," McCoy says. "Thanks to the common framework for communication provided by Team Foundation Server, we avoided having to build one of our own, for a cost avoidance of up to a half-million dollars."

Today, InnovaSystems uses Visual Studio Team Foundation Server 2010 to sustain the process-improvement practices that earned it the CMMI L3 rating and that are fundamental to the CMMI L3 model. The company also continues to rely heavily on other products in the Microsoft Visual Studio 2010 development system, especially the Microsoft Visual C# 2010 Express development tool, and takes advantage of the Microsoft .NET Framework 4.0, the Microsoft Silverlight 4 browser plug-in, and other Microsoft technologies.

Benefits

Now that it has earned the CMMI L3 rating, InnovaSystems can bid on, win, and execute the large and lucrative defense projects that require the rating. In addition, InnovaSystems has enhanced its reputation for excellence among existing and new customers. It has raised productivity across the board with the help of more repeatable and robust processes and a streamlined approach to resource allocation—changes that, in turn, are raising the satisfaction level of InnovaSystems employees. As a result, the company is more competitive than ever and well positioned to maintain a solid growth path.

Enhanced Opportunity and Reputation

According to Wollerman, a major benefit of earning the CMMI L3 rating is the ability to bid on a wider selection of contracts than the company could before. "In the past five years, RFPs [requests for proposals] have increasingly called for L3 compliance, and of our current projects, 100 percent fit that requirement," he says. "The CMMI L3 rating is essential for our continued success and growth."

Aside from having access to a wider range of work from existing customers, InnovaSystems can use the L3 rating to reinforce its reputation for excellence among those customers and reach new customers as well. "In the market we serve, CMMI L3 is a widely recognized and respected stamp of quality," Wollerman says.

Gains in Productivity and Job Satisfaction

In addition to improvements in quality, InnovaSystems is enjoying higher productivity as a result of the changes it made to earn the CMMI L3 rating—



largely because processes are far more repeatable and robust. Take M-SHARP, for example, a training-readiness system for U.S. Marine Corps Aviation units that is one of the company's largest projects. "On M-SHARP, we have reduced task variability, increased estimate accuracy by 50 percent, and doubled unit tests, thereby reducing bugs in coding by half," Wollerman says. "With our common process and reporting methodology, we anticipate initial productivity gains on this project of up to 25 percent."

Another component of the projected productivity gains at InnovaSystems is more effective resource allocation. "Thanks to the interproject process consistency we implemented for CMMI L3, we have a common way to perform a test case or code review, a common way to prepare for user acceptance, and so on," Wollerman explains. "This means we can move developers or other professionals from one project to another to meet surge demands with virtually no downtime. In the past, it could take up to two months for an individual to resume his or her prior productivity level after a reassignment, but now it takes just three days."

Not surprisingly, development professionals at InnovaSystems are expressing greater job satisfaction than ever, according to a recent survey of M-SHARP developers who rated their job satisfaction on that project at 100 percent. "By making our processes more efficient and effective, we are helping our employees to feel more engaged and excited about coming to work each day and producing great products for our customers," Wollerman says. "It's this kind of empowered team culture that enables us to attract and retain the top talent in our industry."

Solid Competitive Positioning

For the individuals at InnovaSystems who led the team effort to earn the company its CMMI L3 rating, it is difficult to overestimate the value of having consistent processes in place from project to project—not only for earning the coveted CMMI L3 rating and creating a more satisfied and motivated workforce, but also for enhancing the company's competitive position and maintaining its momentum for growth. To support the collaboration required among several hundred people to ensure such consistency, team members give a lot of the credit to Visual Studio Team Foundation Server and other components of the Microsoft Visual Studio 2010 product family.

"We now have something that very few other companies have: a single collaborative space and common data environment in which developers, testers, auditors, managers, executives, and others are interacting with the same data, same templates, same tool set," says Jim Kilty, Director of Test at InnovaSystems International. "The collaborative space and common environment provided by Team Foundation Server were instrumental in helping us earn the CMMI L3 rating—the biggest change management project we ever tackled—and will remain instrumental in helping us move our business forward."

For More Information

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Microsoft Visual Studio 2010

Microsoft Visual Studio 2010 is an integrated environment that helps simplify the entire development process from design to deployment. Unleash your creativity with powerful prototyping, modeling, and design tools that let you bring your vision to life. Work within a personalized environment that helps accelerate the coding process and supports the use of your existing skills, and target a growing number of platforms, including Microsoft SharePoint Server 2010 and cloud-based services. Also, work more efficiently thanks to integrated testing and debugging tools that you can use to find and fix bugs quickly and easily to help ensure high-quality solutions.

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Document published March 2011

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