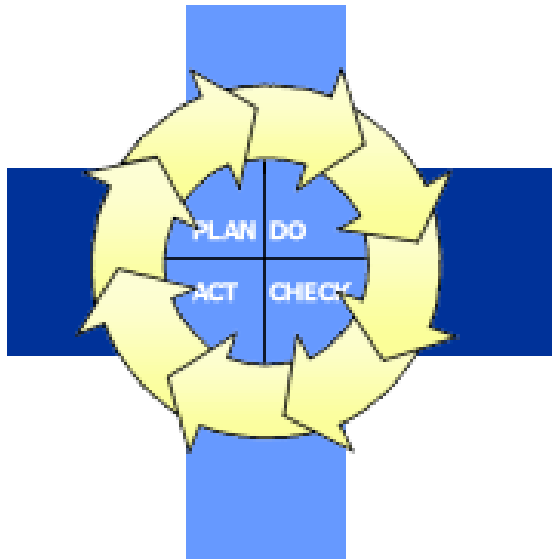
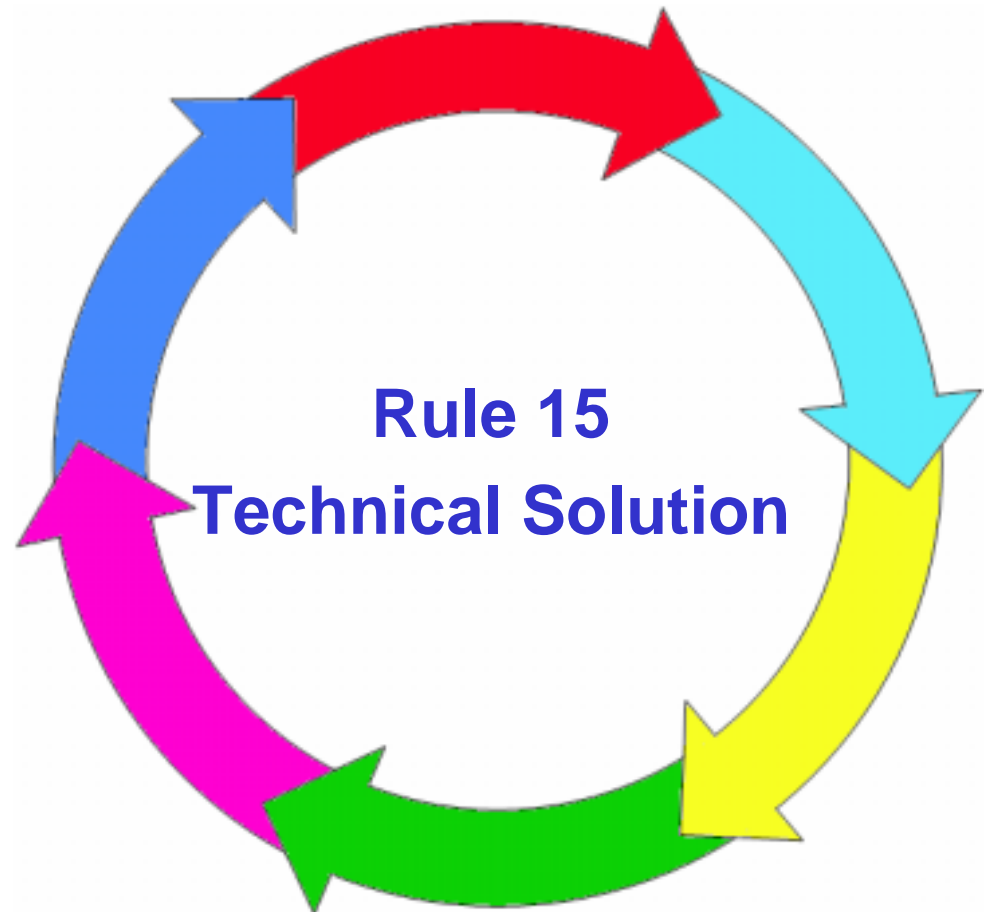


# AVL Software Process Training



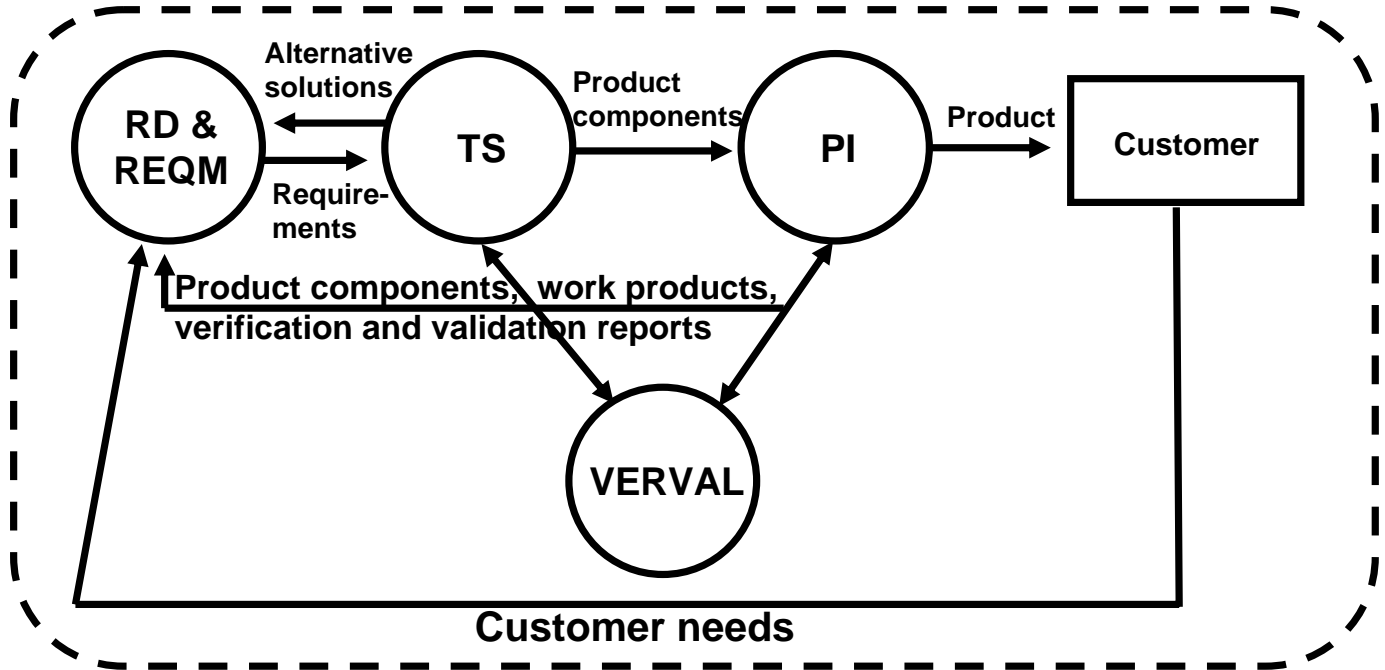
**Dr. Ernest Wallmüller**  
**Wolfgang Höh**

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



# TS Process Context

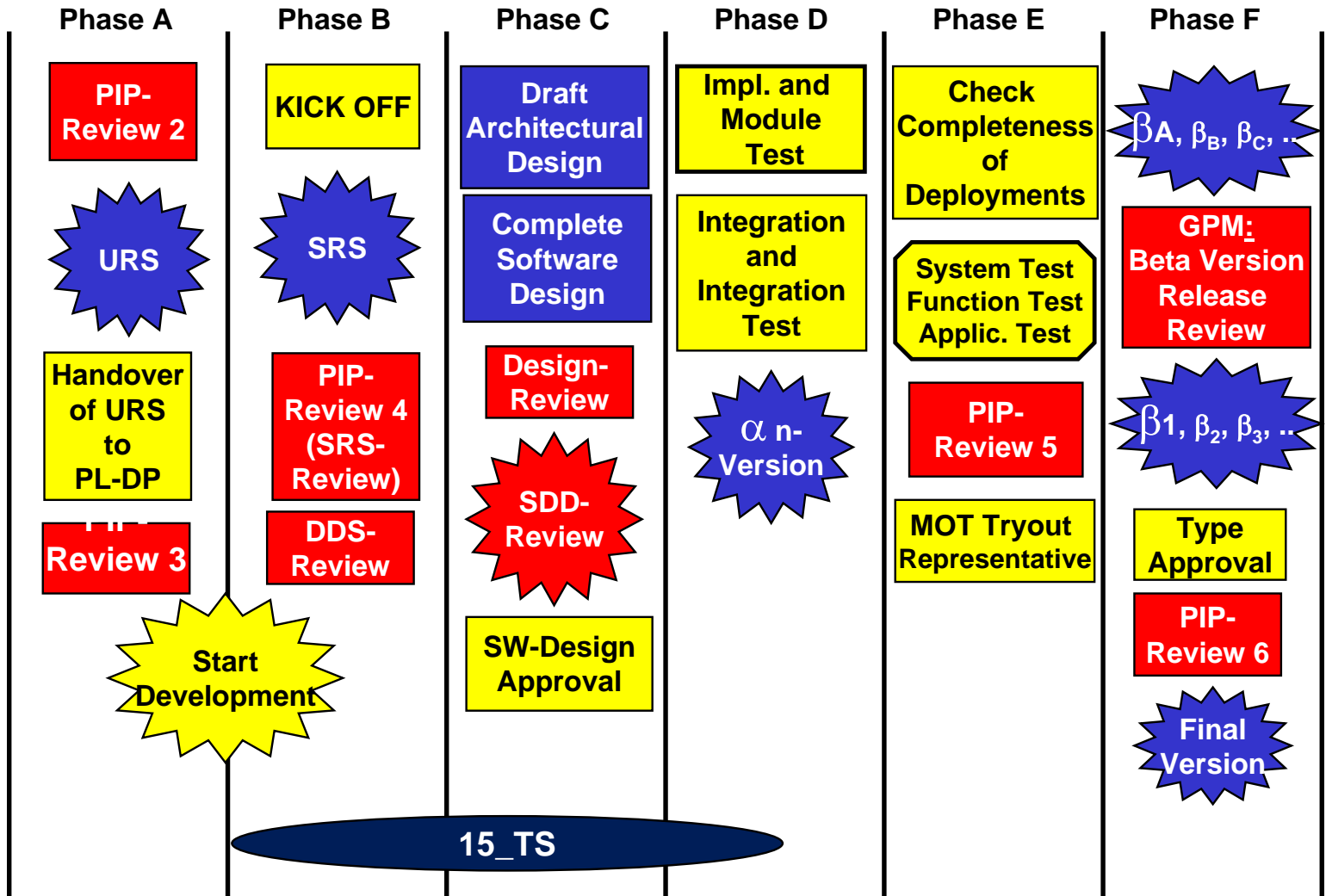
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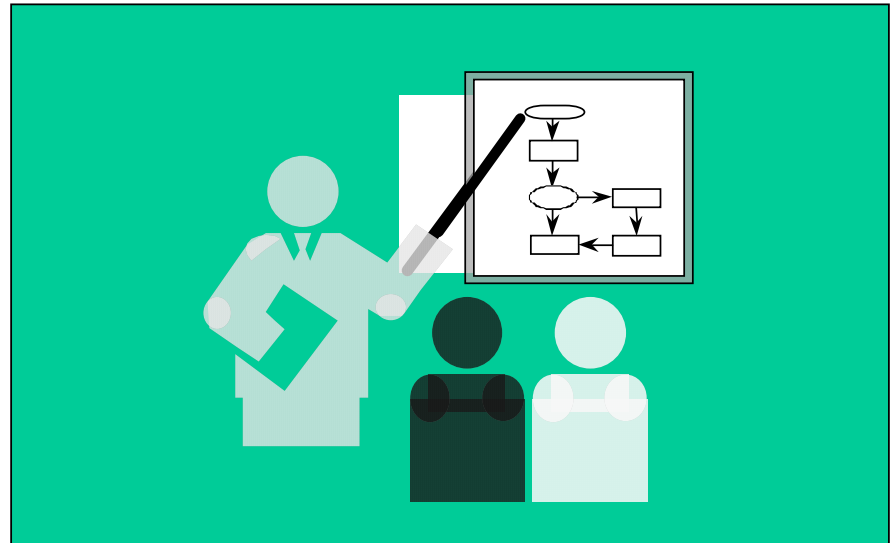
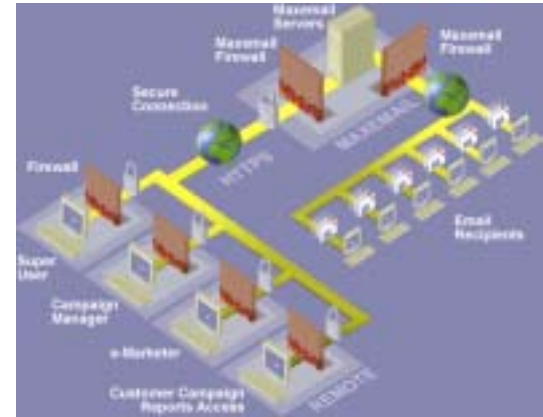
# SW Development Overview: Rule 15 (TS)



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## ■ Policy

**AVL is dedicated to develop software with consistent and state of the art quality.**

## ■ Scope

**All software producing units in AVL SBU MES.**

## ■ Purpose

**The purpose of Technical Solution is to design, develop, and implement solutions to requirements. Solutions, designs, and implementations encompass products, product components, and product-related life-cycle processes either singly or in combinations as appropriate.**

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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 Technical Solution especially with design and implementation?*
- II. What worked well in the past?*
- III. What did not work so well?*



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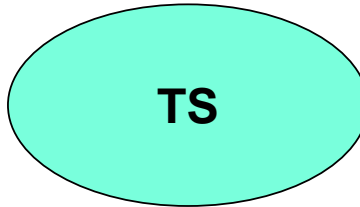
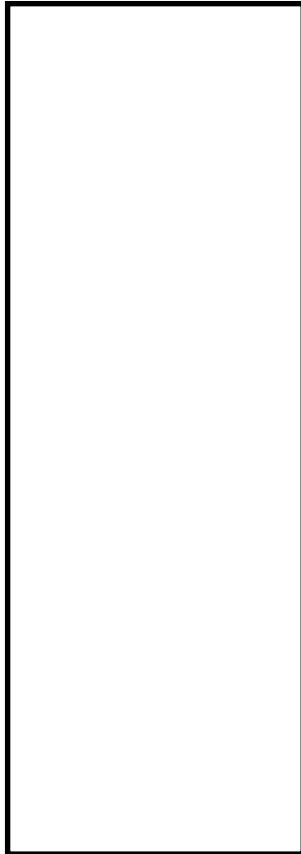
- **Method:** *Individual*
- **Timing:** *15'*
- **Form:** *Individual elaboration*
- **Documents:** *Process Rule 15; form: next foil*
- **Deliverable:** *Filled in form*

## Question:

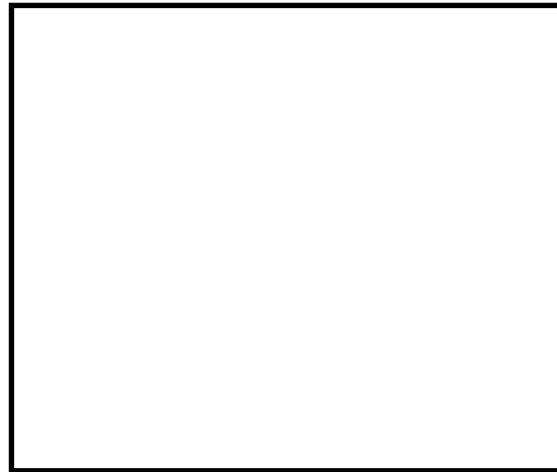
- I. *Based on your experience, the prior discussion and the **TS** process definition list the involved roles, the performed activities, and the produced work products.*

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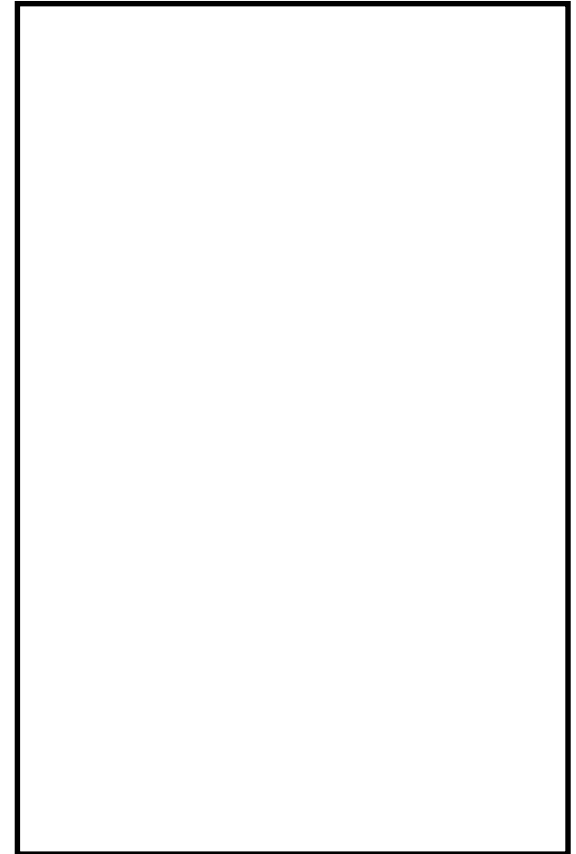
## Roles



## Activities



## Work Products

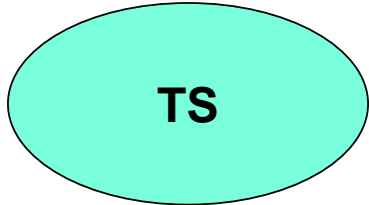




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## Roles

- SA
- SE
- TW
- PL-DP
- WPL
- RM



## Activities

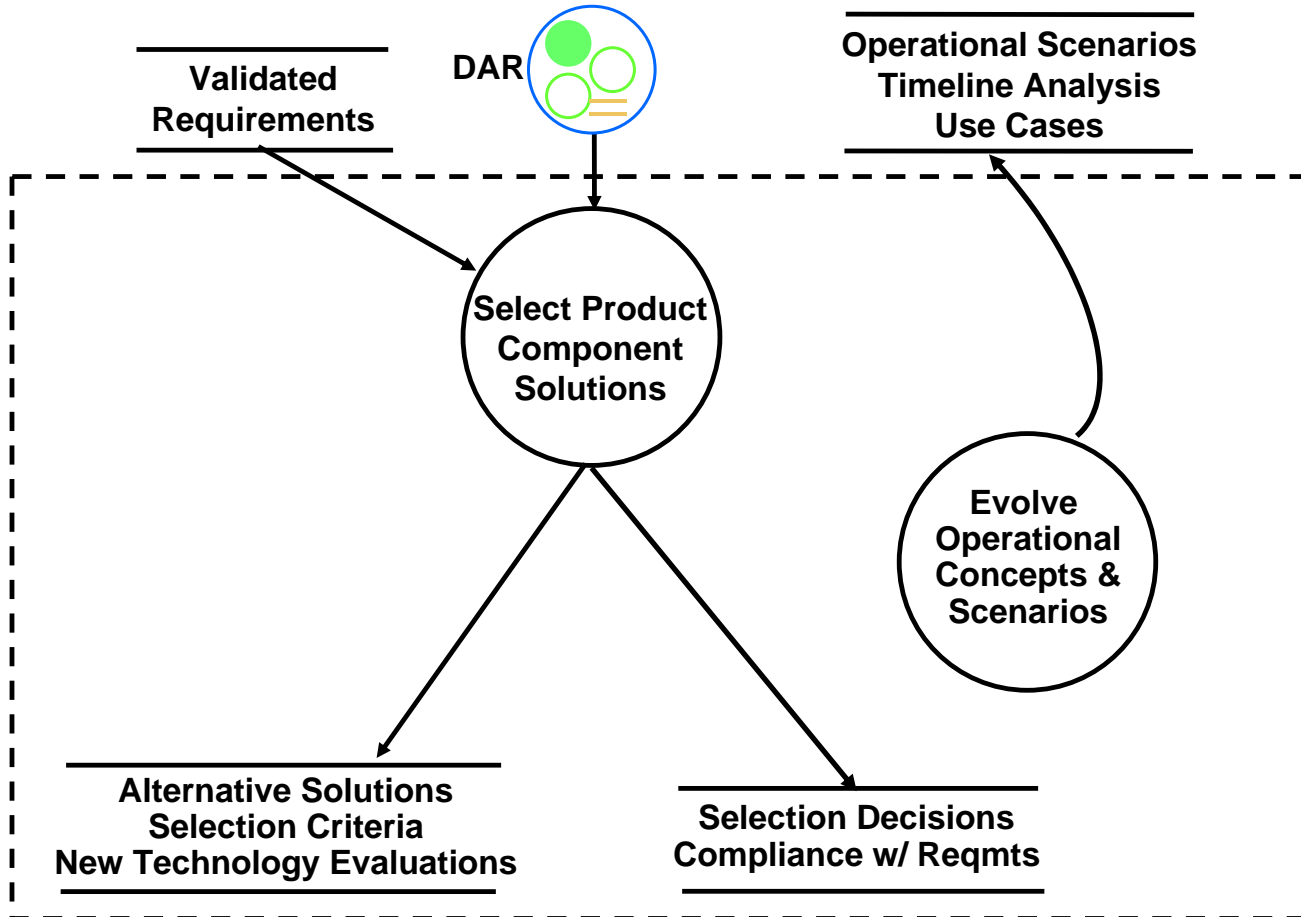
- Develop Detailed Alternative Solutions and Selection Criteria and Select Product Component Solutions
- Design the Product or Product Component
- Establish a Technical Data Package
- Design Interfaces Using Criteria
- Perform Make, Buy, or Reuse Analysis
- Implement the Design
- Develop Product Support Documentation

## Work Products

- Technical Solution Decision Documentation TSDD
- WP chapter with Alternative Solutions TS Decision in TSDD
- System architecture SAD
- Subsystem SDD
- Documentation Design Document DDD
- Test Design Document TDD
- Source Code
- User Documentation
- Release Notes
- Train-The-Trainer Documentation
- Maintenance manual

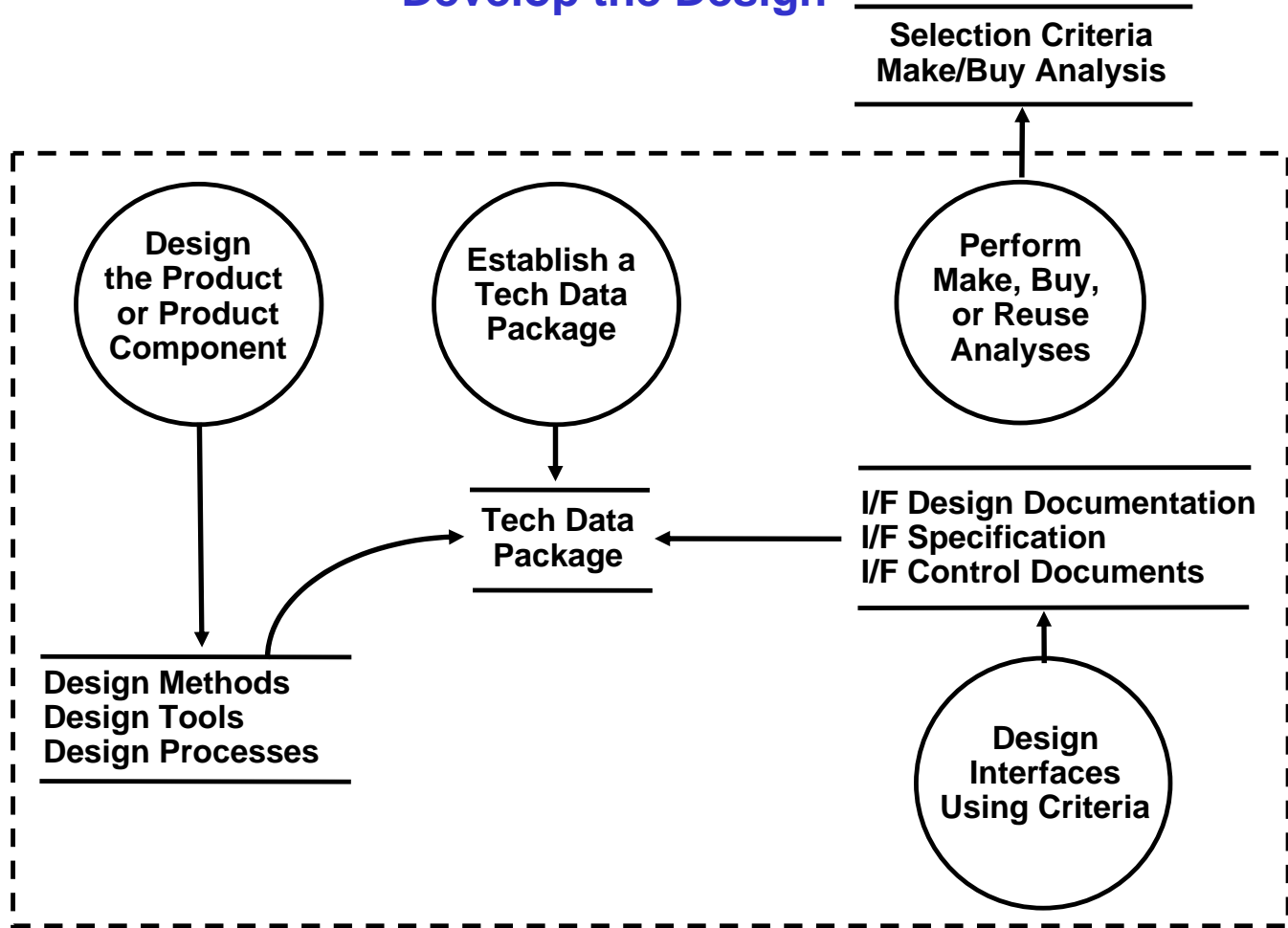
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## Select Product Component Solutions



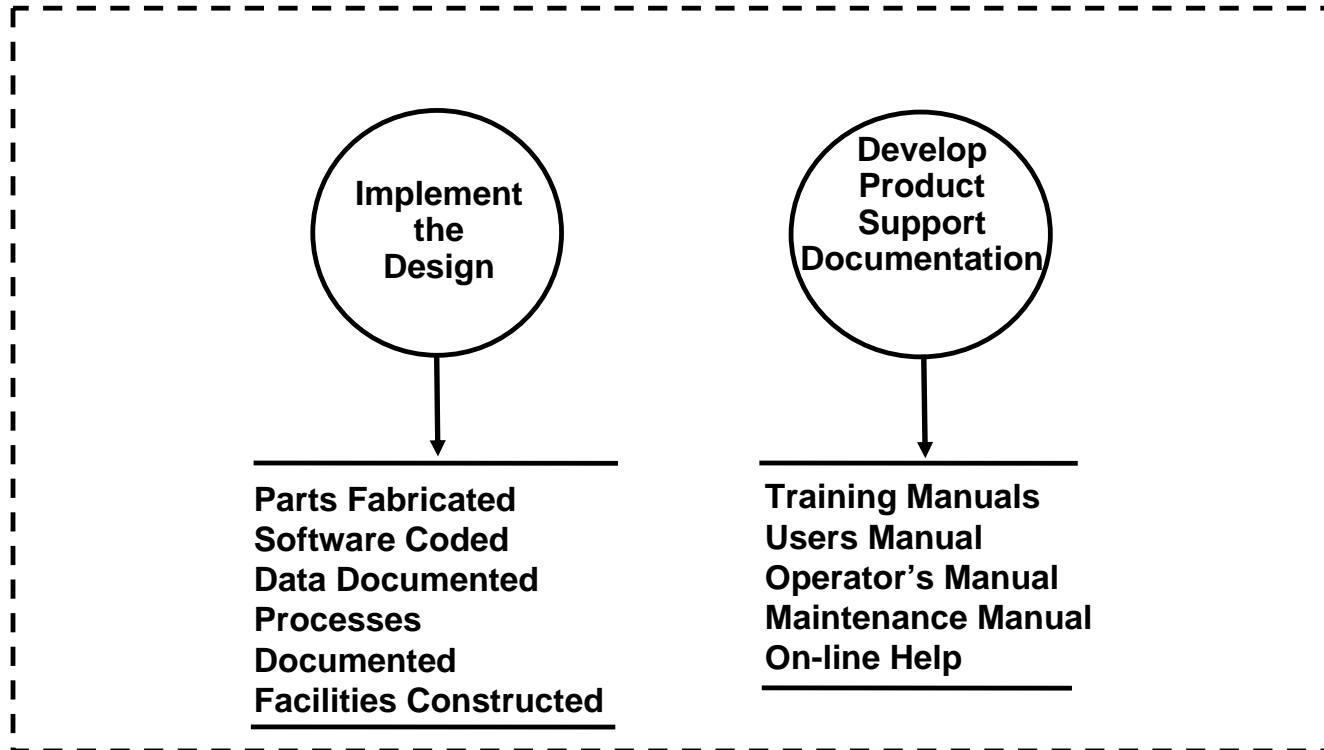
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## Develop the Design

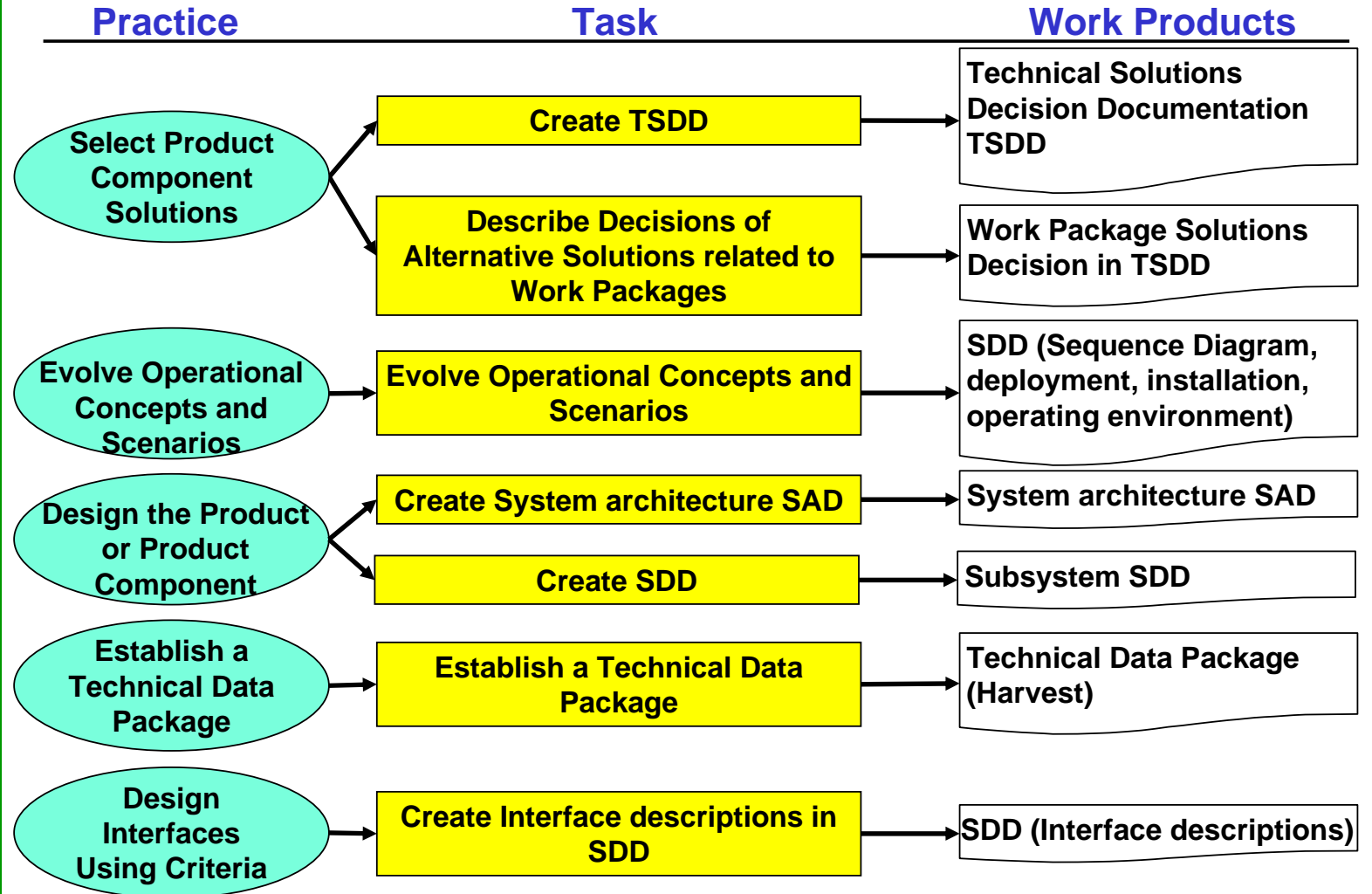


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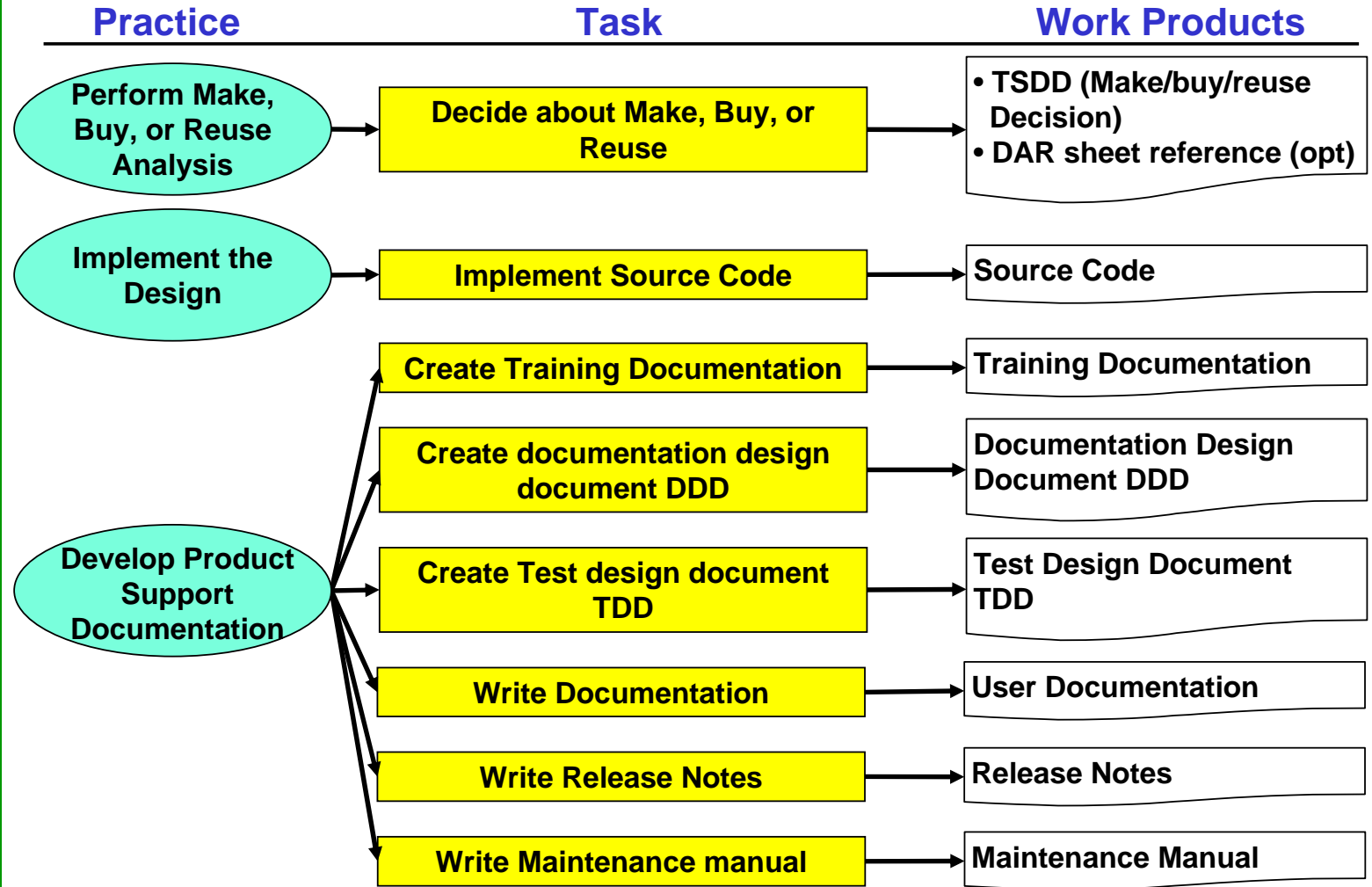
## Implement the Product Design



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- **A collection of items that may include the following if such information is appropriate to the type of product and product component (for example, material and manufacturing requirements may not be useful for product components associated with software services or processes):**
    - product architecture description
    - allocated requirements
    - product-component descriptions
    - product-related life-cycle process descriptions if not described as separate product components
    - key product characteristics
    - required physical characteristics and constraints
    - interface requirements
    - materials requirements (bills or material and material characteristics)
    - fabrication and manufacturing requirements (for both the original equipment manufacturer and field support)
    - the verification criteria used to ensure requirements have been achieved
    - conditions of use (environments) and operating/usage scenarios, modes and states for operations, support, training, manufacturing, disposal, and verifications throughout the life of the product
    - rationale for decisions and characteristics (requirements, requirement allocations; design choices)
- ==> default documents or specifications that you need to implement a component**

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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 15: TS*
- **Deliverable:** *Task description on flipchart*
  
- **Question:**
  - I. *Describe the selected task*  
*'TS\_T01: Create TSDD'*  
*and task*  
*'TS\_T14: Establish a Technical Data Package'*  
*using the presented description technique (→ next foil).*



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**Input**

<b>ID</b>	<b>Task Name</b>
<b>Description</b>	
<b>Roles</b>	
<b>Tools</b>	
<b>Method/Technique</b>	

**Output**

# Task Details 'Create TSDD'

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## Input

- Necessity for development of alternative solutions
- Set of relevant requirements
- Set of constraints

ID	Task Name
TS_T01	Create TSDD
Description	
<ul style="list-style-type: none"> <li>• Create the TSDD to describe the solution finding and decision process.</li> <li>• For each work package inserted a chapter (document the selected solution and the process for the decision).</li> <li>• Document global project decisions.</li> <li>• Document details of the selected solutions (where appropriate) in URS, SRS, and SDD.</li> </ul>	
Roles	
PL-DP	Resp. for task TS_T01
RM	Requirements
Tools	
<b>Template:</b> Template_TS_TSDD.dot <b>Rule 13: DAR</b>	
Method/Technique	
not specified	

## Output

- Technical Solution Decision TSDD
- URS updated
- SRS updated
- SDD updated

# Task Details 'Establish a Technical Data Package'



- OPF
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## Input

- Work Package
- SRS for subsystem incl. product requirements
- TSDD

<b>ID</b> TS_T14	<b>Task Name</b> Establish Technical Data Package
<b>Description</b> Describe the selected alternative solution for implementation: <ul style="list-style-type: none"> <li>• SRS Software requirement specification</li> <li>• SDD of the product component</li> <li>• Reference to the SAD</li> <li>• Reference to the TSDD</li> <li>• Training documentation</li> <li>• Test design document</li> <li>• Documentation Design Document DDD</li> </ul>	
<b>Roles</b> PL-DP, WPL, SA      Resp. for task TS_T14	
<b>Tools</b> <b>Template:</b> Template_PP_Project_WorkProduct_Plan.xlt <b>Harvest</b>	
<b>Method/Technique</b> not specified	

## Output

- Technical Data Package (Harvest)

# Rule 15: Work Products and Templates

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WP Id	Type	Description	Task Id	Resp.	Link to Template?
TS_W01	M	Technical Solution Decision Documentation TSDD	TS_T01	PL-DP	Template_TS_TSDD.dot
TS_W02	M	WP chapter with Alternative Solutions Decision in TSDD	TS_T02	WPL	Template_TS_TSDD.dot
TS_W03	M	System architecture SAD	TS_T03	SA	
TS_W04	M	Subsystem SDD	TS_T04 TS_T08	WPL	Template_TS_SDD.dot
TS_W05	O	Training Documentation	TS_T05	WPL	n.a.
TS_W06	O	Documentation Design Document DDD	TS_T06	WPL	Template_TS_DDD.mmap
TS_W07	O	Test Design Document TDD	TS_T07	WPL	Template_VER_Master Testplan*.dot or Template_VER_TD.mmp
TS_W08	M	Source Code	TS_T09	SE	n.a.
TS_W09	M	User Documentation	TS_T10	TW	Not yet existing
TS_W10	M	Release Notes	TS_T11	TW	Not yet existing
TS_W11	M	Interface descriptions in SDD	TS_T08	WPL	Template_TS_SDD.dot
TS_W12	O	Maintenance manual	TS_T12	TW	Not yet existing
TS_W13	M	Make, Buy, or Reuse decision document in TSDD. DAR sheet reference if necessary.	TS_T13	WPL	Template_TS_SDD.dot
TS_W14	M	Overview of a technical data package in the project work product plan	TS_T14	WPL	Template_PP_Project_Work Product_Plan.xlt

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



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