

Lean Software Configuration Management Using 'Process Increments'



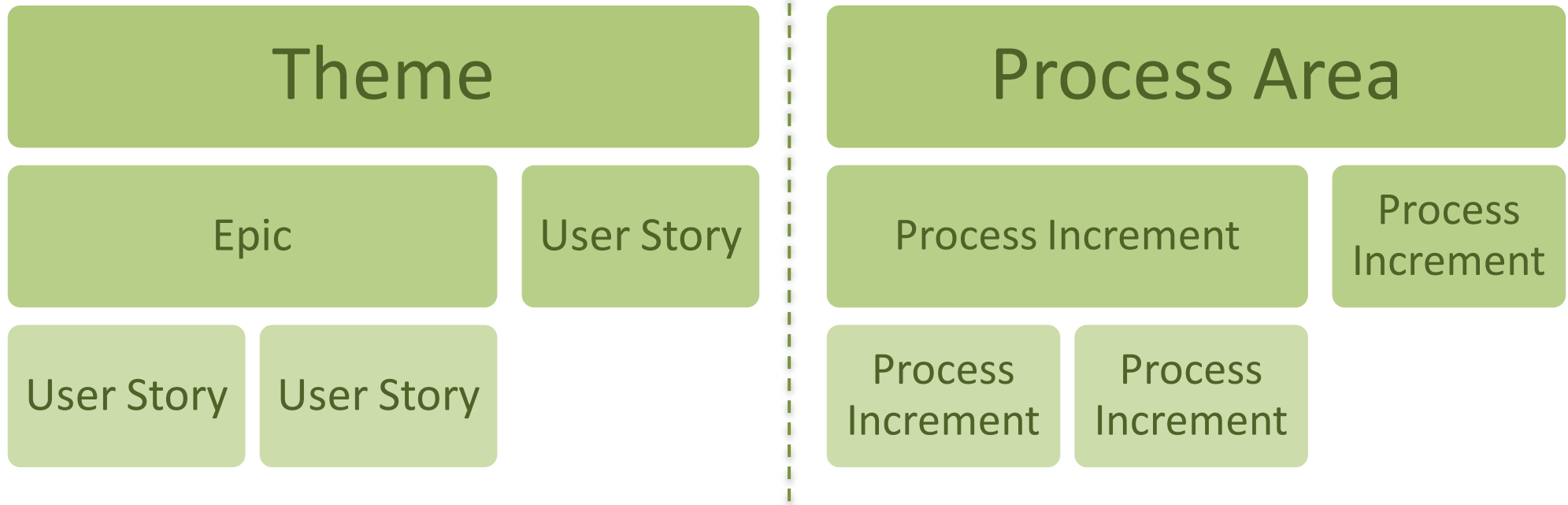
Agenda

- 'Process Increments' Method Overview
- Configuration Management as 'Process Increments'
- Case Studies Observations and Findings

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Process Increment Definition



- 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

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Slicing/Splitting Process Increments

Gain knowledge

Practice on live (not pilot) projects

Guidelines & process documentation

Automate(if applicable)

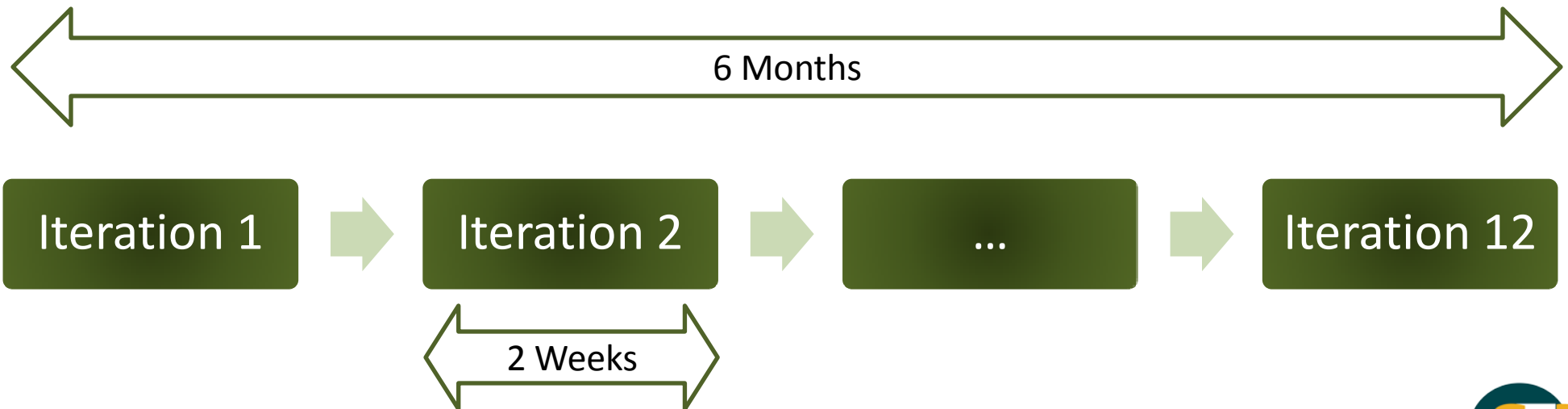
Typical areas/layers in
a **Process Increment**

Derived Definition of 'Done':

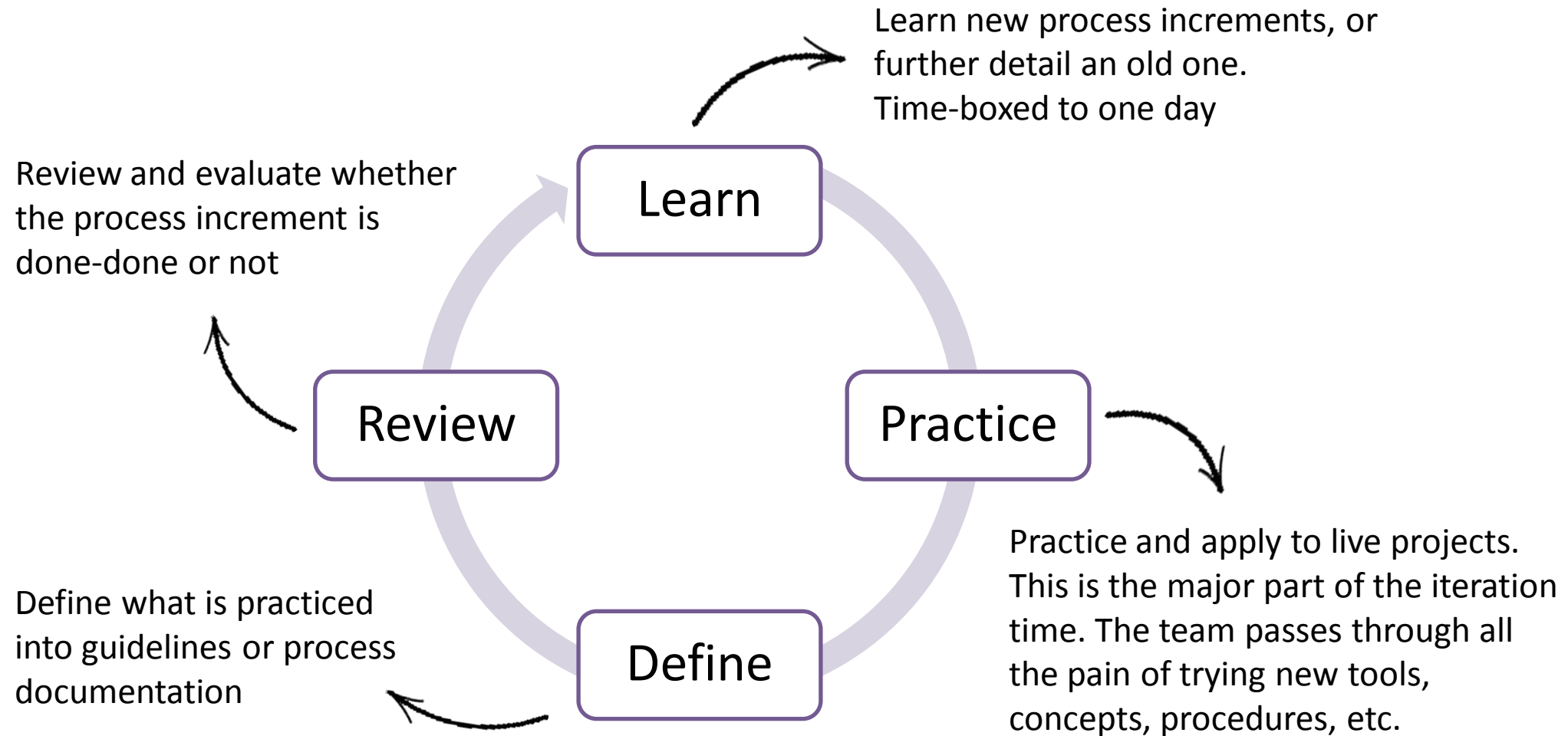
1. All verification points are fulfilled
2. The process increment is applied to at least one live project
3. The process increment is documented in a process guideline, or described in one of the organization process standard documentation

SPI Projects are Typical Agile Project

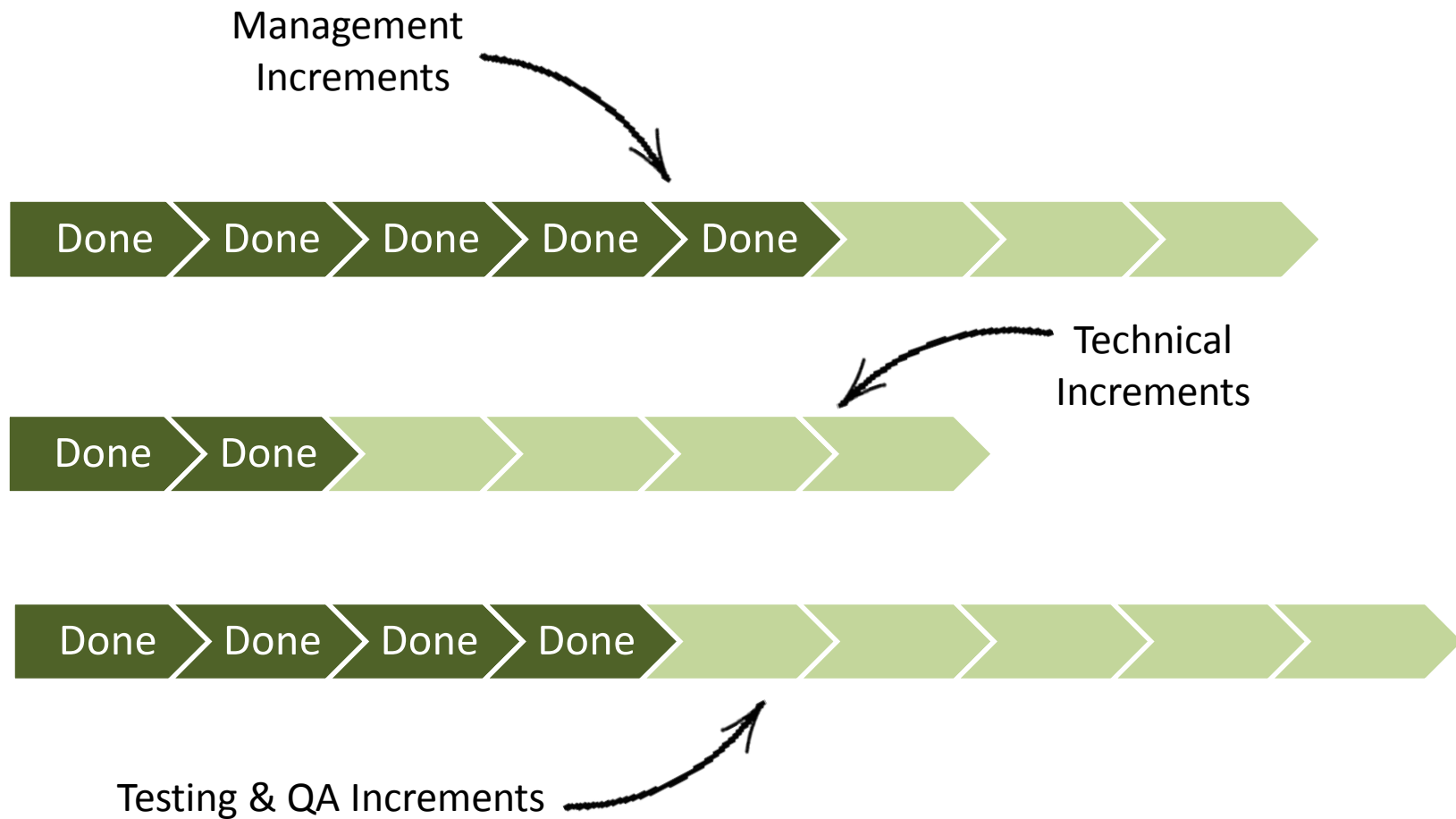
- Project scope is vague
- Progress is usually not visible
- High risks (usually related to changing the mindset)



Inside an Iteration



Working with Multiple Functional Teams & Projects



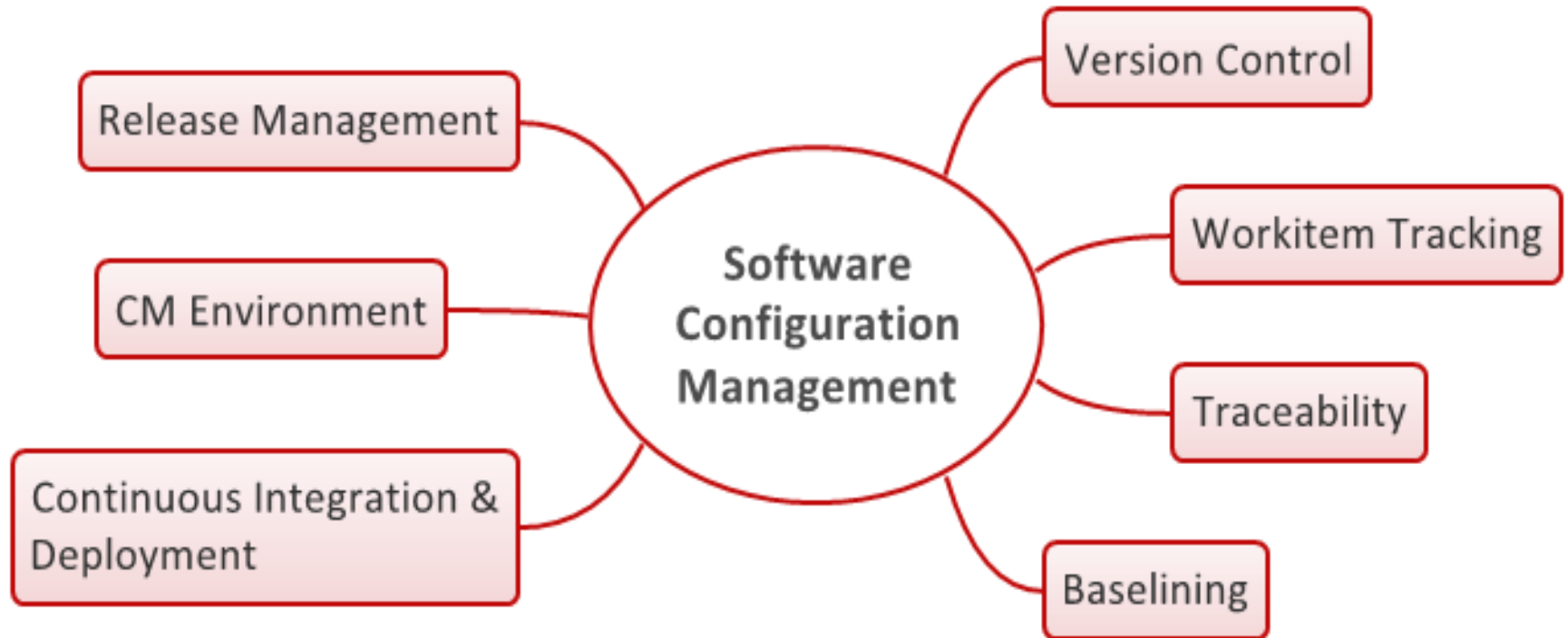
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Perceptions About SCM

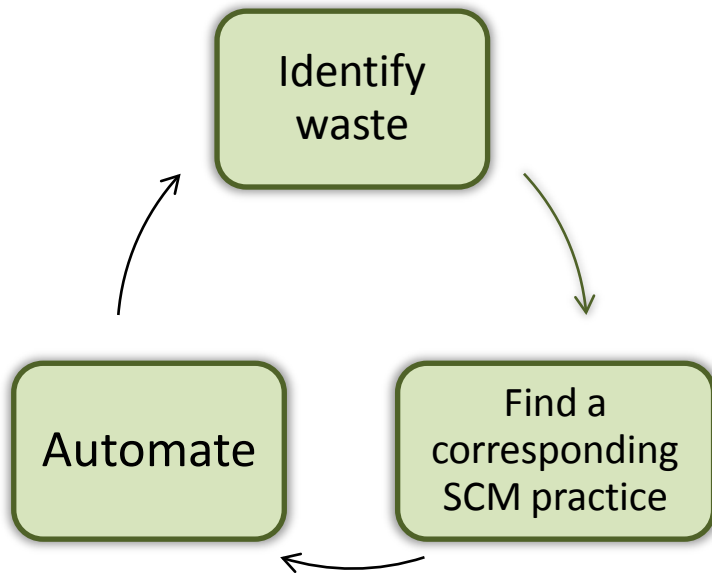
- SCM is heavy and hectic
- SCM involve 7-10 templates, 4-5 procedures, and many activities
- SCM should have a dedicated team

SCM Process Increments



Evolution of SCM Process Increments

- A waste reduction technique is used:

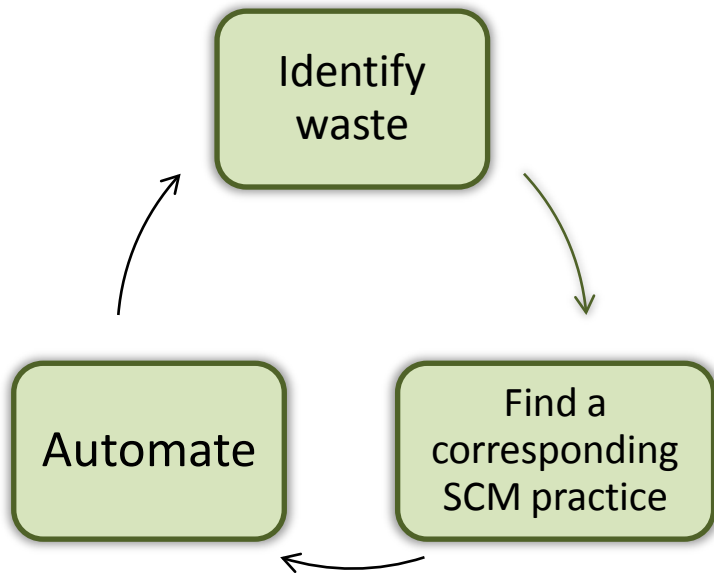


Release Management	<ul style="list-style-type: none">• Verify that branching and merging guidelines exist and used for one live project• Verify that versioning scheme is defined and employed• Verify that a packaging, releasing, and post-release verification procedure is defined and employed
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Added to remove waste of deploy-re-deploy syndrome

Evolution of SCM Process Increments

- A waste reduction technique is used:

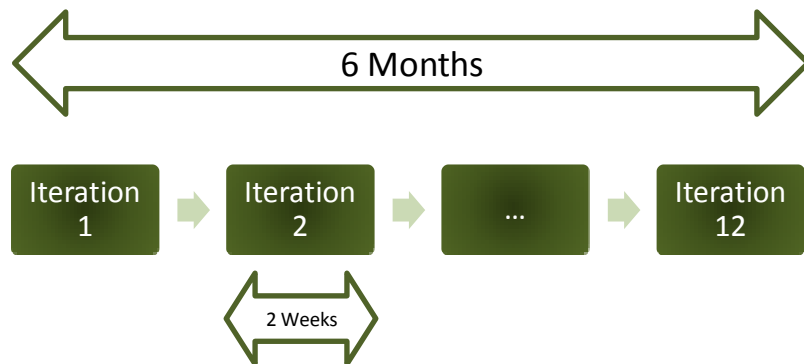


Continuous Integration & Deployment

- Verify that automatic build scripts are developed for at least one live project
- Verify that automated tests run to validate generated builds
- Verify that the development team are notified by the build status and generated issues (if any)
- **Verify that an automated procedure exists for deploying packages to testing/staging/production environments**

Is It Applicable in All Cases?

- No! we still have to question the value for every verification point in every case
- Adjusted and adapted throughout the project:



SCM Environment

- Verify that CM environment is created
- Verify that Backup/Restore procedure is defined and experimented successfully
- Verify that users are defined and access rights are enforced
- Verify that a default project structure is defined in the CM guidelines
- Verify that deployment environment(s) is defined, including software/hardware interfaces with deployed packages
- Verify that a procedure exists for communicating deployment issues to the development team

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Background

- Lean CM using Process Increments is applied in 7 companies
- Teams ranged from 7 to 40 persons (counting all roles)
- Business domains involve telecom, mobile applications, banking, enterprise applications, and government solutions
- Different technology stacks and programming languages like Java, .NET, Delphi, and C++.

Company rating with regard to CMMI-CM process area

Companies	Count of Weaknesses in CM SP's	Company Rating for the CM Process Area ¹
1	1	96%
2	1	86%
3	4	71%
4	5	94%
5	3	69%
6	3	76%
7	2	75%

¹ CMMI Specific Practices are evaluated in two dimensions:

1. Process Definition: This amounts for 30% of the score
2. Process Implementation in at least one project: This amounts for 70%

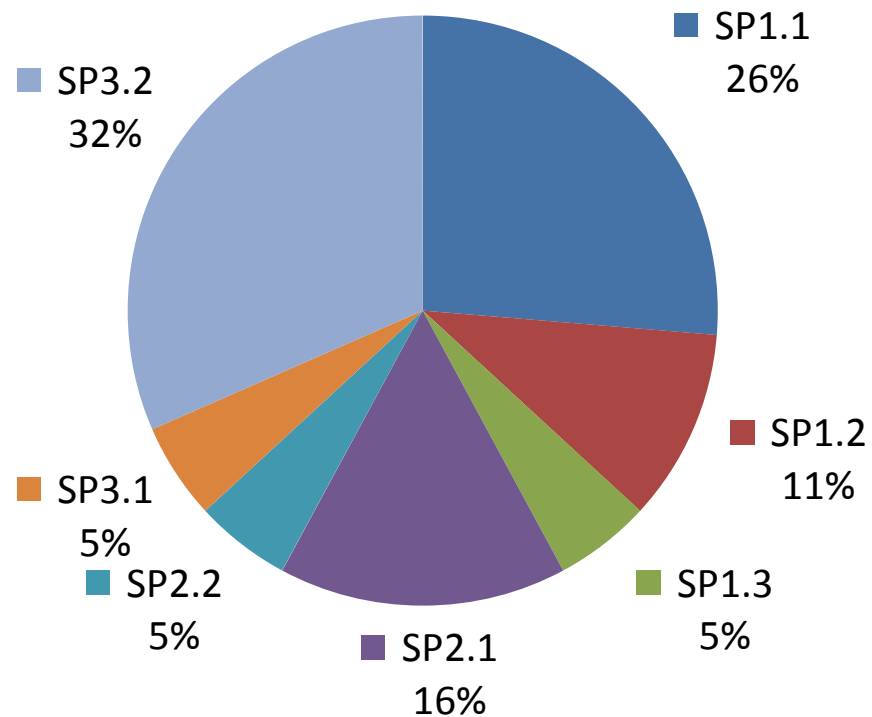
Following the SCAMPI method, both process definition and implementation are given one of the four scores:

- Fully Implemented (FI)
- Largely Implemented (LI)
- Partially Implemented (PI)
- Not Implemented (NI)

Then every score is normalized as a percentage score as follows: FI: 100%, LI: 70%, PI: 40%, and NI: 0%

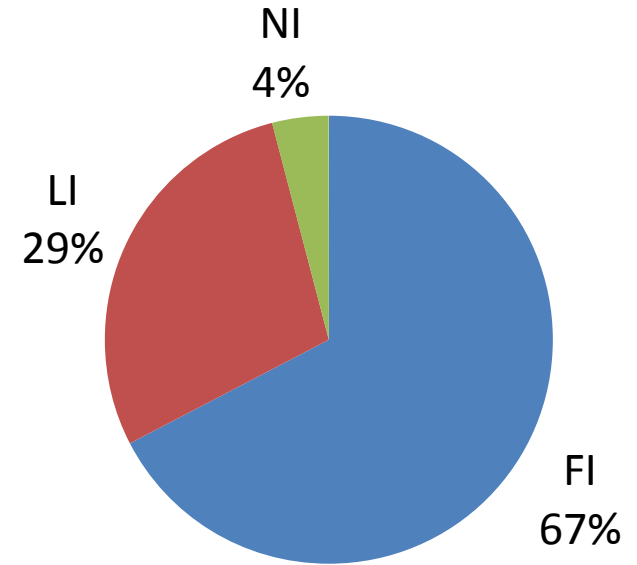
Analysis of Evaluation Findings

- Percentage of finding per SP:



Lean SCM Process Definition

- SCM process definition consist of:
 - One wiki page: CM guidelines
 - About 2-3 pages
 - No Templates!
 - Only valuable increments are implemented
- ↓
- Only document increments which is already applied to live projects
- ↓
- Lean definition!



Evaluation of process definition for the CM process:

NI – Not Implemented
LI – Largely Implemented
FI – Fully Implemented

Conclusion

- SCM can be implemented in a lean and value-driven way
- Process Increments enables the team:
 - Focus on achieving value out of process improvement
 - Avoid introducing wastes in process improvement