CMMI for Executives: Are you Ready to Lead?

Jeff Dalton, President
Broadsword, an SEI Partner
SCAMPI Lead Appraiser
CMMI Instructor
Agile Envangelist
ScrumMaster

Ask questions at “AskTheCMMIAppraiser.com
Welcome back my friends . . . to the show that never ends!

**Jeff Dalton**

President of Broadsword  
Certified Lead Appraiser  
Certified CMMI Instructor  
SCAMPI Candidate Observer  
Co-Chair of the SEI Partner Board  
Author of AgileCMMI Methodology

[http://www.askTheCMMIAppraiser.com](http://www.askTheCMMIAppraiser.com)  
[http://www.broadswordsolutions.com](http://www.broadswordsolutions.com)

“You cut through the noise and get us to the solution”  
- Client who named our company “Broadsword.”
This event will be more interesting if . . .

Participate! Ask questions! Make comments!

Actually, your phone is muted, because 100 people talking at once is annoying.

You can ask questions on my blog http://asktheCMMIAppraiser.com and I’ll answer within 24 hours.
We are focusing on what you NEED to know!

A 2-hour webinar not an effective substitute for the three-day Introduction to CMMI Class!
Welcome!

The full presentation will be available by Monday on our website at:

http://www.broadswordsolutions.com/resources

For answers to your CMMI questions head over to:
http://www.asktheCMMIAppraiser
If you only remember ONE THING....

The CMMI is not a death-march that saps your powers and transforms you in zombies....
If you think that maybe you’ve been a victim . . .

. . . of a well-meaning, but bad, implementation
CMMI is not about “Certification”

The CMMI is not even a “certification.” A Maturity Level is something you “achieve.”

If you focus on getting “certified” you’ll lose out on all of the value of the CMMI!
It’s about solving Business Problems

- Requirements change too often
- Projects are late and over budget
- Frequent staff turnover
- Can’t understand risk
- In the dark about project status
- Too many meetings
- Customers unhappy
- Customers discovering defects
- Projects are unpredictable
Think of it as “Levers” that change behavior

Want to change an outcome?

Change the right upstream process and you’ll see something different come out the other end.

But tread carefully – unintended results are likely to occur.
CMMI is about making your Company GREAT!

Focus on the “Path to Greatness” and a nice certificate will likely follow . . .
OK, enough! What is CMMI?

• Capability Maturity Model Integration v1.3
  – A model that defines how a great organization performs
  – Applies to ALL product development, not just software!
  – Not a process, but a model that guides YOUR processes
  – Developed and supported by the SEI, a joint venture between the DOD and Carnegie Mellon University
  – More complex in depth and breadth than SW-CMM
    • Greater reach across the enterprise
    • More fully integrated around a product or project’s complete life-cycle
    • Twenty-two Process Areas (PA)
    • Hundreds of Specific Practices (SP’s) and Generic Practices (GPs)"
CMMI: The Maturity Levels

- **Optimizing**
  - Focus on process improvement
- **Quantitatively Managed**
  - Process measured and controlled
- **Managed**
  - Process characterized for the *organization* and is proactive
- **Defined**
  - Process characterized for *projects* and is often reactive
- **Performed**
  - Process unpredictable, poorly controlled and reactive

Think long and hard about going here . . . It’s not just a “higher number”
<table>
<thead>
<tr>
<th>Level</th>
<th>Focus</th>
<th>Process Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Optimizing</td>
<td>Continuous Process Improvement</td>
<td>• Organizational Performance Management • Casual Analysis &amp; Resolution</td>
</tr>
<tr>
<td>4 Quantitatively Managed</td>
<td>Quantitative Management</td>
<td>• Organizational Process Performance • Quantitative Project Management</td>
</tr>
<tr>
<td>3 Defined</td>
<td>Process Standardization</td>
<td>• Requirements Development • Technical Solutions • Product Integration • Verification • Validation • Organizational Process Focus • Organizational Process Definition • Organizational Training • Integrated Project Management • Risk Management • Decision Analysis &amp; Resolution</td>
</tr>
<tr>
<td>2 Managed</td>
<td>Basic Project Management</td>
<td>• Requirements Management • Project Planning • Project Monitoring &amp; Control • Supplier Agreement Management • Measurement &amp; Analysis • Process &amp; Product Quality Assurance • Configuration Management</td>
</tr>
<tr>
<td>1 Initial</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Isn’t CMMI is only for huge companies?

Organization Size

Based on the total number of employees within the area of the organization that was appraised

- 1 to 100: 61.4%
- 101 to 200: 16.9%
- 201 to 200+: 21.7%
- 501 to 1000: 4.7%
- 1001 to 2000: 2.3%
- 2000+: 1.6%
- 301 to 500: 5.9%
- 201 to 300: 7.1%
- 76 to 100: 8.0%
- 51 to 75: 12.7%
- 25 or fewer: 18.0%
- 26 to 50: 22.7%

Based on 5301 organizations reporting size data
What Maturity Level are most companies?

Maturity Profile by All Reporting Organizations in the USA

- Not Given: 149
- Initial: 13
- Managed: 485
- Defined: 550
- Quantitatively Managed: 6
- Optimizing: 84

Based on 1287 organizations in the USA
Can we get to ML3 by Tuesday?
Impact of CMMI on Schedule and Budget Predictability

Results: Boeing Effort Estimation

(Based on 120 projects in Boeing Information Systems)
Based on the results of 60 organizations who have adopted CMMI as reported by the SEI

<table>
<thead>
<tr>
<th>Improvements</th>
<th>Median</th>
<th># of data points</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Reduction</td>
<td>20%</td>
<td>21</td>
<td>3%</td>
<td>87%</td>
</tr>
<tr>
<td>Plan to Schedule</td>
<td>37%</td>
<td>19</td>
<td>2%</td>
<td>90%</td>
</tr>
<tr>
<td>Productivity</td>
<td>67%</td>
<td>16</td>
<td>11%</td>
<td>255%</td>
</tr>
<tr>
<td>Quality</td>
<td>50%</td>
<td>18</td>
<td>29%</td>
<td>132%</td>
</tr>
<tr>
<td>Customer Satisfaction</td>
<td>14%</td>
<td>6</td>
<td>4%</td>
<td>55%</td>
</tr>
<tr>
<td>Return on Investment</td>
<td>4.8 : 1</td>
<td>14</td>
<td>2 : 1</td>
<td>27.7 : 1</td>
</tr>
</tbody>
</table>
Here’s comes the MOST IMPORTANT part of the CMMI Model!
The Generic Practices

The Generic Practices (GP’s) are the “Secret Sauce” that represent the most important part of the CMMII – and poor implementation will ALWAYS lead to process failure.

Remember overhead, filling out forms, and useless process? You can avoid them with the Generic Practices.

As executives, these are YOUR responsibility to manage!
• Generic Practice 2.1 – Establish an Organizational Policy
  – This policy establishes organizational expectations for performing the process for all practitioners

• Generic Practice 2.2 – Plan the Process
  – Establish and maintain the plan for performing the process
    • For example, the plan for performing the measurement and analysis process could be included in the project plan
• Generic Practice 2.3 – Provide Resources

  – Provide adequate resources for performing the process, developing the work products, and providing the services of the process

  • For example, process quality personnel may be employed full-time or part-time
  • A measurement group may or may not exist to support measurement activities across multiple projects
• Generic Practice 2.4 – Assign Responsibility

- Assign responsibility and authority for performing the process, developing the work products, and providing the services of the process.
- For example, who leads a JAD workshop, who performs estimates?
• Generic Practice 2.5 – Train People

  – Train the people performing or supporting the process

  – For example:
    • Project Managers are trained in estimating and planning
    • BA’s are trained in requirement traceability and running JAD workshops
    • Engineers are trained to perform peer reviews
• Generic Practice 2.6 – Control Work Products

  – Place designated work products of the process under appropriate levels of configuration management

  – Examples of work products placed under configuration management include
    • Specifications of base and derived measures
    • Data collection and storage procedures
    • List of configuration items
    • Design templates
Generic Practice 2.7 – Identify and Involve Relevant Stakeholders

- Identify and involve relevant stakeholders of the process as planned.

Examples:
- Who attends reviews?
- What was their participation?
- Was anyone there who should not be there?
- Who consistently doesn’t show up?
• Generic Practice 2.8 – Monitor and Control the Process

– Monitor and control the process against the plan for performing the process and take appropriate corrective action

– How is the process performing?
– Are we getting the results we expected?
– How can we make it better?
Generic Practice 2.9 – Objectively Evaluate Adherence

- Objectively evaluate adherence of the process against its process description, standards, and procedures, and address noncompliance

- Examples:
  - Are people using the process?
  - How could they get more value out of it?
  - What did we do wrong?
• Generic Practice 2.10 – Review Status with Higher Level Management
  – DOES MANAGEMENT CARE?
• Generic Practice 3.1 – Establish a Defined Process
  – Define how each process is going to be performed within the context of the project

• Generic Practice 3.2 - Collect Process Related Experiences
  – Collect ways of “doing it better” next time.
The Agile *Process Manifesto* © . . . *

We are learning that the traditional ways of developing process need improvement and that, through iteration and collaboration with others, we have come to observe that:

- **Innovation**
- **Useful Processes**
- **Collaboration**
- **Flexibility & Agility**

- Outweighs
- Outweigh
- Outweighs
- Outweigh

- **Process Mandates**
- **Certifications & Audits**
- **Coercion & Punishment**
- **Rigid Compliance**

© Broadsword Solutions Corporation 2009, 2010

*with appropriate attribution to Jeffries, Sutherland, et al*
If you only remember one thing . . .

Scope = Cost. Agile methods are well suited to control process scope

JENTM™ = Courage to stop

SEI Partner
CMII

Broadsword
A new way to understand process velocity

First, strive to understand where work is occurring and where the CMMI Model addresses that work.

Use the practices and informative materials to understand where your gaps are.

OPF
Use an appraisal to understand institutional weaknesses
Encapsulated Process Objects® - an Agile approach

Organizational Process

Measurement & Analysis

Process & Product Quality Assurance

Project Monitoring & Control

Risk Management

Configuration Management

Requirements Management

Encapsulated Process Objects is a registered trademark for Broadsword Solutions Corporation
How to deploy? Iteratively of course!

- Iteration 1: Spike
  - Inputs:
  - Outputs:
    - Swim lanes
    - Process description
    - Policies
    - Metrics
    - Tailoring guidelines
    - SCRs to other PATs
    - List of artifacts to produce in next stage
  - Duration: 4 weeks

- Iteration 2: Validate
  - Inputs:
  - Outputs:
    - Changes Saves
  - Duration: 2 weeks

- Iteration 3: Lock
  - Inputs:
  - Outputs:
    - Process revisions
    - Artifacts
    - Pilots
    - Defect Fixes
  - Duration: 4 weeks

- Iteration 4: Educate & Communicate
  - Inputs:
  - Outputs:
    - Training Materials
  - Duration: 2 weeks

- 90 Day Release Cycle

- Outputs:
  - Swim lanes
  - Process description
  - Policies
  - Metrics
  - Tailoring guidelines
  - SCRs to other PATs
  - List of artifacts to produce in next stage

- Inputs:

- Release:

- xEPG CMMI Interpretation
- Templates for Process Creation
- Project Monitoring Aids
- SIG Training
- Process Area (PA) Training

- How to deploy? Iteratively of course!
Organizational: Encapsulated Process Objects™

The xEPG is a SUSTAINABLE body that charters SIGs to design, rollout, & maintain sub-processes; membership in the xEPG or SIGs may rotate but the bodies are PERSISTANT.

The xEPG is the OWNER of standard processes.

The SIGs inherit methods & attributes from xEPG and contains a PROCESS LEADER and the VOICE of the COMMUNITY.

The PERSISTANT CONTAINER hosting multiple, permanent sub-processes working groups.

Process Test Team (SCAMPI)

- Configuration Management (CM)
- Process Management (OPD, OPF)
- Metrics (MA)
- Requirements (RM, RD, Traceability)
- Project Management (PM, PMC)

SEI Partner CMMI

Broadsword
Agile Process Deployment in 3 Releases

Launch SIGs:
- Process Management
- Configuration Management
- Process Quality
- Project Management
- Requirements
- Supplier Management

2008
- Q2
- Q3
- Q4

2009
- Q1
- Q2
- Q3
- Q4

SCAMPI Class C
- Train & mentor teams
- SCAMPI Class B
- SCAMPI Class A

CELEBRATE!
An Continuously Improving Process Architecture
Clues that your adoption will be a disaster

Your tell your team to go “get a level” by Tuesday
You say “we need to go right to Level Five (or four, or three)"
Two minutes after achieving Level Two you say “When is Level three?”
Your “consultant” says “the SEI makes you do . . . “
Your “consultant” tells you that the “CMMI makes you do it”
You use the expression “implementing CMMI”
Two dozen consultants descend on your company to “do CMMI” to you
No one has any idea why you’re “doing CMMI” but you’re doing it anyway
No one can articulate what the organization is trying to achieve
You’ve bought a tool that promises “CMMI in six months or less”
What to look for in a Lead Appraiser

Teacher
Coach
Leader
Peacemaker
Psycho-analyst
Consensus Builder
Comedian
Evangelist
Scrum Master-ish

This is in addition to the “price-of-admission” experience, training, testing, observations, and certifications.

Notice that “Deity,” “Ratings Fairy,” “unreasonable jerk” and “The Decider,” is not on this list!
APPRASALS!
SCAMPI v1.3 – the Appraisal Method

Standard
CMMI
Appraisal
Method for
Process
Improvement

Appraisal Team

CMMI + MDD

Appraisal Requirements

Actual Practice

Findings, Recommendations

Organizational Process Suite

Lessons Learned/Improvements

Process Deployment

Organization/Projects

SEIPartner

Broadsword
But what is it really? Is it an Audit?

One time I followed a Lead Appraiser that insisted on seeing a work product for each Practice . . .

Each **SUB** Practice!
Ahhhhhh!

ATM’s worked 12-14 hour days all week!

It drove all the wrong behaviors, wasted money, and made them hate CMMI!
But what is it really? Is it an Exam?

I followed another Lead Appraiser that tested each practitioner by having them recite the Generic Practices...

Backwards!

Ouch!

Talk about looking for data in all the wrong places!
It’s really about LEARNING about ourselves

“Wow! We Planned and that project turned out to be faster! AWWWESOME!”
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Class A</th>
<th>Class B</th>
<th>Class C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amount of objective evidence gathered</strong></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td><em>(relative)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ratings generated</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Resource needs</strong> <em>(relative)</em></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Team size</strong> <em>(relative)</em></td>
<td>Large</td>
<td>Medium</td>
<td>Small</td>
</tr>
<tr>
<td><strong>Appraisal Team Leader Requirements</strong></td>
<td>Lead Appraiser</td>
<td>Lead Appraiser or B/C Team Leader</td>
<td>Lead Appraiser or B/C Team Leader</td>
</tr>
</tbody>
</table>
### Plan the Appraisal (whew!)

<table>
<thead>
<tr>
<th>Task</th>
<th>Month 1</th>
<th>Month 2</th>
<th>Month 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan, Prepare, and Train</td>
<td></td>
<td></td>
<td>D1</td>
</tr>
<tr>
<td>Obtain &amp; Examine Artifacts</td>
<td></td>
<td></td>
<td>D2</td>
</tr>
<tr>
<td>Participants Briefing</td>
<td></td>
<td></td>
<td>D3</td>
</tr>
<tr>
<td>Conduct Interviews</td>
<td></td>
<td></td>
<td>D4</td>
</tr>
<tr>
<td>Consolidate &amp; Analyze Data</td>
<td></td>
<td></td>
<td>D5</td>
</tr>
<tr>
<td>Prepare Findings</td>
<td></td>
<td></td>
<td>D6</td>
</tr>
<tr>
<td>Validate Findings</td>
<td></td>
<td></td>
<td>D7</td>
</tr>
<tr>
<td>PA/Goal Findings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present Results</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Month 1**
  - Plan, Prepare, and Train
  - Obtain & Examine Artifacts
  - Participants Briefing
  - Conduct Interviews
  - Consolidate & Analyze Data
- **Month 2**
  - Plan, Prepare, and Train
  - Obtain & Examine Artifacts
  - Participants Briefing
  - Conduct Interviews
  - Consolidate & Analyze Data
- **Month 3**
  - Present Results
## Characterizing Practice Implementation

<table>
<thead>
<tr>
<th>Implementation Characterization</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Fully Implemented (FI)**     | • Appropriate artifacts and affirmations present  
                               | • No weaknesses noted |
| **Largely Implemented (LI)**   | • Appropriate artifacts and affirmations present  
                               | • One or more weaknesses noted |
| **Partially Implemented (PI)** | • Artifacts absent or judged inadequate  
                               | • Affirmations indicate some aspects of the practice are implemented  
                               | • One or more weaknesses noted |
| **Not Implemented (NI)**       | • Any situation not covered by above |
My advice? Focus on Learning – not Levels!

Now that we’re mature can I borrow the car?
Final Thoughts

The CMMI is not something you implement

CMMI is about solving problems, not getting a certificate

Your strong sponsorship is going to be needed

The CMMI should be used to make your company great! Forget about levels (as much as possible)

The Generic Practices are what make you successful (see above)

Have a clear vision of WHY you are trying to “achieve a Level”

Engage with a Lead Appraiser 6-12 months prior to your target
What? This wasn’t enough for you?

Attend one of the classes on our **CMMI ROAD SHOW**!

Nov 2\textsuperscript{nd} – 3\textsuperscript{rd} 

**Introduction to CMMI 1.3** 

Troy, MI

... or attend another one of our **FREE Webinars**! The next one is:

October 7th

**CMMI+Scrum: Making CMMI and Agile Play**

Click over to [www.broadswordsolutions.com](http://www.broadswordsolutions.com) today and register!
Thank you!

Need help with CMMI and Process Improvement?

Appraisals - Training – Consulting – Accelerators

For the latest version of this Webinar please email:

visit our Premium Content site:

www.broadswordsolutions.com/resources