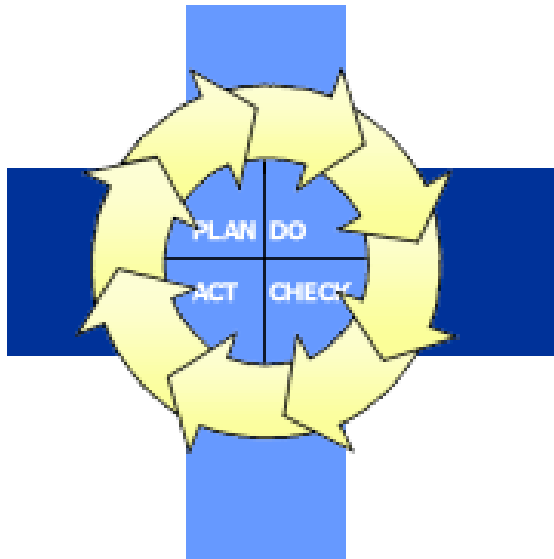
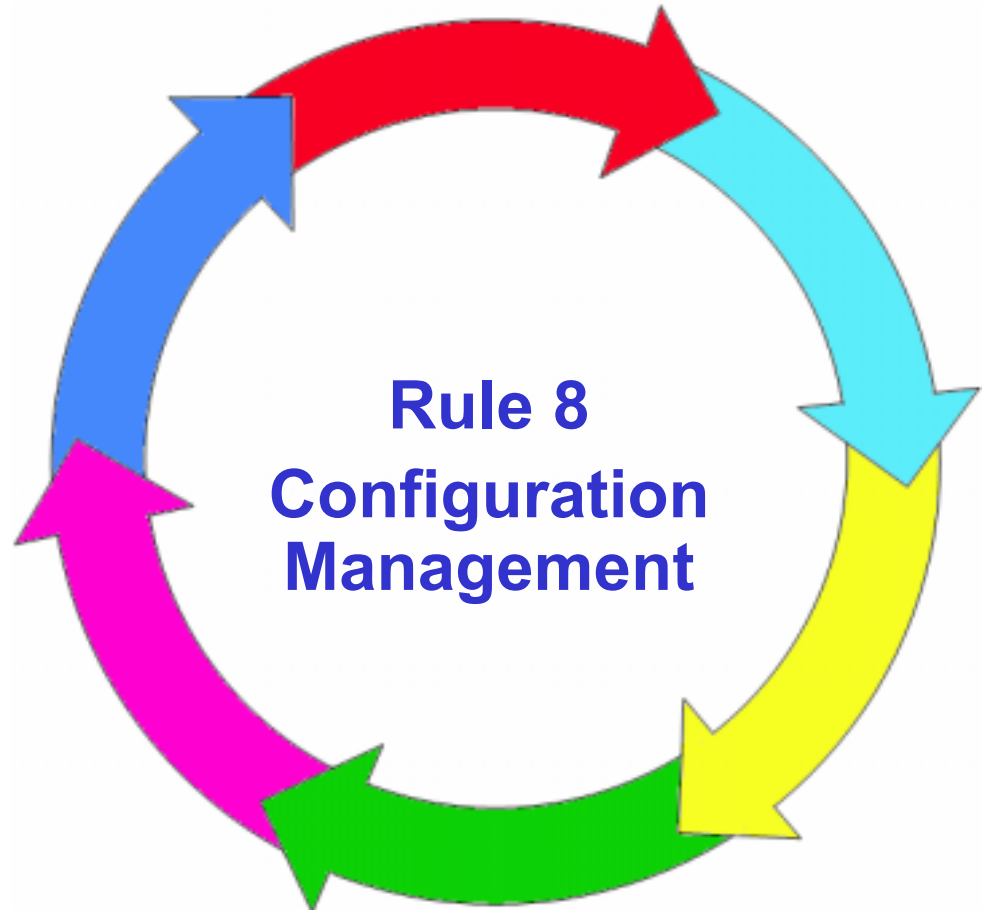


# AVL Software Process Training



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**Wolfgang Höh**

**Qualität & Informatik**  
**[www.itq.ch](http://www.itq.ch)**



The process of *identifying, organizing, and controlling changes to the software* during development and maintenance.

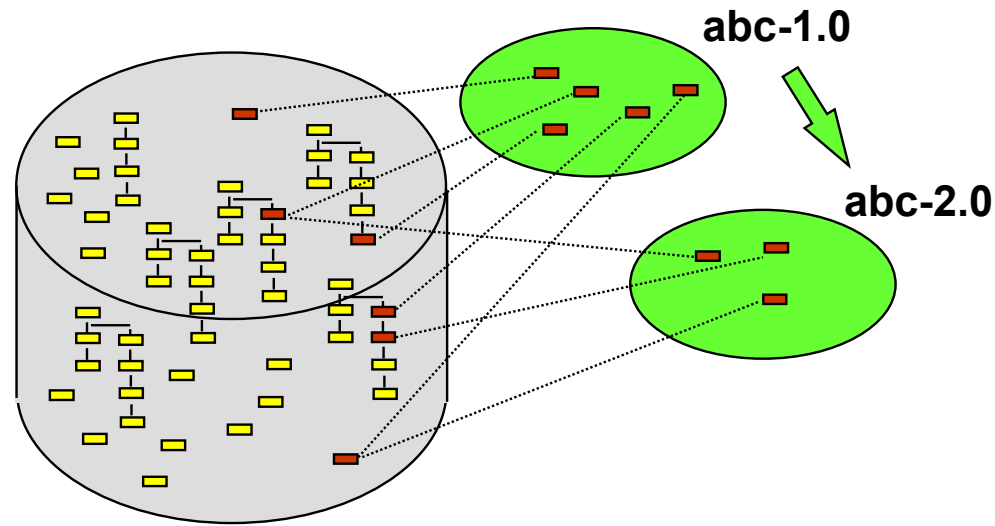
- **SCM is a support activity that makes technical and managerial activities more effective**
- **SCM operates throughout the SW life-cycle**

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- Building a configuration from configuration items
- Unique identification of a configuration
- Change history (Release tree)



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## Milestone

**A milestone is the end of a stage or phase of a project at which one or more deliverables are actually delivered.**

## Baselines

**A baseline is that collection of items which when complete indicates that a milestone in the development process has been reached.**

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Phase	Baseline
<b>Feasibility study</b> <b>Requirements definition</b>	<b>Functional baseline</b>
<b>SRS, Interface spec.</b>	<b>Allocated baseline</b>
<b>Detailed design</b>	<b>Design baseline</b>
<b>Source and Object code</b> <b>User manuals</b> <b>Test documents</b>	<b>Product baseline</b>
<b>Installation</b>	<b>Operational baseline</b>

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- Identify what the different baselines will consist of
- Set labeling and identification conventions for the CIs

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- **Item identity**
- **Baseline to which it belongs**
- **Relationships to other items**
- **Version**
- **Variant**

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## Version

a SW CI having a defined set of functional capabilities.

## Revisions

changes to a version to correct only errors in design logic but does not affect documented functional capabilities since none of the requirements have changed.

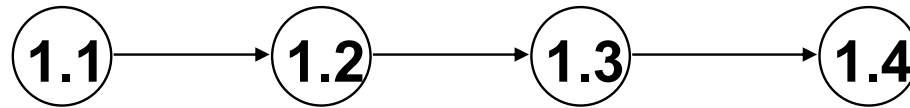
## Variants

a variation of a version developed to run on different types of HW, or to provide slightly different facilities for different users.

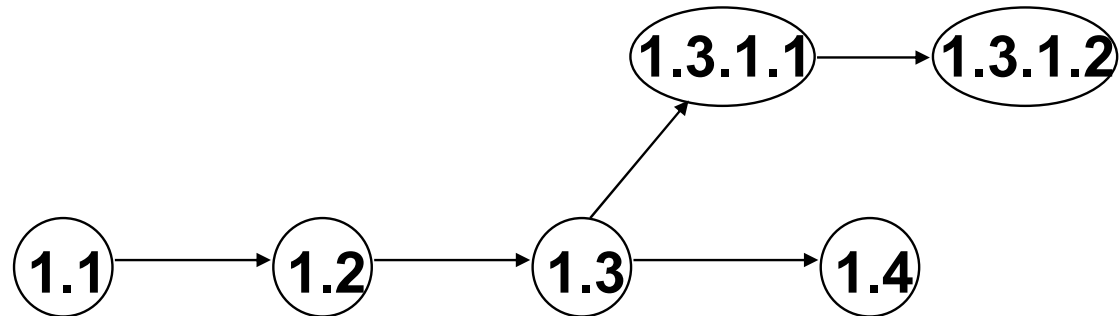


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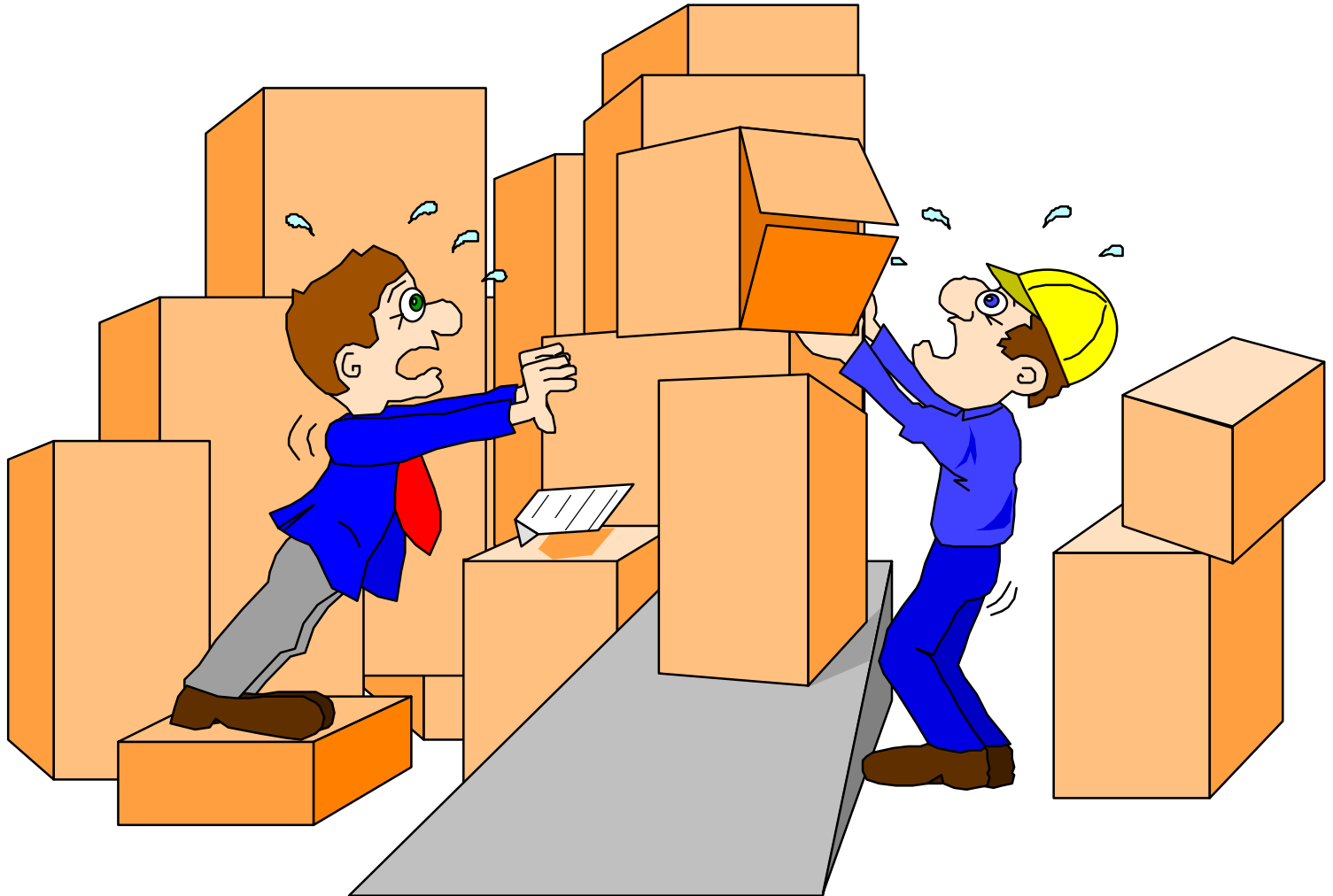
## successive versions



## branching versions (variants)

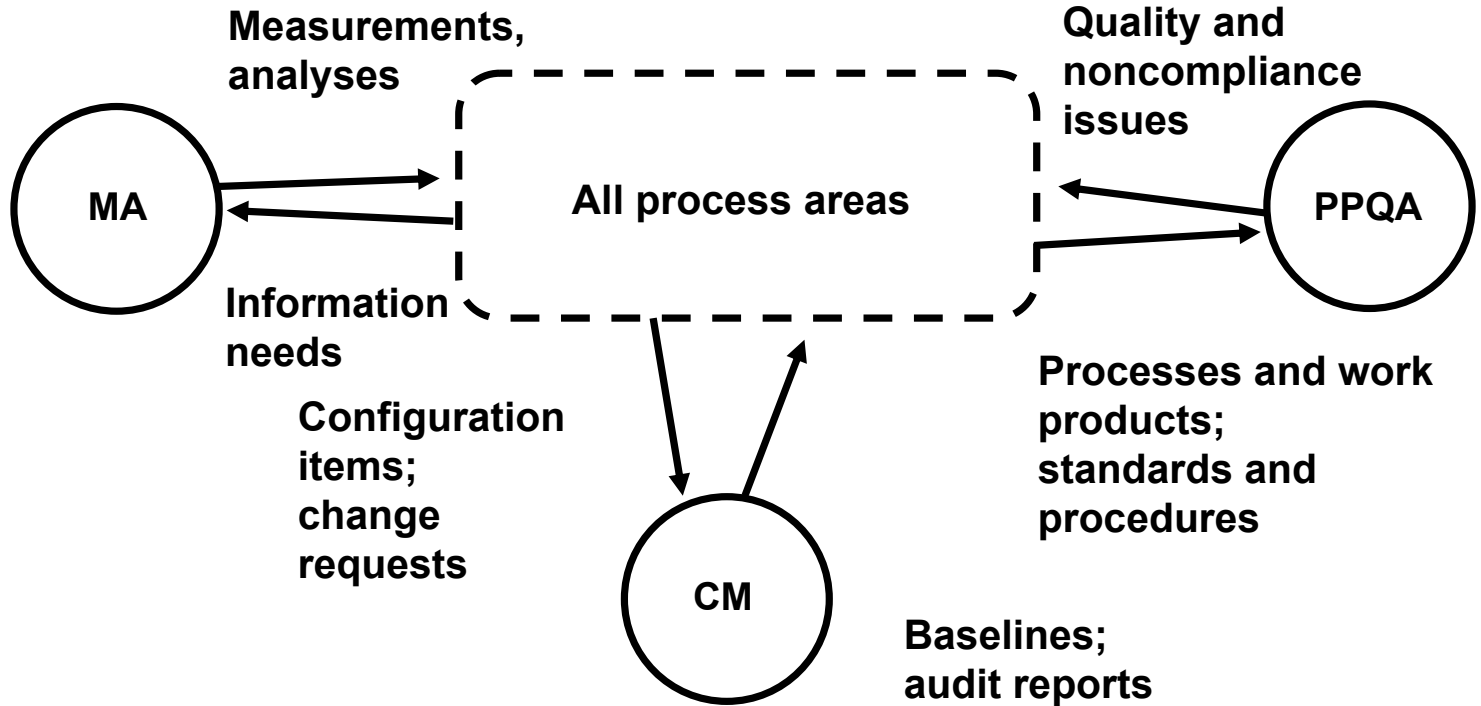


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# CM Process Context

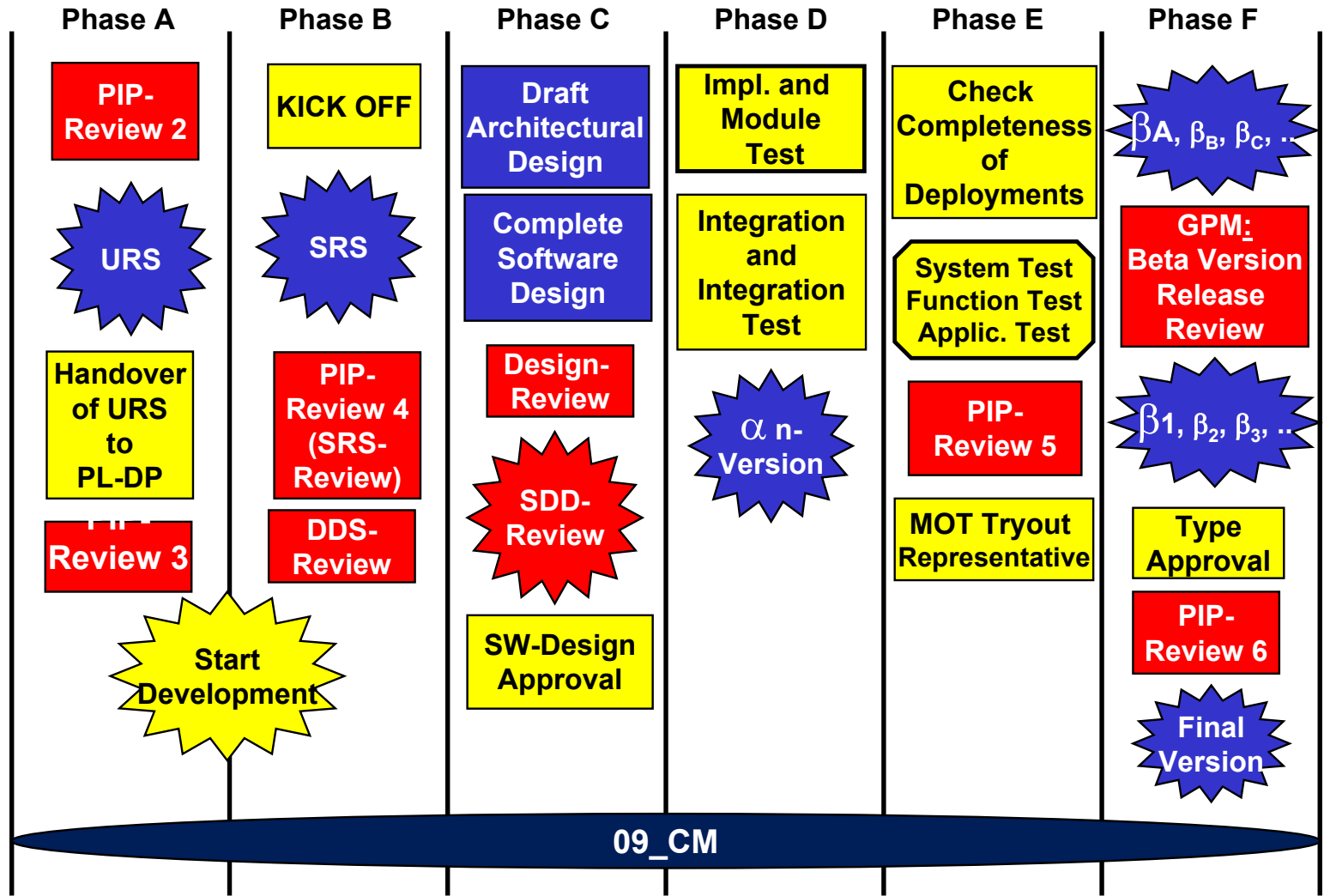
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# SW Development Overview: Rule 9 (CM)



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09\_CM

## ■ Policy

According to the Standard Software Development Process the policy establishes the following:

- Identifying the configuration of selected work products that compose the baselines at products given points in time
- Controlling changes to configuration items
- Building or providing specifications to build work products from the configuration management system
- Maintaining the integrity of baselines
- Providing accurate status and current configuration data to all stakeholders (developers, QA, product integrators, end users, and customers)

## ■ Scope

All software-producing units in AVL SBU MES.

## ■ Purpose

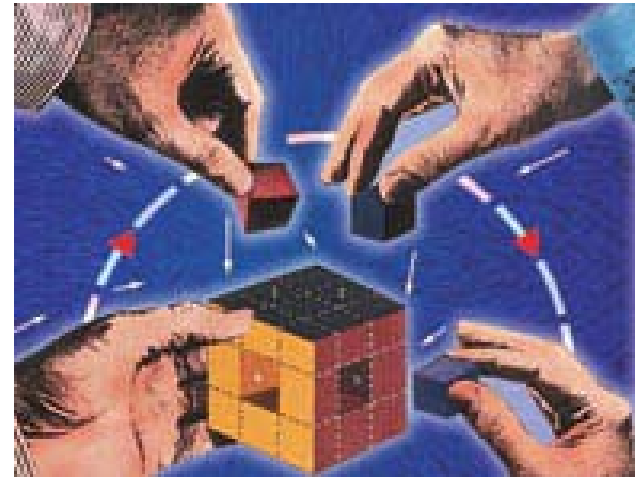
The purpose of Configuration Management is to establish and maintain the integrity of work products using configuration Identification, configuration control, configuration status accounting, and configuration audits.

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- **Method:** *Plenum*
- **Timing:** *10'*
- **Form:** *Brainstorming and discussion*
- **Documents:** *none*
- **Deliverable:** *Documentation on flipchart (Trainer)*

- **Questions:**

- I. What are your experiences with Product Integration?*
- II. What worked well in the past?*
- III. What did not work so well?*



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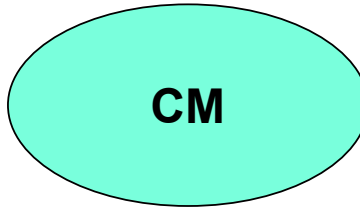
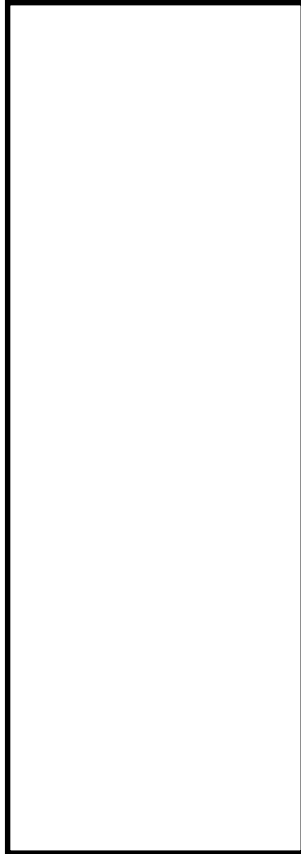
- **Method:** *Individual*
- **Timing:** *15'*
- **Form:** *Individual elaboration*
- **Documents:** *Process Rule 8; form: next foil*
- **Deliverable:** *Filled in form*

## Question:

- I. *Based on your experience, the prior discussion and the **CM** process definition list the involved roles, the performed activities, and the produced work products.*

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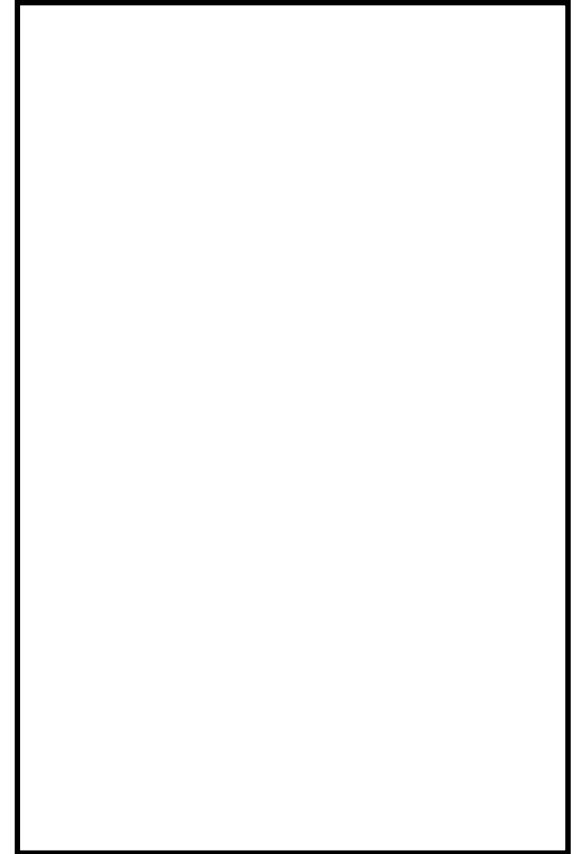
## Roles



## Activities



## Work Products

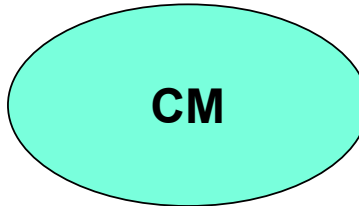




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## Roles

- CMG
- CCB
- PL-DP
- PIR
- IT
- ST



## Activities

- Establish a CM Plan
- Establish a CM and CR System
- Identify Configuration Items
- Create or Release Baselines
- Track Change Requests
- Control Configuration Items
- Establish Configuration Management Records
- Provide CM Reports

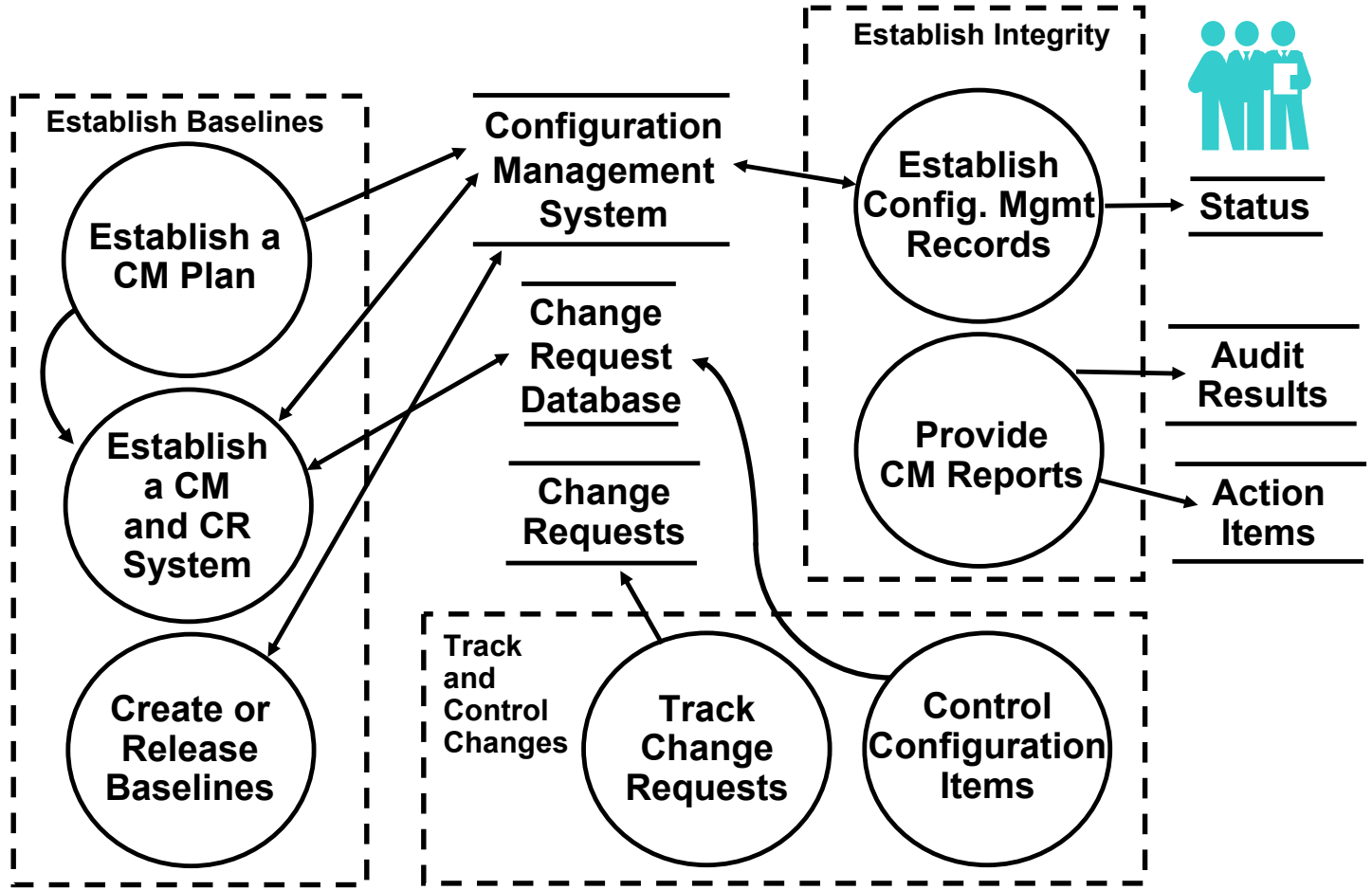
## Work Products

- Reviewed CM Plan
- Environment in CM
- Environment in CR system
- Configuration items attributes (change time, modifier, CR ID, etc.)
- Documented Baseline in CM system
- Daily Build Report
- Test Reports
- Recovery report of the complete project infrastructure and content

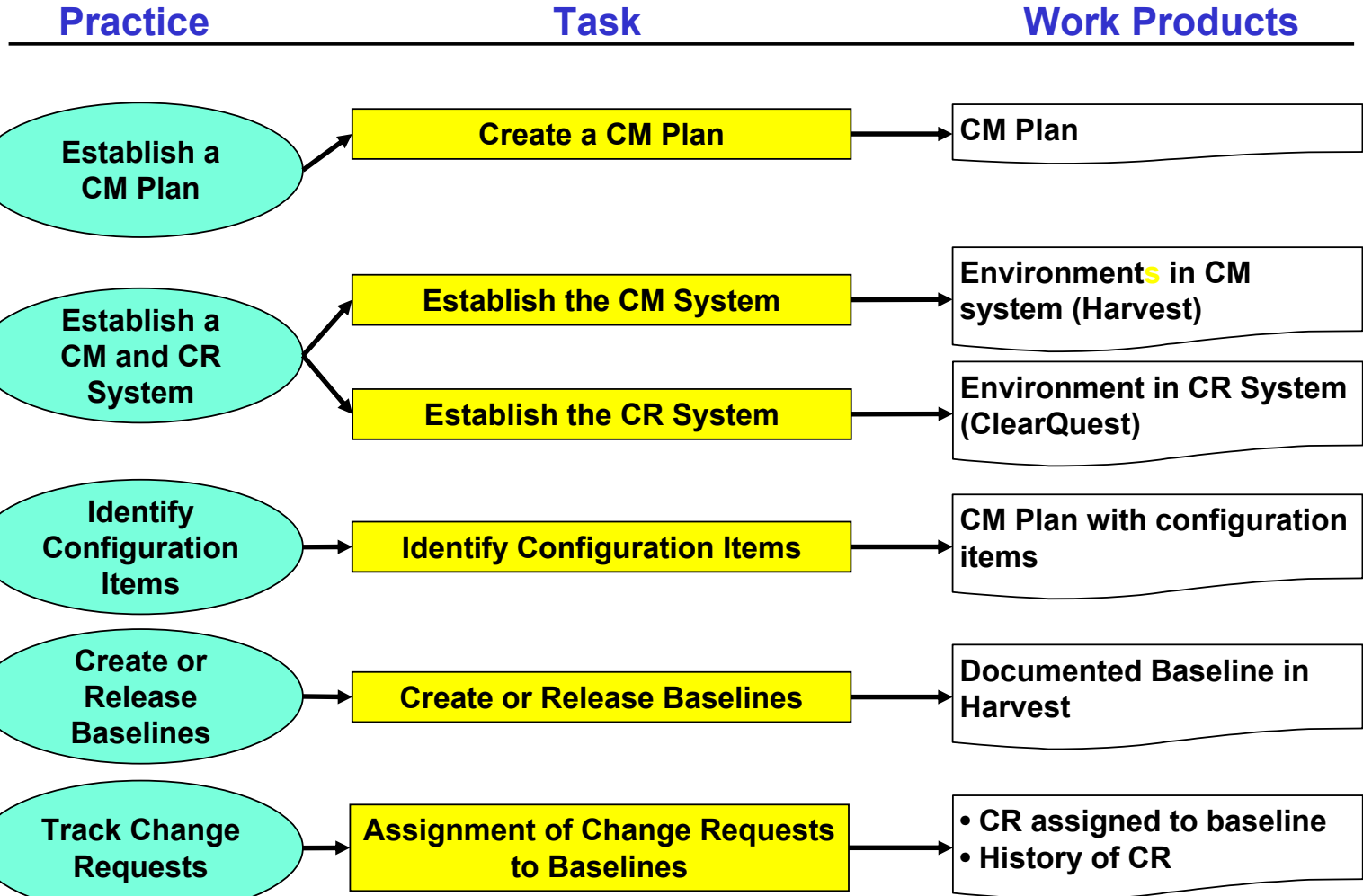
# CM Process with Practices



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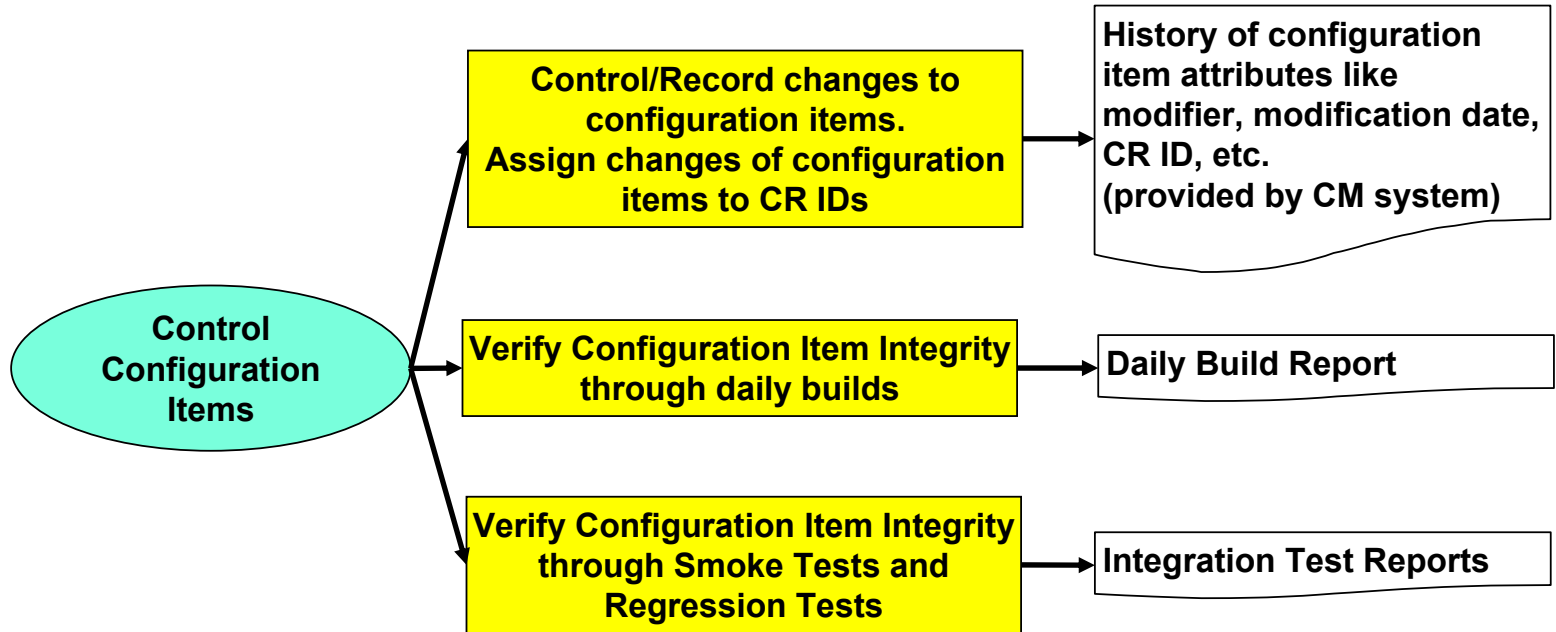


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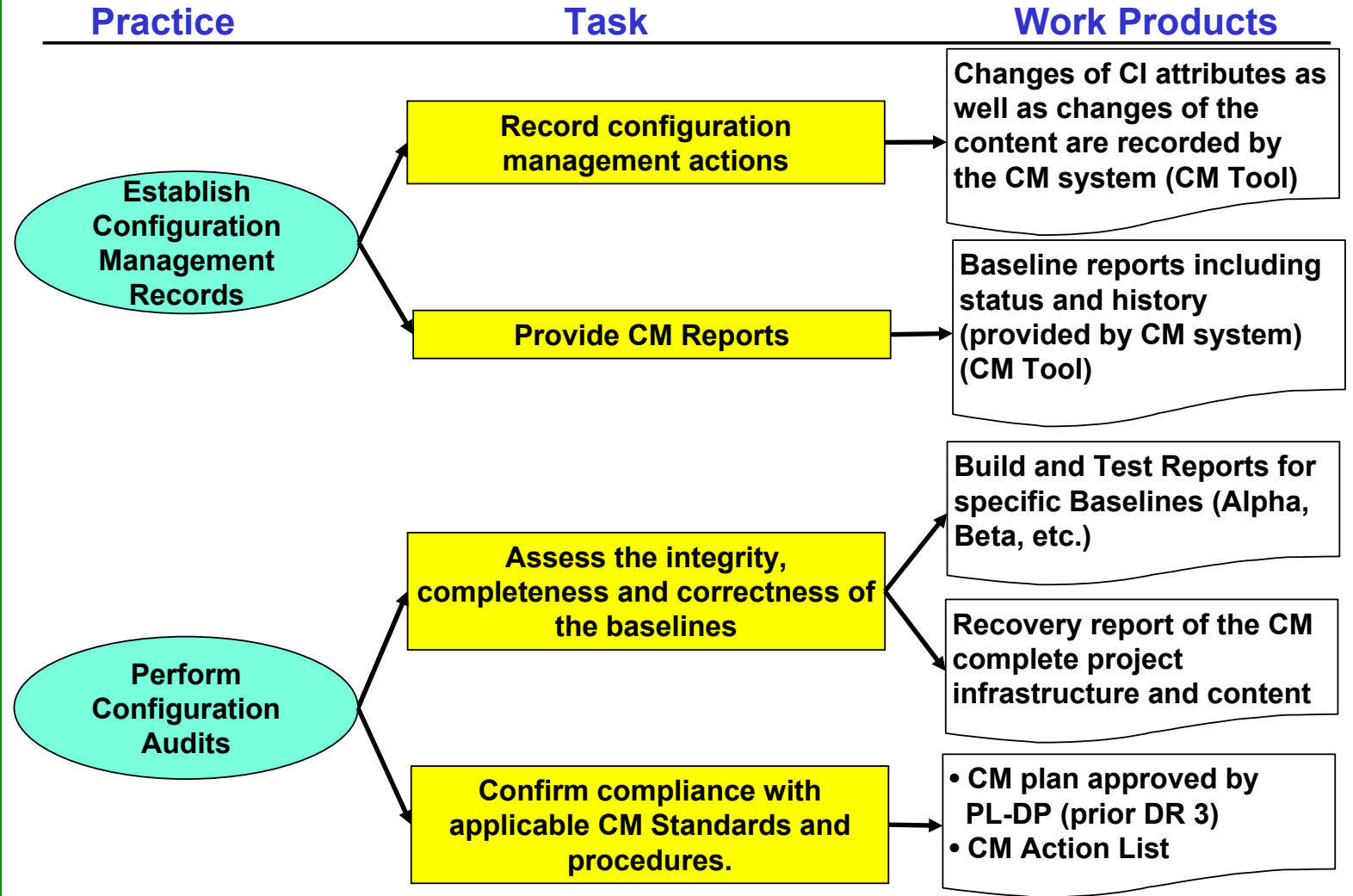
**Practice**

**Task**

**Work Products**



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- The **CM Plan** describes **classes of items** to be put under version control.
- **Configuration Items** are uniquely identified in the **CM System** (date, time, author, item marked as base version if based on a branch or CR reference given for new items)
- **Snapshots in CM System** that can be used as baseline for a new environment (=branch) or are used to label a certain set of configuration items for approved versions (alpha, beta, final, etc.).
- **Change requests (CR)** - new or changed requirements - and defects **are assigned to specific products** and versions (alpha, beta and final) (=> **CCB decision**). The **history of every change request** (creation, assignment to developer, solution history,) is tracked in the CR system

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- **Method:** *Group work*
- **Timing:** *20' group work, 15' presentation & discussion (comparative discussion of group results)*
- **Form:** *Group elaboration*
- **Documents:** *Process Rule 8: CM*
- **Deliverable:** *Task description on flipchart*
  
- **Question:**
  - I. *Describe the selected task '**CM\_T05: Identify Configuration Items**' using the presented description technique (→ next foil).*

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**Input**

-

ID	Task Name
Description	
Roles	
Tools	
Method/Technique	

**Output**

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## Input

- CRs
- Technical Data
- Defined Resources

ID	Task Name
CM_T05	<i>Identify Configuration Items</i>
Description	
<ul style="list-style-type: none"> <li>• Define classes of configuration items             <ul style="list-style-type: none"> <li>• Work products delivered to the customer</li> <li>• Internal Work Products</li> <li>• Third Party Products</li> <li>• Tools</li> </ul> </li> <li>• Assign unique Identifiers and Attributes Attributes are: Creation Date, Modification Date, Author, Reason for Change</li> </ul>	
Roles	
CMG	Resp. for task CM_T05
Tools	
<b>Template:</b> Template CM_Configuration Management Plan.dot <b>CM System (Harvest)</b>	
Method/Technique	
not specified	

## Output

- Identified CRs
- Identified CIs in CM Plan
- CM Deficiency List in CM Plan

# Rule 8: Work Products and Templates

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WP Id	Type	Description	Task Id	Resp.	Link to Template
CM_W01	M	Reviewed CM Plan	CM_T01, CM_T02	CMG	Template CM_Configuration Management Plan.dot
CM_W02	M	Environment in CM system	CM_T03	CMG	n.a.
CM_W03	M	Environment in CR system	CM_T04	CMG	n.a.
CM_W04	M	Documented Baseline in CM system	CM_T06	CMG	n.a.
CM_W05	O	Daily Build Report	CM_T08	PIR	n.a. (generated)
CM_W06	O	Test Reports	CM_T09	IT	n.a. (generated)
CM_W07	M	Recovery report of the complete project infrastructure and content	CM_T10	CMG	Example see: <u>\\nfs08\mesproj\Development Standards\4003 CM MI\04 OPAL\Best Practice\CM Example_CM_ConfigurationRecoveryPlan_001.doc</u>

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*What was important for  
you concerning this  
Process Rule?*



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