
*agile*CMMI

Process Innovation at the *Speed* of Life

Topics

agileCMMI Defined

Agile and CMMI Myths

Back to the Reality-based community

Process Implementation in an Agile World

agileCMMI is a way of life for IT

- Process model based on JENTM (“Just enough, not too much”)
- Balances the benefits of Agility with the repeatable and predictable results of CMMI Compliance
- Having courage to say “enough”
- Evidence of process performance isn’t always a new document
- Revives the original intent of Deming’s Theory of Profound Knowledge
- Interpret CMMI *intent* – err on the side of creativity and trust
- Processes & development methodology are aligned in a holistic, easy to adopt Production System
- Production System is managed like any other COTS product – version control, release, training, marketing, change control, et al

Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others to do it. Through this work we have come to value:

Individuals and Interactions over Process and Tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more



Capability Maturity Model - Integration

“The quality of a product is largely determined by the quality of the process that is used to develop and maintain it.”

- Software Engineering Institute

CMMI - Overview

- Based on the work of Philip Crosby's Manufacturing Maturity Model
- Grew out of the SW-CMM (USAF/DOD)
- Global Standard for IT Excellence
- Offers Maturity and Capability ratings
- "Best Practices" Process Model
- Five Capability/Maturity Levels
- External Audit (lead appraiser model)
- Perceived as highly structured and linear
- Traditionally applied to large-scale IT Shops

Conflicting or collaborative?

Agile implies:

Iterative

Incremental

Action based

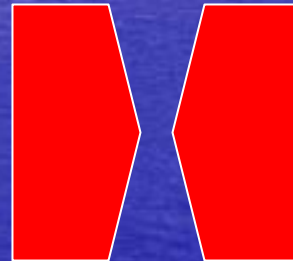
Team agreements

Rapid change

Scope shrinks to meet deadlines

Document-lite

Assume a low level of constant re-work



CMMI implies:

Procedural

Extensive planning

Deliverable based

Hierarchical governance

Careful change

Budget grows to meet Scope

Document-heavy

Avoid re-work through planning and monitoring

The Situation

CMMI and Agile are often perceived as didactic

- CMMI and Process Improvement attempt to ensure consistency and predictability while reducing risk
- Agile is a response to over-specified processes and dehumanization of knowledge workers

Comparing CMMI and Agile

- Planning
 - Composite, explicit, detailed
 - Collaborative, just-enough, iterative
- Trust
 - Process controlled
 - Equal participation
- Organization
 - Committees, management driven
 - Individuals and teams
- Scaling
 - Large projects and teams with many constituents
 - Small projects and teams
- Rules
 - Important to both and monitored
 - Important to both but trusted
- Re-Work
 - Avoid at all cost
 - Expect continuous low and constant level
- Requirements
 - Comprehensive requirements
 - Features at iteration level
- Knowledge Management
 - Process Assets

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Agile Myths

- Agile is a Methodology
- Agile Promotes “Trust”
- No documentation is required – Just Code Man!
- “Design on the fly” results in a better product
- Customers are at every meeting making decisions with the team
- No need to record decisions- we just have a meeting
- Our projects are so small we don’t need process
- CMMI is incompatible with Agile
- Appraisals do not add value

CMMI Myths

- CMMI is a methodology we should follow
- CMMI will eliminate all our defects
- We can only “do CMMI” if we focus on developing documents
- CMMI is something that you “implement”
- CMMI only applies to large companies
- It will double our workload and slow us down
- It’s designed to work with “waterfall” projects

Can't we all just get along?

- Agile is a philosophy
- The "right" documentation is required
- Design at least past the next iteration
- Customers frequently miss meetings
- Customers never remember what they agreed to – even if they DO understand what you've asked for
- Small projects benefit more from process than large ones
- CMMI complements Agile
- Appraisals add significant value

- CMMI is a "best practices" Process Model
- CMMI will reduce defects, but not eliminate them
- CMMI applies to companies of all sizes – appraisals may not apply to small companies
- It will reduce your workload
- It is methodology agnostic
- Once you get past the initial rollout, there is less work to do
- A careful, but enlightened, reading of CMMI reveals its Agility

Too many "Agile" organizations are hackers and too many "CMMI organizations" are paralyzed

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Evidence is important – Results are more important

Agile Process Implementation

Perspective is a filter ...

- People that advocate Agile tend to disdain structure
- People who support CMMI tend to be afraid of chaos and risk
- So it follows that CMMI focuses on planning and that Agile focuses on iteration
- Who said we have to choose?
 - Both only tell part of the story Both have strengths and weaknesses

An Agile Interpretation of CMMI

- RD.SP1.1 – Elicit Needs

- RD.SP1.1 – Rap with customer and groove on his desires

"In theory, there is no difference
between theory and practice, but in
practice, there is."

Yogi Berra

Deming vs. Crosby – who was Agile?

- Deming said “quality is conformance to the *process*”
 - Deming’s work was based upon the supposition that engineering was empirical
- Crosby said “quality is conformance to *specification*”
 - Crosby built his M3 based upon this linear manufacturing concept
 - The SEI used M3 as a model for CMMI – but they echoed Deming’s belief in Process performance

The CMMI is modeled after Crosby but based upon Deming

The case for Process, not Specification

- Deming's Theory of Profound Knowledge:
 - Cease dependence on QC, instead focus on QA built into the process
 - Build trust and loyalty throughout the lifecycle
 - Just-in-time Training
 - Drive out Fear
 - Break down departmental barriers
 - Remove barriers of pride

Sounds pretty Agile

Evidence of Process Performance

- Any Process, if followed, will have some evidence of performance
- The average CMMI Level 3 SCAMPI Appraisal examines 400 document types and over 1000 artifacts
- As many as 1300 Artifacts are not uncommon!
- Average Agile project produced 39 artifacts
- **agileCMMI** reduces and consolidates “objective evidence” – average 50-70 artifacts
- A template, form, or document is always the obvious answer – but there are options (like “Process Patterns”)!

Direct Evidence: An Example

RD.SG1 Elicit Customer Needs

Agile Equivalent

Business Needs Document
Requirements Screening Criteria
Customer Requirements
Business Requirements

Feature Narrative
Meeting Log

RD SG2: Develop Product Requirement

Product Requirements
Product-Component Requirements
Interface Requirements
Requirements Sign-Off

Iteration Features List
Meeting Log

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Agile Process Challenge:

How to be Agile, show results, know where you're going, and make upper-management comfortable all at the same time?

Adopt a Process Architecture that can be implemented with Agility but has the look and feel of a Waterfall

"One-Dimensional" Deployment



Process Definitions

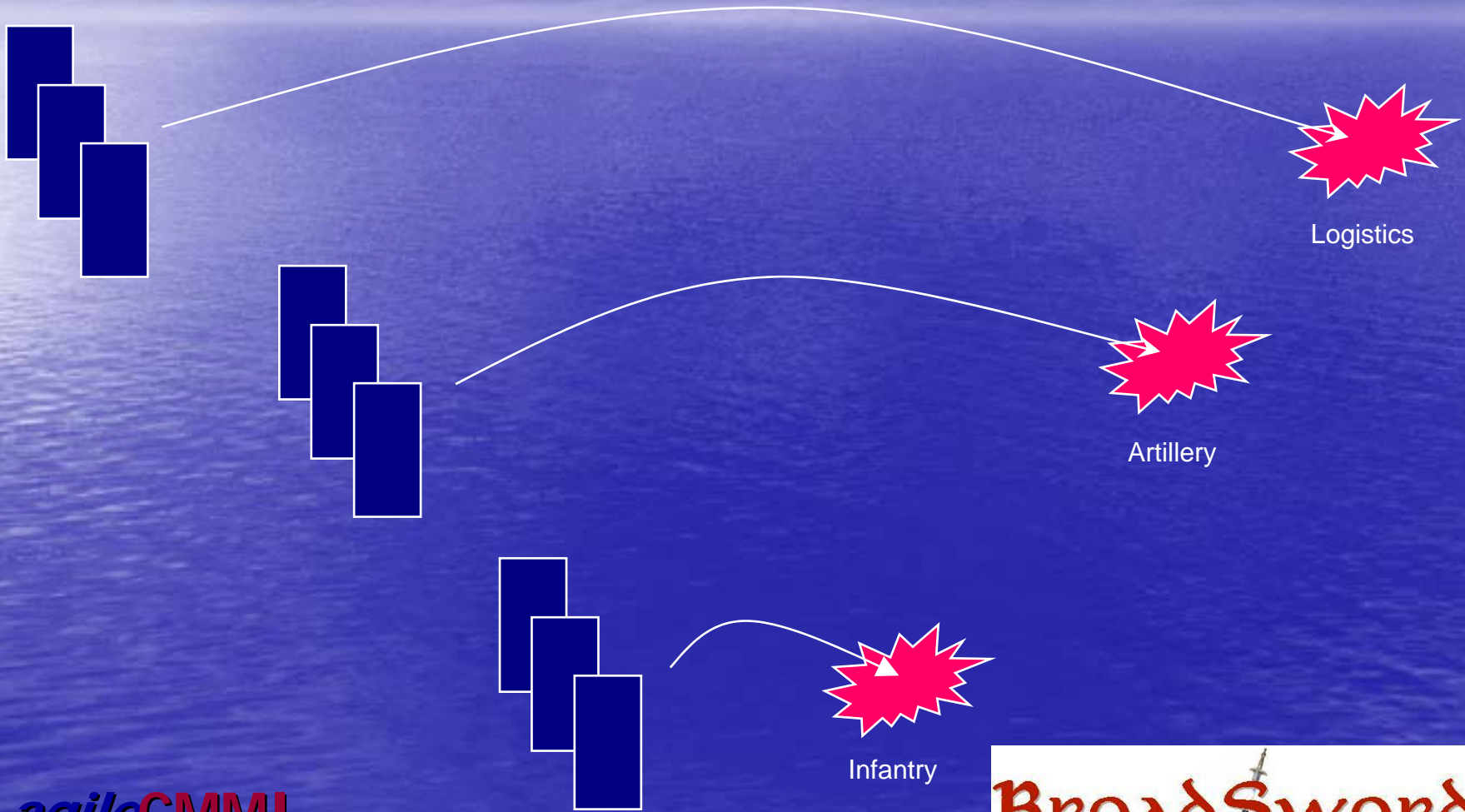


IT
Workers

Internal "Re-engineering team"
or Consulting Firm

Three-Dimensional Force Deployment

Implementation fails because it's not scaleable



Three-Dimensional Process Deployment

Scope each dimension into a set of 3-week iterations. Fail Fast – Adjust Course

Special Interest Groups (SIGs)

Process Design

- Assess current initiatives
- Identify Process Features
 - Feature Narratives
 - Process flow
 - Templates
 - Integration points
 - Audit process
 - Escalation process
 - Exception process
- Metrics to measure success
- Document and integrate into process release schedule

Iteration 1, 2, & 3

Communications

- Clear statement of mission
- Communication of goals
 - Output
 - Deliverables
 - Business results
- Communicate progress
- Organizational Notice of Decision (NOD)
- Personalized communication
- Distribution of metrics

Iteration 4

Training

- Develop training plans
- Develop standard training materials
 - Slides
 - Templates
 - Job-Aids
 - Hand-outs
- Metrics to measure success
- Conduct Training
- Document and track training participation

Iteration 5 & 6

Inside-Out: an Encapsulated Process Object

The **SEPG** is a *sustainable* body that charters SIGs to design, rollout, and maintain sub-processes. Membership in the SEPG or SIGs may rotate but the bodies are **persistent**.

**Software Engineering
Process Group
SEPG**

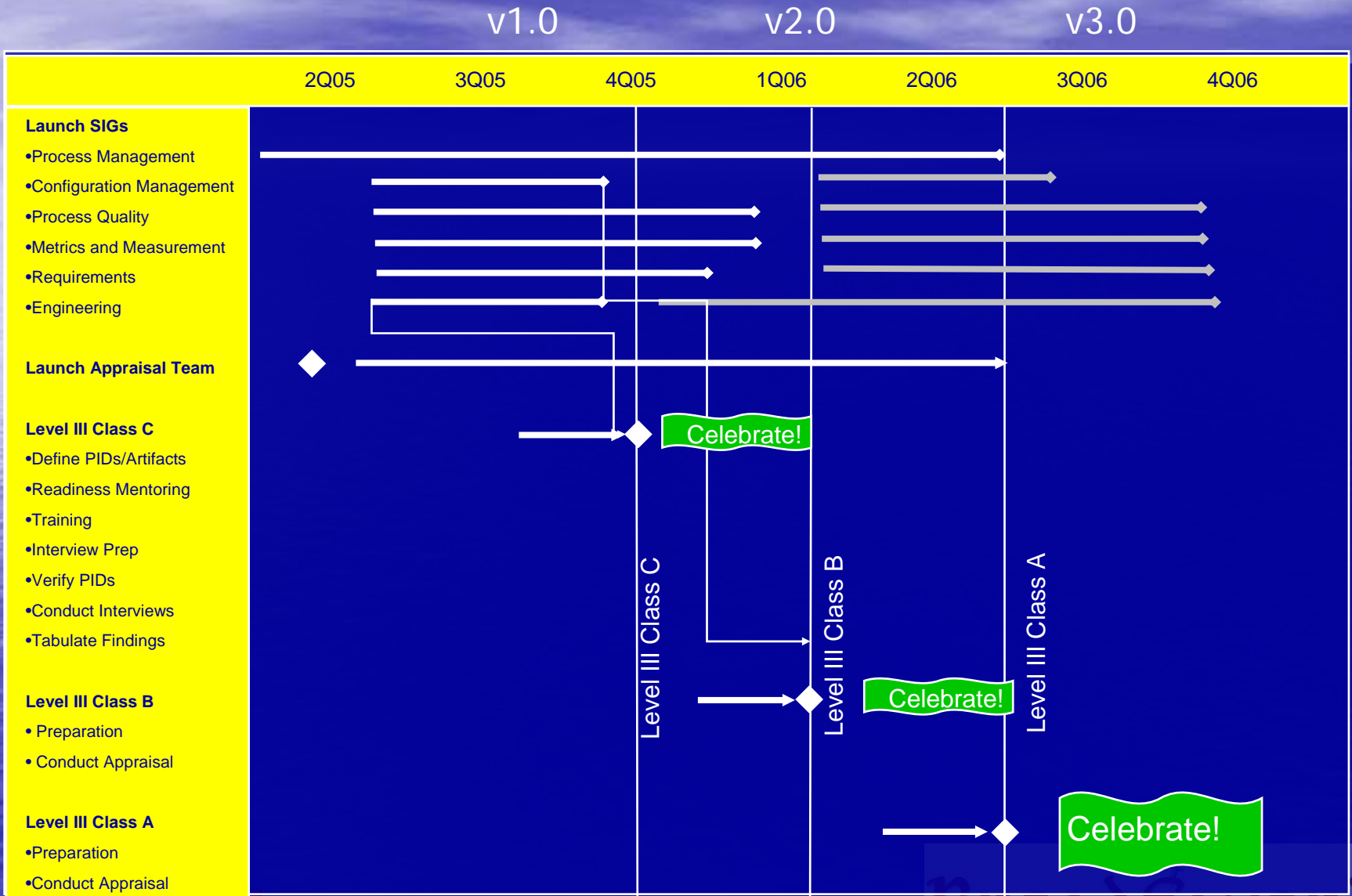
The SEPG is the **OWNER** of standard processes for IT. Members are Process **OWNERS**



The SIG inherits methods & Attributes from SEPG and contains Process **OWNER** and the **Voice of the Community**

Persistent Container hosting multiple, permanent sub-processes working groups

Release Planning in Three Iterations



In Conclusion ...

- CMMI and Agile are complementary – perceived differences are often in approach, not substance.
- CMMI CW is too much Crosby and not enough Deming
- You can implement a CMMI-Compliant software development process that is Agile and brings you the repeatability and predictability offered by CMMI – it's called agileCMMI
- There are alternatives to the CMMI “implied” artifacts – think Agility (and train your Lead Appraiser)!
- An Agile approach to developing and implementing process performance improves your chance for success – and brings you incremental benefits

Questions?

Jeff Dalton
President, Broadsword

jeff@broadswordolutions.com

<http://www.BroadswordSolutions.com>