Getting the performance you need from processes that work: The CMMI Accelerated Improvement Method

Timothy A. Chick
Gene Miluk

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CMMI group is now on Twitter and Google+
Today’s Presenter

Timothy A. Chick is a senior member of the technical staff at the Software Engineering Institute (SEI) where he works on the Team Software Process (TSP) Initiative.

In this role, Chick is responsible for defining, developing, and transitioning into practice high-performance software and systems engineering practices based on the principles and concepts in TSP and Capability Maturity Model Integration (CMMI). His work includes applied research, product and training development, education/training delivery, and consulting in the domains of software engineering and systems engineering process improvement.
Today’s Presenter

**Gene Miluk** is currently a Senior Member of the Technical Staff at the Software Engineering Institute (SEI), Carnegie Mellon University. For the past 20 years Gene had been working with SEI client organizations undertaking software process improvement, software acquisition improvement and technology transition. He is an SEI authorized SCAMPI Lead Assessor, an SEI Certified SCAMPI High Maturity Assessor, a CMMI instructor, TSP instructor and a SEI Certified Team Software Process Mentor Coach. Gene is also a Six Sigma Black Belt and a Certified SCRUM Master.
How to Participate Today

- Open and close your Panel
- View, Select, and Test your audio
- Submit text questions
- Q&A addressed at the end of today’s session
### AIS Performance Guarantees, with Metrics that Matter

<table>
<thead>
<tr>
<th>Performance Metrics That Matter</th>
<th>Industry Average</th>
<th>AIS Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule deviation</td>
<td>&gt;50%</td>
<td>&lt;11%</td>
</tr>
<tr>
<td>No. of defects in delivered product 100,000 LOC</td>
<td>&gt;100</td>
<td>&lt;15</td>
</tr>
<tr>
<td>% of design and code inspected</td>
<td>&lt;100</td>
<td>100</td>
</tr>
<tr>
<td>Time to accept 100,000 LOC product</td>
<td>4 months</td>
<td>5 weeks</td>
</tr>
<tr>
<td>% of defects removed prior to system test</td>
<td>&lt;60%</td>
<td>&gt;85%</td>
</tr>
<tr>
<td>% of development time fixing system defects</td>
<td>&gt;33%</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>Cost of quality</td>
<td>&gt;50%</td>
<td>&lt;35%</td>
</tr>
<tr>
<td>Warranty on products</td>
<td>?</td>
<td>Lifetime</td>
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</table>


### Cost

- **Firm fixed price upon acceptance of requirements specifications**
- **Schedule**
  - Not to exceed 10% of committed schedule
  - Weekly status reporting with ability to detect as little as one-day schedule slip
- **Agility**
  - Time in test significantly less than customer’s historical average
  - Rework time significantly less than customer’s historical average
- **Quality**
  - Acceptance test defects significantly lower than customer’s historical average
  - **AIS will fix defect found in production use free for the life of the product!!!**
Polling Question

Level of Experience/Understanding on this Topic?

1. New to SEI process methodologies
2. Very knowledgeable on CMMI
3. Very knowledgeable on TSP
4. Some knowledge of software process improvement in general
# Getting Performance From Processes That Work

## Advanced Information Services

- Recently delivered more than 500,000 lines of code on time to a federal agency on a firm fixed price contract. Zero vulnerabilities were found during two independent vulnerability tests. About half the development team was straight out of college.
- <11% Schedule deviation, <15 defects in delivered product per 100,000 LOC

## Naval Oceanographic Office, N64

- 25% of projects delivered early
- Customer delivered defects averaged <0.5 defects/KLOC

## 520th Software Maintenance Squadron, Hill AFB

- Within a year after instituting TSP, they "were routinely releasing software with very low or zero defects and meeting cost and schedule estimates."
- Improved productivity by more than 400 percent
- 99.4% defects removal before release

## NAVAIR

- AV-8B JSSA experienced a 21 - 48% decrease in defect density and experienced a $1,767,362 ROI
- P-3C Software Support Activity experienced a $978,849 ROI due to quality improvements

## CGI Federal, TPG, SEID

- Productivity Increased by 35%
- Estimated Time on Task Variance Reduced from 18% to 7%
- Defects Found in Validation Testing Reduced by 50%
- Schedule Variance Reduced to Less than 10%
The CMMI Accelerated Improvement Method (AIM) Integrates and Leverages Effective Improvement Technologies

AIM is a repeatable fast track to high performance

- CMMI
- SCAMPI
- Team Software Process
- Rapid Deployment Strategy
- Six Sigma toolkit
What is CMMI?

The Capability Maturity Model Integration (CMMI) is a compendium of best practices that can help you achieve business goals related to

- Cost and Schedule
- Productivity
- Product/service quality
- Customer satisfaction

CMMI describes broad characteristics of a process but does not describe any specific development processes or methods.
Team Software Process (TSP)

TSP is an agile, team-focused process for software and systems development.

TSP improves organizational performance from the bottom up by building self-managed teams that

- meet their commitments
- are more productive
- produce higher quality products

With TSP, teams adopt common processes, methods, metrics, and use historical data to plan, track, and improve.

TSP improves competitive advantage by improving the performance of project teams and the individuals on those teams.
TSP Development Strategy

Projects can begin on any phase or cycle. Iterations start with a launch or re-launch and end with a postmortem.

The development strategy is guided by business and technical needs.

- iteratively in small cycles
- in a spiral with increasing cycle content
- sequentially as in a waterfall
## TSP: Software Engineering Best Practice

### Application Size

<table>
<thead>
<tr>
<th>Rank</th>
<th>Small (&lt;1K FP)</th>
<th>Medium (1K FP to 100K FP)</th>
<th>Large (&gt;100K FP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TSP</td>
<td></td>
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<tr>
<td>2</td>
<td>Agile</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Waterfall</td>
<td>CMMI L3, CMMI L4, L5</td>
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<tr>
<td>4</td>
<td>CMMI L2</td>
<td>RUP</td>
<td>Agile Hybrid</td>
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</table>

### Demonstrated benefits

- scalable to application size
- situation tailorable
- predictable cost and schedule
- best quality (defect intolerant)
- continuous high throughput
- creates self-managed teams that own their processes and plans
- operationally defined for high-fidelity and clear end states, e.g. “done”

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*Development practices by size of application in function points (FP; 1FP ≈ 30 to 50 SLOC) [1][2]*

CMMI and TSP

CMMI is a model that describes many of the best practices for development.

- about “what” not “how-to”
- an improvement roadmap
- a capability benchmark

TSP is a process that integrates many CMMI best practices.

- about “how-to” not “what”
- an improvement tool
- a performance benchmark
AIM is a “how-to” solution that:

• is both high-performance and high-maturity.
• can be deployed quickly.
• is low cost with rapid return on investment.
• works as a stand-alone solution or as an add-on to existing processes.
• helps organizations that are just getting started.
• provides a breakthrough for mature organizations.
• is an affordable approach for smaller organizations.
• results in a situation-tailorable engineering method to provide the right balance of agility and discipline for a broad portfolio of projects.
## Value Proposition

<table>
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<th>Traditional</th>
<th>AIM</th>
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<tbody>
<tr>
<td>Cost</td>
<td>Variable - 2% to 10% but for how long and with what benefits?</td>
<td>Fixed, known, manageable with predictable results</td>
</tr>
<tr>
<td>Timeframe to measureable results</td>
<td>Years</td>
<td>Months</td>
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</table>
| ROI                   | Realized in years                                               | Realized in months
Compounded over years |
| Risk – MTBCEO         | High - may need to re-establish sponsorship                   | Low - builds sponsorship         |
| Risk – compliance vs. performance | High - alienation, frustration | Low - builds ownership and commitment |
| Pace                  | Strategic                                                       | Strategic and tactical           |
Rapid Deployment Strategy

The pace of change in business and technology is accelerating, and you have to move fast just to keep up and even faster to get ahead.

Improvements need to be implemented quickly and with near-immediate ROI.

The Rapid Deployment Strategy does this.

- tactical, project-focused improvement
- fast, results oriented approach
- each project’s investment is recovered within 6 to 12 months
AIM Implementation Projects
Who is CGI?

• A global leader in IT, business process, and professional services, CGI partners with federal agencies to provide end-to-end solutions for defense, civilian, and intelligence missions
• Acquired Stanley Associates, Inc. in August 2010
• This division has provided software services for our government customer at this site for over 30 years
• This division has participated with its government customer in process improvement since 1991, having previously achieved a CMMI Level 5 rating
Organizational goals

- Improve existing software development processes and software team performance
- Improve software quality
- Enhance process performance
  - Estimations
  - Consistency
  - Schedule
- Achieve a CMMI ML3 rating in 18 months or less
Organizational Scope and Team Composition

Software Contracts Using CGI SEID Processes

Team A
- 1 Team Lead
- 3 Engineers
- 2 Tester/Analysts
- 1 Process Advisor

Team B
- 1 Team Lead
- 2 Engineers
- 1 Tester/Analysts
- 1 Process Advisor
CGI Implementation Timeline

- **TSP Training**
  - August 2009

- **GAP Analysis**
  - January 2010

- **Organizational Tailoring**
  - May 2010

- **SCAMPI B Appraisal**
  - August 2010

- **TSP Cycle 1**
  - September 2009

- **TSP Cycle 2**
  - January 2010

- **TSP Cycle 3**
  - June 2010

- **SCAMPI A Appraisal**
  - October 2010
PSP/TSP Training

- SEI Implementing CMMI for High Performance, an Executive Seminar – 02 Jun 09
- Leading a Development Team – 06 Aug 09
- TSP Team Member Training – 20 Aug 09
- PSP Fundamentals – 14 Aug 09
- PSP Advanced – 28 Aug 09
CGI Implementation Timeline

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- **TSP Cycle 1**: September 2009
- **TSP Cycle 2**: January 2010
- **TSP Cycle 3**: June 2010
- **SCAMPI A Appraisal**: October 2010
Team B – Cycle 1 Planned vs. Actual Hours
Team B – Cycle 1 Earned Value Trend

Earned Value Trend

Weeks

Ahead of Schedule

Behind Schedule
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  - September 2009

- **TSP Cycle 2**
  - January 2010

- **TSP Cycle 3**
  - June 2010

- **SCAMPI A Appraisal**
  - October 2010
### Team A – Gap Analysis Results

|        | SP1.1 | SP1.2 | SP1.3 | SP1.4 | SP1.5 | SP1.6 | SP1.7 | SP1.8 | SP2.1 | SP2.2 | SP2.3 | SP2.4 | SP2.5 | SP2.6 | SP2.7 | SP2.8 | SP3.1 | SP3.2 | SP3.3 | SP3.4 | SP3.5 | GP2.1 | GP2.2 | GP2.3 | GP2.4 | GP2.5 | GP2.6 | GP2.7 | GP2.8 | GP2.9 | GP2.10 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| REQM   | G     | G     | G     | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | G     | G     | G     | G     | G     | R     | Y     | G     | Y     | G     |       |
| PP     | G     | R     | G     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | R     | Y     | G     |       |       |
| PMC    | G     | G     | G     | Y     | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Y     | G     | G     | G     | G     | G     | G     | G     | G     | G     |       |
| CM     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Y     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     |       |
| RD     | Y     | Y     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | G     | Y     | G     | G     | G     | G     | G     | G     | Y     | Y     |       |
| TS     | Y     | Y     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | Y     |       |
| PI     | G     | G     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | G     | G     | G     | G     | G     | G     | G     | G     | G     | Y     |       |
| VER    | G     | G     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | G     | G     | G     | G     | G     | G     | G     | G     | G     | Y     |       |
| VAL    |       |       |       |       |       |       |       | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       | R     | G     | G     | G     | G     | G     | G     | G     | G     | Y     |       |
| IPM    | G     | Y     | Y     | G     | G     | R     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | G     | G     | G     | G     | G     | G     | G     | G     | Y     |       |
| RSKM   | Y     | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     |       |
| DAR    | G     | Y     | Y     | Y     | Y     | Y     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     |       |
**Team B – Gap Analysis Results**

|       | SG1  | SP1.1 | SP1.2 | SP1.3 | SP1.4 | SP1.5 | SP1.6 | SP1.7 | SP2.1 | SP2.2 | SP2.3 | SP2.4 | SP2.5 | SP2.6 | SP2.7 | SP2.8 | SP3.1 | SP3.2 | SP3.3 | SP3.4 | SP3.5 | GG2  | GP2.1 | GP2.2 | GP2.3 | GP2.4 | GP2.5 | GP2.6 | GP2.7 | GP2.8 | GP2.9 | GP2.10 | GP3.1 | GP3.2 |
|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| REQM  | R    | G     | Y     | R     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | R     | R     | Y     | G     | Y     | Y     | G     | Y     | Y     | Y     | G     | Y     | Y     | G     |
| PP    | G    | R     | G     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | G     | R     | G     | G     | G     | G     | G     | G     | G     | G     |
| PMC   | G    | G     | G     | Y     | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Y     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     |
| CM    | R    | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | R     | G     | Y     | G     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     |
| RD    | Y    | Y     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Y     | G     | R     | G     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     |
| TS    | Y    | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | Y     | G     | G     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     |
| PI    | G    | Y     | Y     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     | R     |
| VER   | G    | G     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     |
| VAL   | G    | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     |
| IPM   | R    | Y     | Y     | Y     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     |
| RSKM  | Y    | G     | G     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     | G     |
| DAR   | G    | Y     | Y     | Y     | Y     | Y     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       | R     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | Y     | G     |

*Notes:*
- **R**: Red indicates a high gap.
- **G**: Green indicates a low gap.
- **Y**: Yellow indicates a medium gap.
- **GG**: Green indicates a gap.
- **GGG**: Green indicates a gap.
- **GGGG**: Green indicates a gap.
- **GGGGG**: Green indicates a gap.
- **GGGGGG**: Green indicates a gap.
### Organizational – Gap Analysis Results

#### Summary
- 326 Adequate Implementation of Mode Practice
- 171 Partial Implementation of Model Practice
- 81 Implementation Absent or Poorly Addressed
Gap Analysis Results

• Software Teams
  • Existing processes and toolsets such as TSP and version control systems added strength to team practices
  • Many tasks were being performed without generating artifacts necessary for CMMI
  • Organizational processes are weak

• Launch the Process Group as a TSP Team
  • Create New Organizational Processes
  • Track Appraisal Preparation Progress
  • Address Identified Weaknesses
CGI Implementation Timeline

- **TSP Training**
  - August 2009

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  - January 2010

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  - May 2010

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  - August 2010

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  - September 2009

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  - January 2010

- **TSP Cycle 3**
  - June 2010

- **SCAMPI A Appraisal**
  - October 2010
Launching the Process Group

- Team Composition
  - Team Lead, 4 additional team members
  - All working on a part-time basis
- Role Revisions
  - Declined to use the Training Manager role
  - Added a role for Evidence Manager
- New scripts
  - LAUSUPPORT
  - UPDATEPAL
  - CYCLE
- 252 corrective actions tracked as tasks by the PG
Process Group – Cycle 1 Work Distribution

- Organizational Policy Training: 18%
- Check Team A Compliance: 10%
- Check Team B Compliance: 12%
- TSP Doc Updates: 12%
- Blank Storyboards: 5%
- Team A Coaching Support: 8%
- Team B Coaching Support: 17%
- New Policies/Procedures: 18%
Process Group – Cycle 1 Plan vs. Actual Hours

Cumulative Planned and Actual Hours per Week
Process Group – Cycle 1 Cumulative EV
Process Group – Cycle 1 RSIM

Process Group Cycle 1 - RSIM Findings

- Non-Compliant: 67%
- Compliant: 33%

<table>
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<tr>
<th>Scripts, R</th>
<th>LAU</th>
<th>S</th>
<th>A</th>
<th>A</th>
<th>R</th>
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<tbody>
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<td>LAU1</td>
<td>S</td>
<td>R</td>
<td>R</td>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

Legend:
- R: Responsible
- A: Accountable
- C: Consulted
- I: Informed
Team B – Cycle 2 Work Distribution

- Installation Upgrade: 22%
- New Messages: 30%
- Latent Defects: 7%
- External Interfaces: 9%
- Other Support: 7%
- Other Development: 3%
- Process Support: 3%
- Team Roles: 19%
Team B – Cycle 2 Planned vs. Actual Hours
Team B – Cycle 2 Earned Value Trend
Team B – Cycle 2 Plan vs. Actual Role Work

![Bar chart showing planned vs. actual hours for different roles in Team B's Cycle 2. The chart compares the number of planned hours (red bars) and actual hours (gray bars) for roles such as Quality Manager, Implementation Manager, Support Manager, Design Manager, Test Manager, Customer Interface Manager, Process Manager, and Planning Manager.]
Team B – Cycle 2 Plan vs. Actual Hours

Total Plan vs. Actual Hrs. using Proxy
(LOC activities)

$R^2 = 0.5737$

$y = 0.571x + 12.415$
# Team B – Cycle 2 RSIM

## Team B Cycle 2 - RSIM Findings

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<tr>
<th>Non-Compliant</th>
<th>Compliant</th>
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CGI Implementation Timeline

- **TSP Training**
  - August 2009

- **GAP Analysis**
  - January 2010

- **Organizational Tailoring**
  - May 2010

- **SCAMPI B Appraisal**
  - August 2010

- **TSP Cycle 1**
  - September 2009

- **TSP Cycle 2**
  - January 2010

- **TSP Cycle 3**
  - June 2010

- **SCAMPI A Appraisal**
  - October 2010
Organizational Tailoring

• Cycle 1 – Core TSP principles
• Cycle 2 – Began using more elements of AIM
  • Checkpoint evaluation of Form RSIM revealed we were not fully compliant with the current processes
• Tailoring of AIM processes to reflect CGI’s processes “as practiced”
Organizational Tailoring

• Organizational processes were updated to allow for TSP to be used by software teams in addition to standard software practices

• TSP Documentation was updated to reflect CGI’s processes as they are practiced
  • TSP Configuration Management Scripts/Forms removed
  • Training support removed
  • CGI organizational structure worked into TSP Documents
  • Gaps between TSP and organizational processes were filled
  • Effort required (18 hours x 3 people = 54 task hours)
CGI Implementation Timeline

- **TSP Training**
  - Cycle 1: September 2009
  - Cycle 2: January 2010
  - Cycle 3: June 2010

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  - August 2010

- **SCAMPI A Appraisal**
  - October 2010
Process Group – Cycle 2 RSIM

Process Group Cycle 1 - RSIM Findings

- Compliant: 33%
- Non-Compliant: 67%

Process Group Cycle 2 - RSIM Findings

- Compliant: 96%
- Non-Compliant: 4%

| LAU4 | S | R |   |
| LAU6 | S | R |   |
| LAU7 | S | R |   |
| LAU8 | S | R |   |
| LAU9 | S | A | A |
| LAUPM| S | I |   |
| LAUSUPPORT | S | I |   |
| LOGD | F |   |   |
| LOGPIP| F | I | C |
| LOGSPIR| F | I | I |
Team B – Cycle 3 Work Distribution

- New Messages: 29%
- Port/Partition: 16%
- Other Development: 10%
- CMMI Prep: 11%
- Other Support: 11%
- TSP Roles: 23%
Team B – Cycle 3 Planned vs. Actual Hours

Cumulative Planned and Actual Hours per Week

- Cumulative Plan Hours
- Cumulative Actual Hours
- Baseline Cumulative Plan Hours

Weeks:
- 6/7/2010
- 6/14/2010
- 6/21/2010
- 6/28/2010
- 7/5/2010
- 7/12/2010
- 7/19/2010
- 8/2/2010
- 8/9/2010
- 8/16/2010
- 8/23/2010

Cumulative Hours:
- 0.0
- 100.0
- 200.0
- 300.0
- 400.0
- 500.0
- 600.0
Team B – Cycle 3 Earned Value Trend
Team B – Cycle 3 RSIM

Team B Cycle 2 - RSIM Findings

- Non-Compliant: 46%
- Compliant: 54%

Team B Cycle 3 - RSIM Findings

- Compliant: 100%

Responsibilities:
- Responsible (R)
- Accountable (A)
- Consulted (C)
- Informed (I)

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CGI Implementation Timeline

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  - June 2010

- **SCAMPI A Appraisal**
  - October 2010
### Team A – SCAMPI B Results

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# Team B – SCAMPI B Results

|       | SG1 | SP1.1 | SP1.2 | SP1.3 | SP1.4 | SP1.5 | SP1.6 | SP1.7 | SP1.8 | SG2 | SP2.1 | SP2.2 | SP2.3 | SP2.4 | SP2.5 | SP2.6 | SP2.7 | SP2.8 | SG3 | SP3.1 | SP3.2 | SP3.3 | SP3.4 | SP3.5 | GG2  | GP2.1 | GP2.2 | GP2.3 | GP2.4 | GP2.5 | GP2.6 | GP2.7 | GP2.8 | GP2.9 | GP2.10 | GG3  | GP3.1 | GP3.2 |
|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------- |
**Organizational – SCAMPI B Results**

| SG1 | SP1.1 | SP1.2 | SP1.3 | SP1.4 | SP1.5 | SP1.6 | SP1.7 | SG2 | SP2.1 | SP2.2 | SP2.3 | SP2.4 | SP2.5 | SP2.6 | SP2.7 | SP2.8 | SG3 | SP3.1 | SP3.2 | SP3.3 | SP3.4 | SP3.5 | GG2 | GP2.1 | GP2.2 | GP2.3 | GP2.4 | GP2.5 | GP2.6 | GP2.7 | GP2.8 | GP2.9 | GP2.10 | GG3 | GP3.1 | GP3.2 |
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| M&A | G     | G     | G     | G     |       |       |       |     | G     | G     | G     | G     |       |       |       |       |     |     |     |     |     |     |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |

**Summary**

- 574 Adequate Implementation of Mode Practice
- 4 Partial Implementation of Model Practice
- 2 Implementation Absent or Poorly Addressed
CGI Implementation Timeline

- **TSP Training**
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  - January 2010

- **TSP Cycle 3**
  - June 2010

- **SCAMPI A Appraisal**
  - October 2010
CMMI Appraisal Preparation

- Traditional Teams
  - Engineering Projects
  - Process Group
  - Management
  - PPQA
  - Org. Support Roles
  - Training
  - Major impact to other functions within the division

- TSP Team
  - TSP Projects
  - Process Group
  - Management
  - Function Roles (filled by PG or TSP Project Members)
  - Minimal Impact on other functions within the division
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### Process Area Profile

#### Defined
- Decision analysis & resolution
- Risk management
- Integrated project management
- Organizational training
- Organizational process definition
- Organizational process focus
- Validation
- Verification
- Product Integration
- Technical solution
- Requirements Development

#### Managed
- Configuration management
- Process & product quality assurance
- Measurement & analysis
- Supplier agreement management
- Project monitoring & control
- Project planning
- Requirements management

- **satisfied**
- **not satisfied**
- **NA** not applicable
- **NR** not rated
- **OS** Out of Scope
Accelerated Improvement Method (AIM) Implementation Timeline

Initial GAP Analysis

Productivity Increased by 35%
Estimated Time on Task Variance Reduced from 18% to 7%
Defects Found in Validation Testing Reduced by 50%
Schedule Variance Reduced to Less than 10%

SEID Objectives:
- Improve Quality
- Improve Estimations
- Improve Productivity
AIM Product Suite: Process, Training, Tools

Process Notebook
- Process scripts
- Forms
- Guidelines and standards
- Role descriptions

Training and Textbooks
- Executives
- Project Managers
- Engineering
- TSP Coach
- TSP Trainer
- Appraiser
- Process Group

Tools
- TSP Workbook
- PSP Workbook
- Coach/Trainer Workbook

TSP Team Launch - Script LAII

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<th>Purpose</th>
<th>To guide teams in launching a software-intensive project</th>
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<td>Entity Criteria</td>
<td>All team members and team leaders are committed to attend launch meetings 1 through 9 and the launch procedure, and management and marketing representatives are prepared and available for meetings 1 and 2.</td>
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Schedule:

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<td>Sessions</td>
<td>1, 2, and 3 (meet),</td>
<td>4, 5, and 6 (meet),</td>
<td>7 and 8 (meet),</td>
<td>9 and PM</td>
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Steps:

1. **Project and Management Objectives**
   - Hold team launch meeting 1 (except LAII).
   - Review the launch process and introduce team members.
   - Discuss the project goals with management and marketing.

2. **Team Tasks and**
   - Hold team launch meeting 2 (except LAII).
Contact Information Slide Format

Timothy A. Chick
TSP Initiative
Telephone: +1 412-268-1473
Email: tchick@sei.cmu.edu

Gene Miluk
TSP Initiative
Telephone: +1 412-268-5795
Email: gem@sei.cmu.edu

U.S. Mail
Software Engineering Institute
Customer Relations
4500 Fifth Avenue
Pittsburgh, PA 15213-2612
USA

Customer Relations
Email: info@sei.cmu.edu
Telephone: +1 412-268-5800
SEI Phone: +1 412-268-5800
SEI Fax: +1 412-268-6257
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Q&A