Process Increments: An Agile Approach to Software Process Improvement
Agenda

- Process Increments
- Experience Report Overview
- Observations and Findings
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• 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.
Process Increment Example

Version Control

- Verify that code of at least one project is on version control
- Verify that VC tool is integrated with the IDE
- Verify that team is using check-out check-in (copy-update-merge) procedure to update code
- Verify that the code update procedure is documented in the CM guidelines
Slicing/Splitting Process Increments

GUI Design
Presentation Layer
Business Services/Logic
Database Layer

Gain knowledge
Practice on live (not pilot) projects
Guidelines & process documentation
Automate (if applicable)

Typical vertical slicing in a User Story
Typical areas/layers in a Process Increment
Slicing/Splitting Process Increments

Learn about Sprint Planning
Apply to one or two sprints
Document the procedure & guidelines
Use an excel sheet to automate calculation

Product (continuous) Integration
Apply to one live project
Document the tool guidelines
Use CruiseControl, Hudson CI, etc.

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Slicing/Splitting Process Increments

• Let’s take an example: Configuration Management

• In software engineering, software configuration management (SCM) is the task of tracking and controlling changes in the software (Wikipedia)

• It is not about change prevention, but waste prevention
Slicing Process Areas – The Process Increments Way

- Issue tracking
- Version Control
- Traceability
- Automatic Builds and Continuous Integration
- Baselining
- Release Management

Configuration Management

- Baselining
- Traceability
- Continuous Integration

- Issue Tracking
- Version Control
- CM Environment
- Release Management
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SPI Projects are Typical Agile Project

- Project scope is vague
- Progress is usually not visible
- High risks (usually related to changing the mindset)

6 Months

Iteration 1 → Iteration 2 → … → Iteration 12

2 Weeks
Inside an Iteration

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

Learn

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.

Practice

Define what is practiced into guidelines or process documentation

Define

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

Review
Working with Multiple Functional Teams & Projects

Management Increments

Technical Increments

Testing & QA Increments
Estimating & Planning The Improvement Project

• Process Increments are size-estimated using Planning Poker

• The whole project is planned as one release

• Improvement Velocity:
  – The size of completed process increments in an iteration
Tracking the Improvement Project

• Burn-up chart in SPI projects
  – Added a since of achievement
  – The project progress is visible to the whole team
  – ‘Other’ teams/departments get involved

• Risks, thresholds, and corrective actions
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## 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>
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<td>230</td>
<td>222</td>
<td>96.5%</td>
<td>20.2</td>
</tr>
</tbody>
</table>
Improvement Velocity Run Chart

Average Improvement Velocity of All Companies

![Graph showing the average improvement velocity of all companies over iterations. The x-axis represents iterations from 0 to 12, and the y-axis represents velocity in points from 0 to 40. The graph shows a general trend of fluctuation with peaks and troughs.]
Role Contribution in Actual Improvement

- Management: 43%
- QA/Testing: 20%
- Development: 37%
Learning by Example

• Walk the talk and talk the walk
• The SPI experience is a typical project model for the team
Conclusion

- Process Increments is a more structured way for organizing SPI projects
- Process Increments clearly identifies the project scope
- Process Increments enhances project visibility
- Process Increments get the whole team involved, not a single role or group
- The SPI experience is a typical Agile project model for the team