

# CMMI Drives Agile Performance

## Agility Depends Upon Capability

### Companies are increasingly turning to CMMI to improve performance of agile initiatives

CMMI is being used increasingly around the world to build scalable, resilient, high performance organizations and empower those organizations to deliver on the promises of agile methods. Organizations leverage the CMMI to scale and strengthen agile methodologies and address business problems outside the scope of agile methods. Globally, organizations are discovering that CMMI is a necessary companion for successful agile implementations. CMMI is lifecycle agnostic, and is useful with any software development methodology. With widespread, growing adoption in government and commercial sectors, CMMI has become a *de facto* model for performance improvement for software and systems engineering organizations throughout the world.

#### Successful organizations need both agility and stability

In “Agility: It Rhymes with Stability” (cite: <http://www.mckinsey.com/business-functions/organization/our-insights/agility-it-rhymes-with-stability>), Wouter Aghina, Aaron De Smet, and Kirsten Weerda argue that truly agile organizations must be both stable and dynamic. To achieve this necessary combination of stability and speed, organizations must “design structures, governance arrangements, and processes with a relatively unchang-

ing set of core elements—a fixed backbone. At the same time, they must also create looser, more dynamic elements that can be adapted quickly to new challenges and opportunities.”

Organizations are embracing the combination of CMMI and agile methodologies to achieve this seemingly paradoxical combination that creates true organizational agility. The discipline, organizational learning, and consistency provided by the adoption of CMMI supports organizations in making their agile methods even stronger and more effective.

The CMMI provides a framework or map of “what” a high performance organization must do. Agile methods provide particular approaches that prescribe “how” to do it. As methods and techniques are adapted and evolve, the CMMI provides the foundation upon which organizations can iterate or tailor their techniques in a way that is appropriate to the dynamics of their business environment. For software engineers, a simple analogy would be to think of the CMMI as the “requirements” or “story points” for their organization and various agile ceremonies or techniques as a particular instantiation of those requirements.

Organizations are using CMMI to address common problems with agile projects by mapping ceremonies to the CMMI framework as shown in this illustration:

Problems	Agile Ceremonies /Techniques	CMMI Process Areas
<b>REQUIREMENTS ARE ALWAYS CHANGING.</b>	<ul style="list-style-type: none"> <li>• Backlog Grooming</li> <li>• Sprint Planning</li> <li>• Product Backlog</li> <li>• User Stories/Epics</li> <li>• Definition of Done (for User Stories)</li> </ul>	<ul style="list-style-type: none"> <li>• Requirements Management</li> <li>• Project Monitoring and Control</li> <li>• Requirements Development</li> </ul>
<p><b>TIP:</b> A project should have a Product Backlog to track all user stories (requirements). The Product Owner (customer) is responsible for keeping this backlog up to date, so if requirements change the backlog should be updated. During each Sprint Planning session, user stories are selected to be included. When Sprint Planning is completed, the Sprint Backlog should be frozen. Any changes that come in during the Sprint/Iteration should go into the Product Backlog. During a project, there should be regular backlog grooming to continue breaking down user stories for upcoming sprints.</p>		

## Organizations use CMMI to improve agile performance

Agile organizations struggling with issues of performance are increasingly turning to the CMMI for proven results. The CMMI provides a framework to look beyond mere team performance to apply lean principles at the system level. For example, Minacs IT Services experienced a 30 to 40 percent increase of attaining sprint commitments, a 30% increase in the number of user stories delivered in each sprint, and 40% increase in on-time delivery after applying CMMI to existing agile processes. Minacs also transformed its internal work culture from silo-heavy to unified and aligned to a single common vision.

Organizations use CMMI to identify performance gaps in their processes and operations, and to provide a baseline for continuous improvement based on industry best practices. By addressing those gaps, organizations build the stability with CMMI to be more agile in their projects and programs and cut costs, improve quality, and improve on-time delivery.

## CMMI helps to scale and sustain agile across the organization

Organizations leverage CMMI as a platform to scale, align and unify operations across geographically distributed operations of large multinationals. Cognizant has sustained a CMMI maturity level 5 rating, and uses the CMMI framework with agile methods to encourage process improvement across its globally distributed organization to meet customer-centric business objectives.

The discipline, organizational learning, and consistency provided by the adoption of CMMI practices allows organizations to use CMMI to make their agile methods even stronger and more effective. In fact, Honeywell India used CMMI and agile across their enterprise with 7,000 engineers to improve problem-solving skills and resolve issues earlier in the development process. Results included a 12-15% decrease in functional defects; 15% improvement in implementation of Kaizen strategy and a shortened learning curve for employees.

## CMMI is rapidly growing in global adoption with firms using agile methods

In 2015 alone, CMMI adoption grew 17% globally with 28% growth in the US. In 2015, more than 1,900 high-performing organizations earned a CMMI maturity level rating. With adoption in over 100 countries and a world-class Net Promoter Score of 41, organizations deploying CMMI are very pleased with the results they are achieving.

Adoption of CMMI in organizations implementing agile methodologies is steadily increasing. In 2015, over 70% of CMMI appraised organizations reported using one or more agile methodology. [Sourced from CMMI Institute appraisal records]. Multinational companies with technology centers in China, India and Latin America are using CMMI to scale agile practices and export their capability into geographically distributed operations. For example, CMMI and agile methods are used harmoniously at Perficient Chennai, where the organization was able to reduce defects on projects by 70%. Nearly 85% of the organization's project teams have adopted CMMI maturity level 4 and 5 practices along with agile methods for predicting a project's performance and velocity.

## A platform for government and private-sector firms both large and small

While CMMI continues to have a strong footprint in the Aerospace and Defense industries with users ranging from GE Aviation, Boeing, Lockheed, Northrup Grumman, BAE Systems, and Raytheon, its most rapid growth is in commercial sectors where 90% of CMMI adoption is found in commercial sectors such as mobile, finance, telecom, and IT services, at firms such as Honeywell, Samsung, Ericsson, and Fujitsu.

While CMMI is relied upon heavily by large-scale multinational operations, the highest adoption is among small, high performance business units. In fact, 68% of organizations that implement CMMI have fewer than 100 employees and 22% of CMMI-appraised organizations have fewer than 25 employees.

## CMMI Institute advances research to improve organizational performance around the world

In 2012, after decades of increasing commercial and government adoption, the CMMI Institute spun out of the Software Engineering Institute. This change in structure leaves the CMMI Institute better able to execute its larger mission: advancing research in operational best practices and elevating organizational performance for the global community.

Since the transition, the CMMI Institute has greatly expanded the industries and global perspectives that contribute to its research, model development, and strategic direction. The Institute is actively collaborating with leading organizations around the world to advance the state-of-the-practice and help deliver on the promise of the agile manifesto to cultivate genuinely dynamic and adaptive high-performance organizations.

Learn more at <http://cmmiinstitute.com/cmmi-and-agile>