Lean CMMI: An Iterative and Incremental Approach to CMMI-Based Process Improvement

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Agenda

- Process Increments
- SPI Projects Setup
- Evaluation Method
- Results and Analysis
A process increment is a process improvement chunk which can be implemented in a relatively small time (1-2 weeks) and still provide value for the organization.
**Daily Standups**

- Verify that the daily standup meetings are conducted daily in a consistent manner considering:
  - A timeboxed duration (15 mins max)
  - All team members attend including the ScrumMaster and PM (if any)
  - Daily progress is reported and impediments highlighted only not discussed
  - Sprint burn-down chart updated before the meeting

**Version Control**

- Verify that a VC tool is installed and configured
- Verify that VC tool is integrated with IDE and Issue Tracking tool
- Verify that a repository structure is defined and used
- Verify that Naming Conventions are defined for different file types
- Verify that a check in/out procedure is defined and implemented
The Project Scope

Management
- Project lifecycle
  - Issue tracking
  - Product Backlog
  - Requirements Hierarchy
  - Requirement Partitioning
  - Estimation
  - Release & Iteration Planning
  - Project Tracking
  - Resource planning
  - Retrospectives / Project Reviews

Product Development
- Unit Testing
  - Functional Testing
    - Scripts and Guidelines
    - Automated Functional Testing
  - Architecture & Design Guidelines
  - Technical Reviews
  - Done-Done Definition
  - User manuals and documentation

Environment & Infrastructure
- Version Control
  - Branching & Merging
  - Automatic Builds
  - Baselining and Release Management
  - Continuous Integration
  - Quality Audits and Checklists

Process Increments owned by:
- Management Staff
- Technical staff
- QA/Testing Staff
- All Organization
SPI Projects are Typical Agile Project

- Iteration 1
- Iteration 2
- ... (Repeat 10 times)
- Iteration 12

6 Months

2 Weeks
Inside an Iteration

Define

Learn

Practice

Review

Learn new process increments, or further detail an old one. Time-boxed to one day

Practice and apply to live projects. This is the major part of the iteration time. The team passes through all the pain of trying new tools, concepts, procedures, etc.

Review and evaluate whether the process increment is done-done or not

Define what is practiced into guidelines or process documentation
# Improvement Velocity Readings

<table>
<thead>
<tr>
<th>Company</th>
<th>Total Scope (points)</th>
<th>Total Completed (points)</th>
<th>Accomplished</th>
<th>Average Velocity (points/iteration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>251</td>
<td>182</td>
<td>72.5%</td>
<td>18.2</td>
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<td>2</td>
<td>301</td>
<td>231</td>
<td>76.7%</td>
<td>23.1</td>
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<td>278</td>
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<td>25.3</td>
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<td>268</td>
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<tr>
<td>5</td>
<td>230</td>
<td>222</td>
<td>96.5%</td>
<td>20.2</td>
</tr>
</tbody>
</table>
## SG 1 Baselines of identified work products are established

### SP1.1
Identify the configuration items, components, and related work products that will be placed under configuration management.

### SP1.2
Establish and maintain a configuration management and change management system for controlling work products.

### SP1.3
Create or release baselines for internal use and for delivery to the customer.

## SG 2 Changes to the work products under configuration management are tracked and controlled

### SP2.1
Changes to the work products under configuration management are tracked and controlled.

### SP2.2
Control changes to the configuration items.

## SG 3 Integrity of baselines is established and maintained.

### SP3.1
Establish and maintain records describing configuration items.

### SP3.2
Perform configuration audits to maintain integrity of the configuration baselines.
Evaluation Method: SCAMPI Method

• CMMI Specific Practices are evaluated in two dimensions:
  – **Process Definition**: Amounts for 30% of SP rating
  – **Process Implementation**: Amounts for 70% of SP rating

• Process definition and implementation are given one of the four scores:
  – Fully Implemented (FI) score: 100%
  – Largely Implemented (LI) score: 70%
  – Partially Implemented (PI) score: 40%
  – Not Implemented (NI) score: 0%
Comparing Results

![Boxplot comparing SP Rating (%) for Ad-hoc and Incremental SPI Methods](image)

- **Ad-hoc** method shows a wider distribution with a median around 60%.
- **Incremental** method has a more concentrated distribution with a median around 80%.

The boxplot indicates that the Incremental method tends to have higher SP ratings compared to the Ad-hoc method.
Tracking Process Increments

“Burn charts have become a favorite way to give visibility into a project’s progress. They are extremely simple and astonishingly powerful”

-- Alistair Cockburn
Tracking Process Increments

Sample burn-charts from previous projects
Name other types of project which has:

- High Risks
- Poor Visibility

- Divide your work into small valuable pieces
- Work on cadence to enable ongoing status reporting
Questions?
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