agileCMMI

Process Innovation at the *Speed* of Life

BroadSword
Building World-Class IT

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

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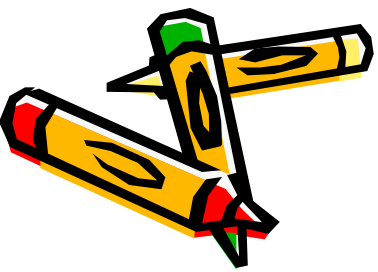
Manifesto for Agile Software Development

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



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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

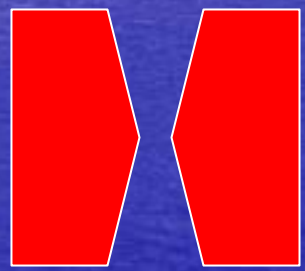
Team agreements

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

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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
  - People

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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

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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	Feature Narrative
Requirements Screening Criteria	
Customer Requirements	Meeting Log
Business Requirements	

RD SG2: Develop Product Requirement	Iteration Features List
Product Requirements	
Product-Component Requirements	Meeting Log
Interface Requirements	
Requirements Sign-Off	

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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

Internal “Re-engineering team”
or Consulting Firm

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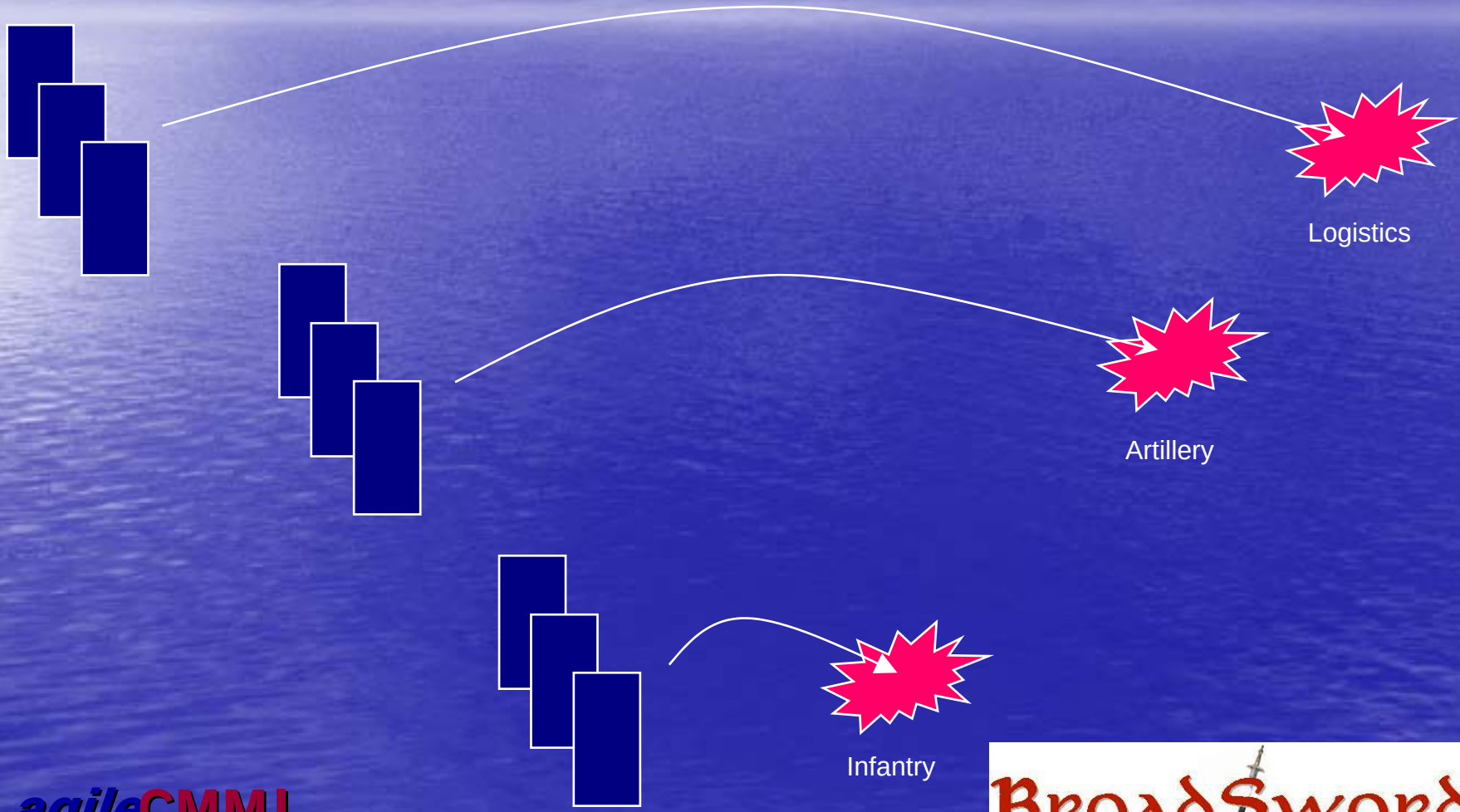
Three-Dimensional Force Deployment

Implementation fails because it's not scaleable



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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

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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.**

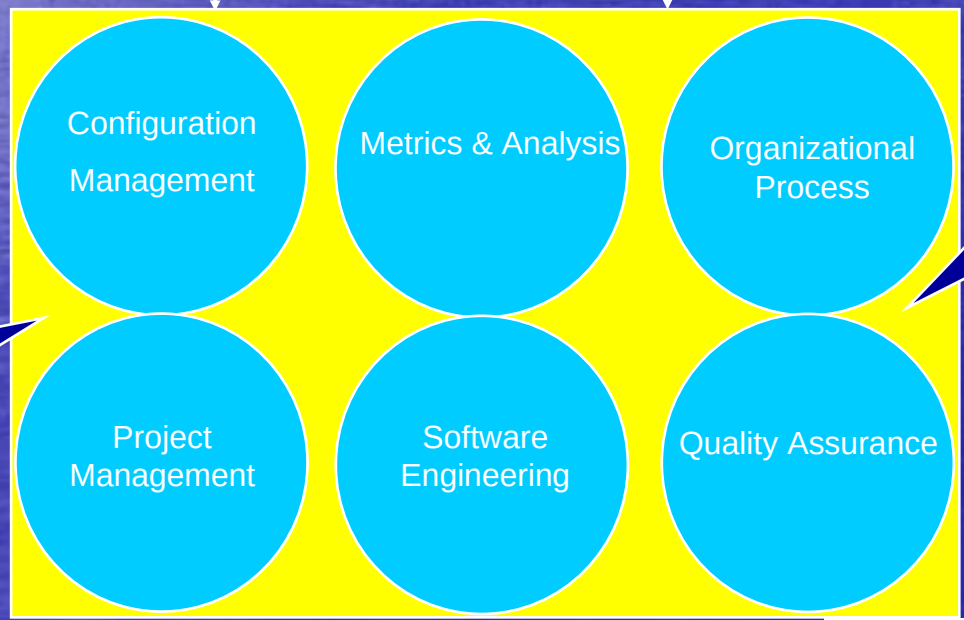
Software Engineering Process Group

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



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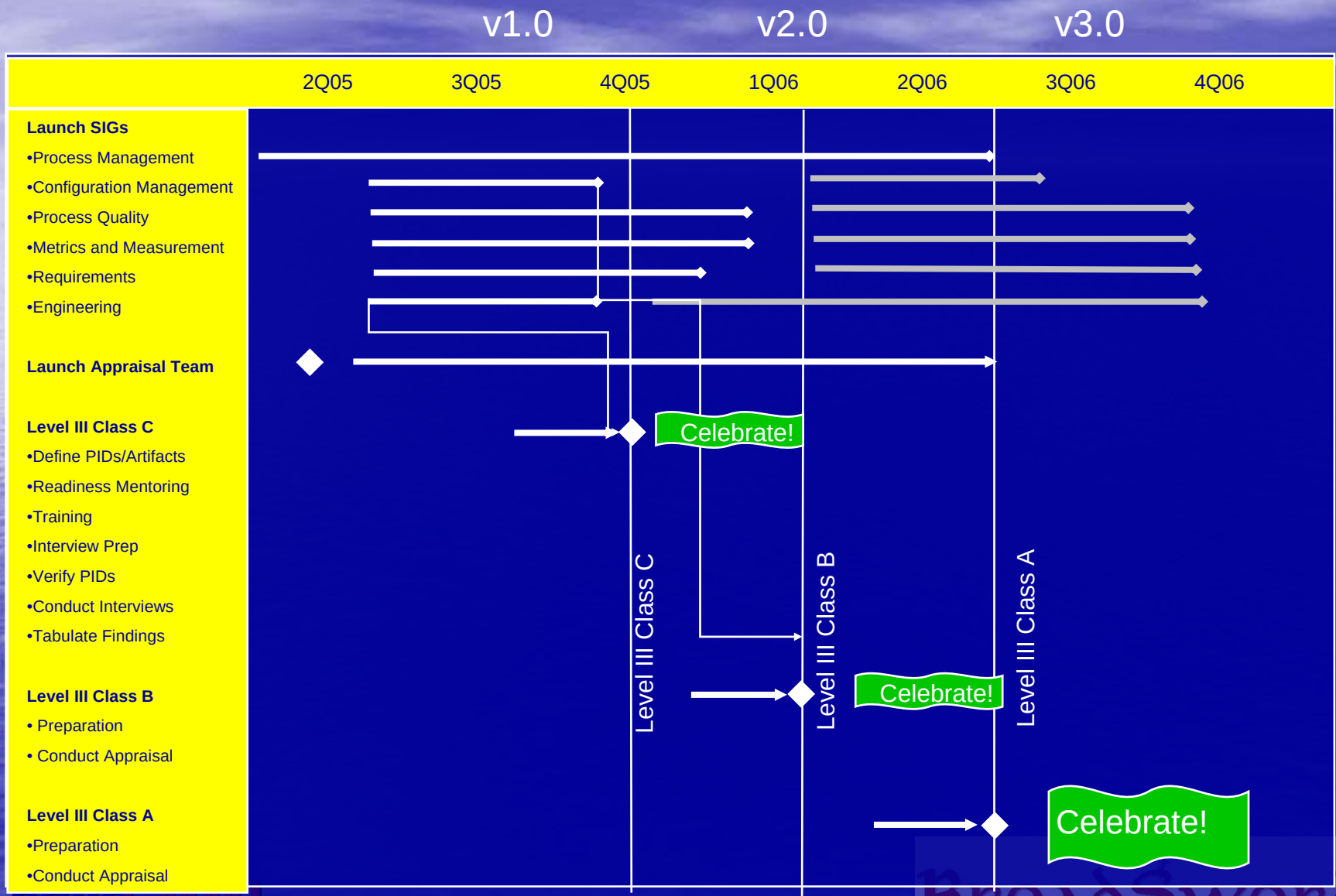
Release Planning in Three Iterations



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

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Questions?

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