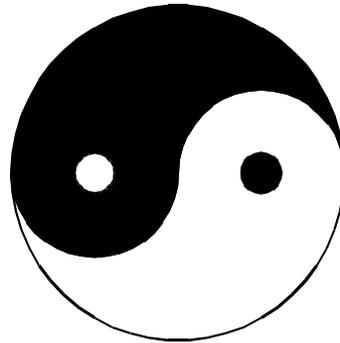


Gegensätze ziehen sich an



**Formale Anforderungsspezifikationen und
agile Softwareentwicklung unter einen (TFS)Hut bekommen**

Agenda

Gegensätze?

RE in der
agilen
Entwicklung

RE in der
klassischen
Entwicklung

Unterschiede
und
Gemeinsamkeiten

Integration



SGB II

IT
Verfahren
KG

IT
Verfahren
A2LL

SGB III

IT
Verfahren
COLIBRI

IT
Verfahren
EIBa



Wealth
Management

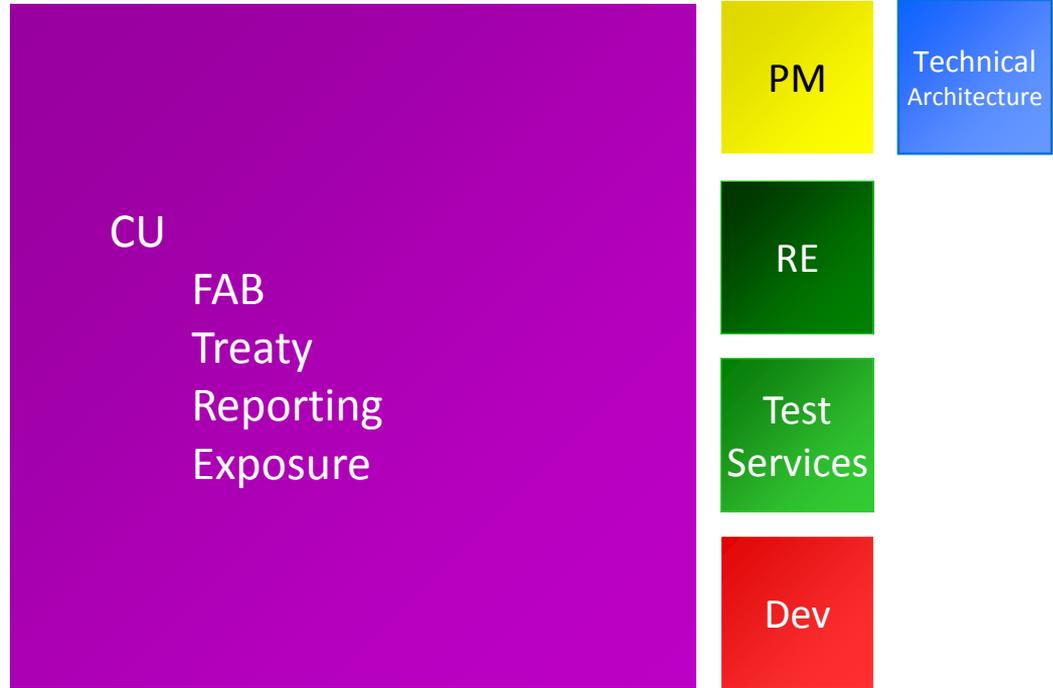
IT Projekt
Doc
Simplicity

IT Projekt
Subitop
Cash

Investment
Banking

IT Projekt
CRCS

IT Projekt
AIDE







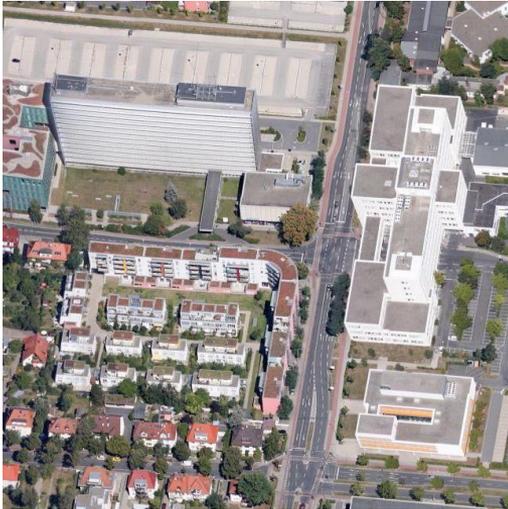
Projekt
Velaro

Projekt
Viaggio

Projekt
Desiro

Projekt
Avenio

Kraftfahrt Bundesamt
EN50128
TSI-Normen



BU
SY

BU
CT

BU
MR

BU
XP



Computerized Systems Used in Clinical Investigations

Additional copies are available from:
 Office of Training and Communications
 Division of Drug Information
 Center for Drug Evaluation and Research (CDER)
 FDA, 101-151-1775
<http://www.fda.gov/cder/guidance/index.htm>
 or
 Office of Regulatory Affairs, Training and
 Standards Assistance
 Center for Biologics Evaluation and Research
<http://www.fda.gov/cber/guidance.htm>
 (FDA, 101-811-1719 or 1-81-81-1019)
 or
 Office of Congressional, Education, and Public Programs
 Division of Small Manufacturers, Generalist, and Consumer Assistance
 Center for Devices and Radiological Health
<http://www.fda.gov/cdrh/guidance.html>
 Email: askcderr@fda.gov
 Fax: 202-279-1171
 (214) Manufacturers and Distributors Assistance: 800-635-2041 or 202-279-1170
 Office of Public Affairs
 Center for Food, Safety and Applied Nutrition
 FDA, 202-418-1200
<http://www.cfsan.fda.gov/guidance.html>
 or
 Communications Unit, 801-11
 Center for Veterinary Medicine
 FDA, 202-795-3000
<http://www.fda.gov/cvm/guidance/published>
 or
 Good Clinical Practice Program
 Office of Drug Assessment
 U.S. Department of Health and Human Services
 Food and Drug Administration
 Office of the Commissioner (DCC)
 May 2007

System Requirements
Specification

Component Requirements
Specification

Hazard Analysis

Medical Device Directive

Medical Device Report

Agenda

Gegensätze?

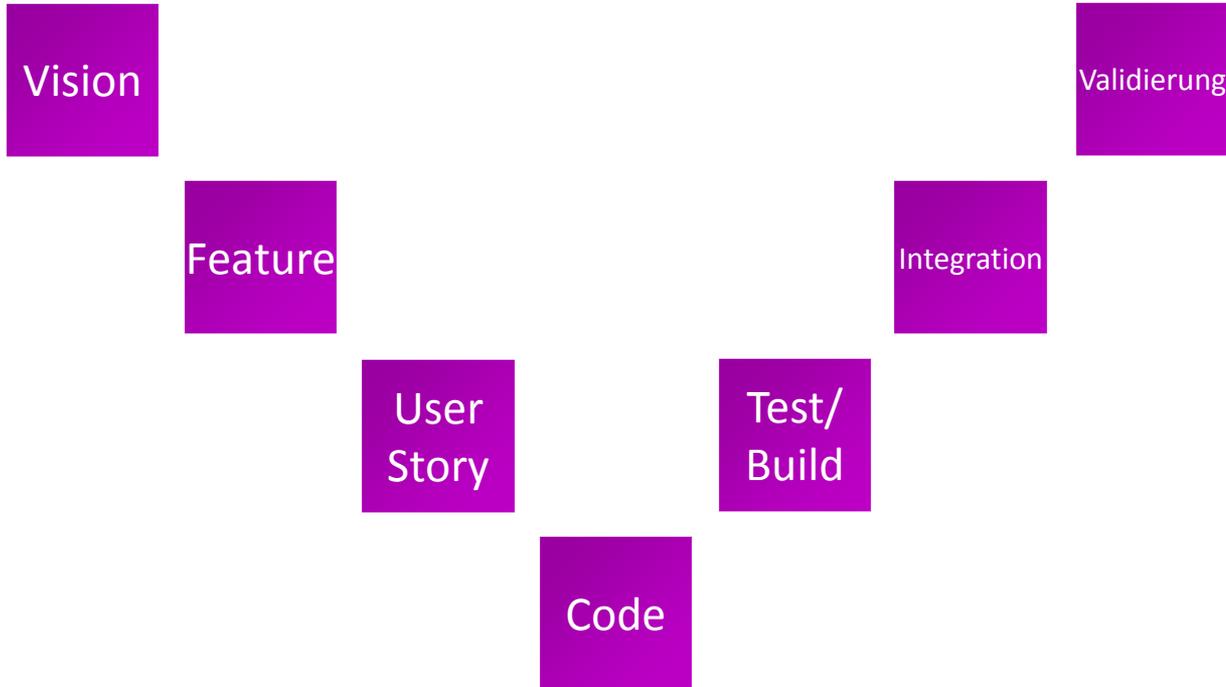
RE in der
agilen
Entwicklung

RE in der
klassischen
Entwicklung

Unterschiede
und
Gemeinsamkeiten

Integration

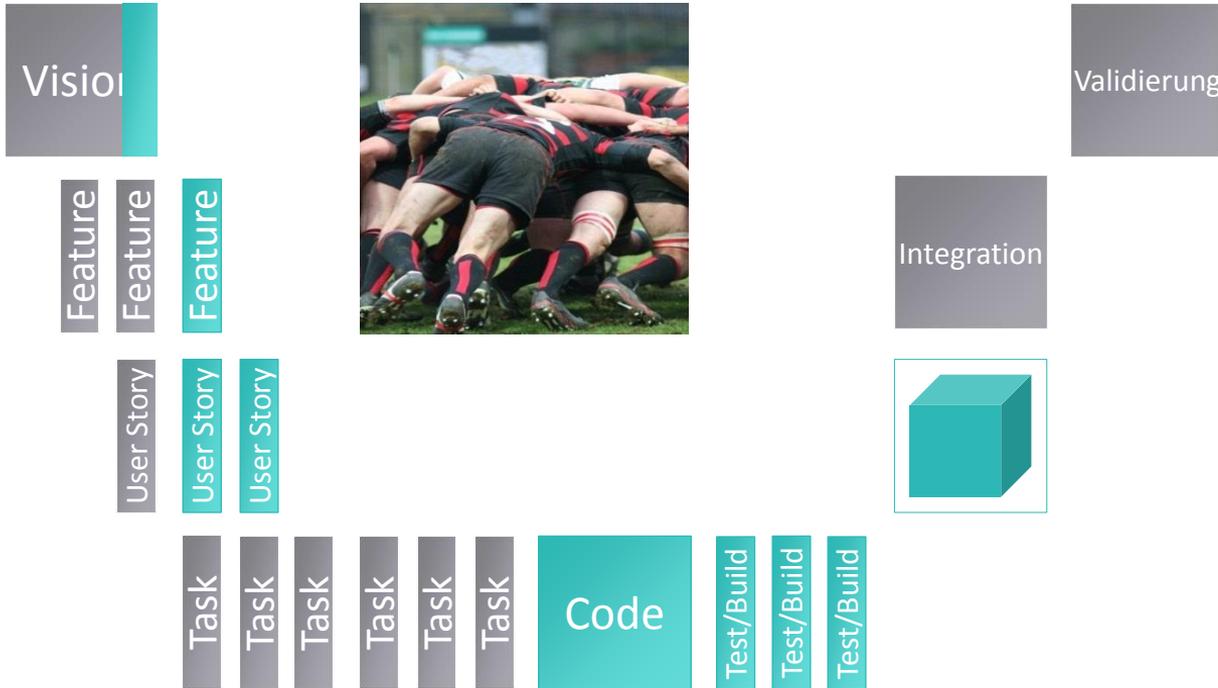
RE in der agilen Entwicklung



RE in der agilen Entwicklung



RE in der agilen Entwicklung



RE in der agilen Entwicklung



RE in der agilen Entwicklung

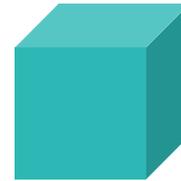
Vision -> Features -> User Stories



Software Produkt

RE in der agilen Entwicklung

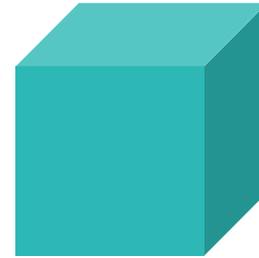
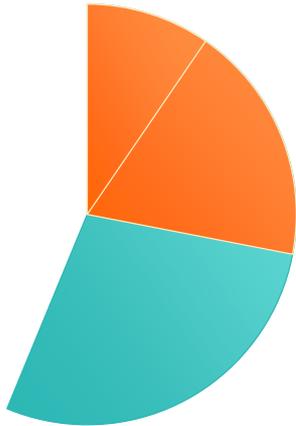
Vision -> Features -> User Stories



Software Produkt

RE in der agilen Entwicklung

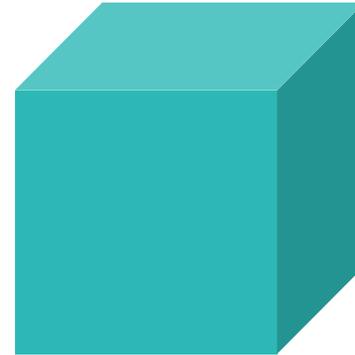
Vision -> Features -> User Stories



Software Produkt

RE in der agilen Entwicklung

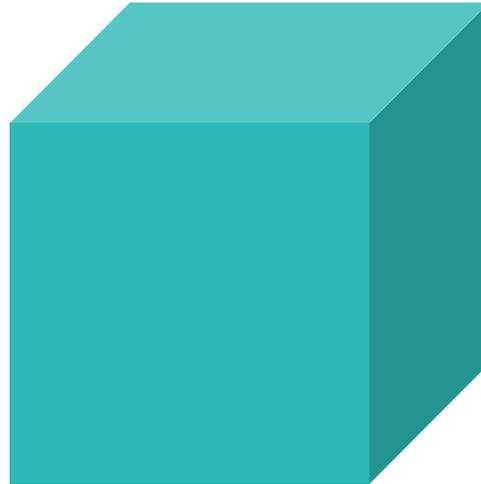
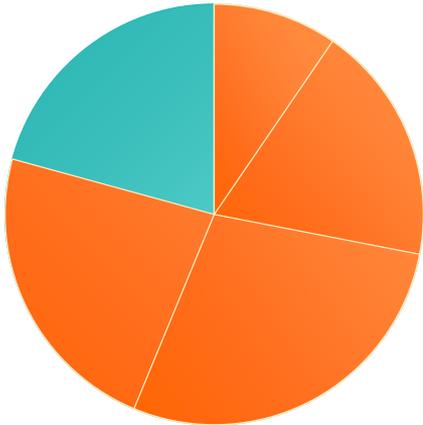
Vision -> Features -> User Stories



Software Produkt

RE in der agilen Entwicklung

Vision -> Features -> User Stories



Software Produkt

Agenda

Gegensätze?

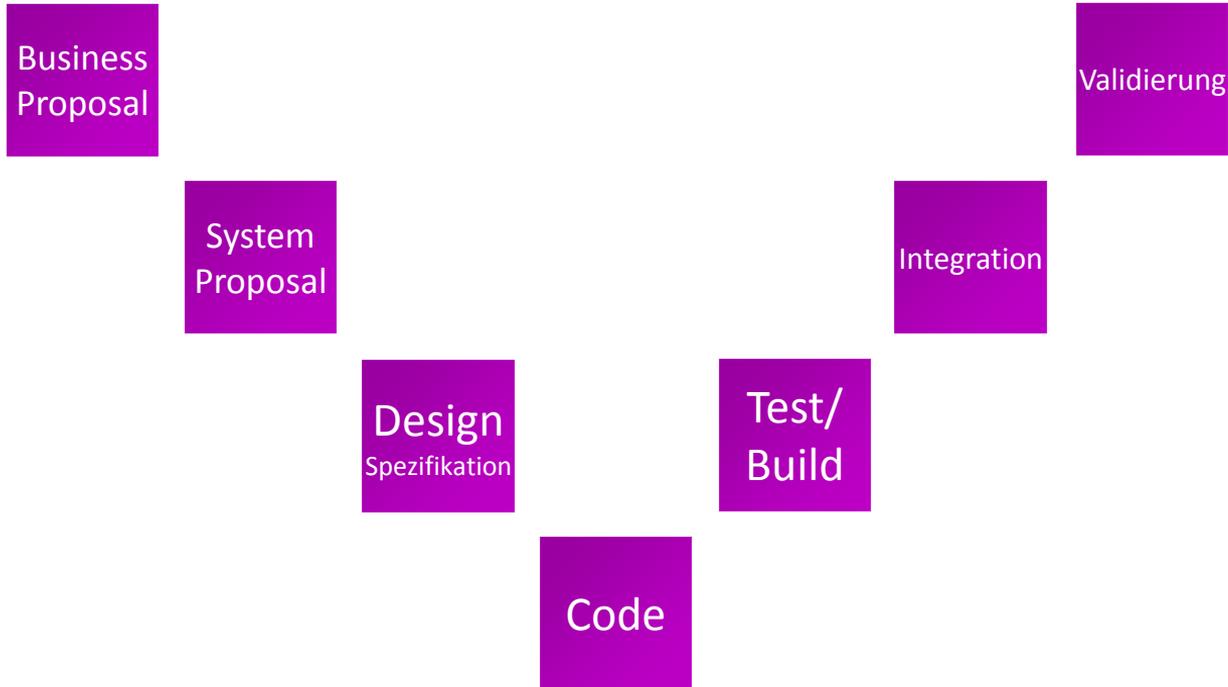
RE in der
agilen
Entwicklung

RE in der
klassischen
Entwicklung

Unterschiede
und
Gemeinsamkeiten

Integration

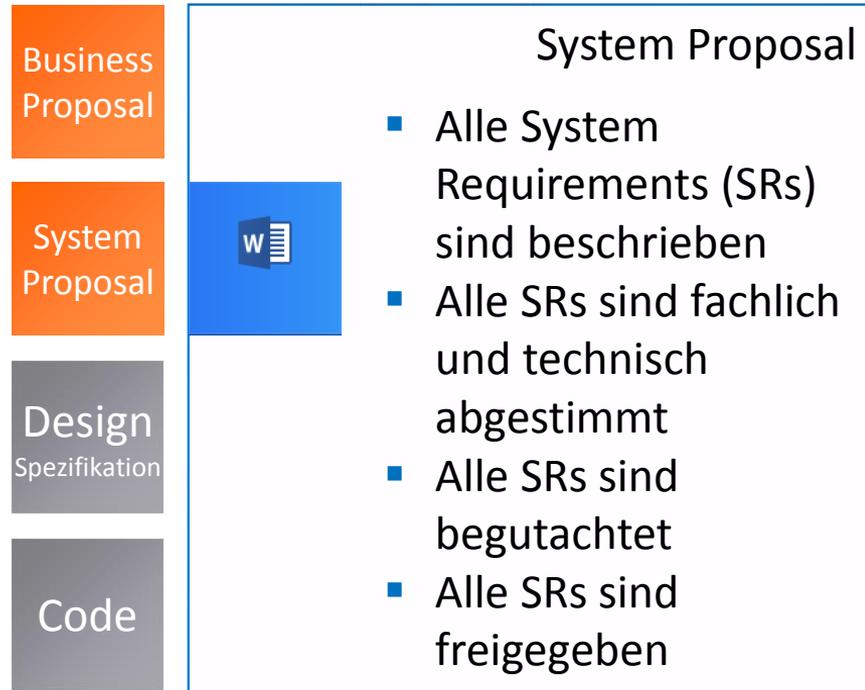
RE in der klassischen Entwicklung



RE in der klassischen Entwicklung



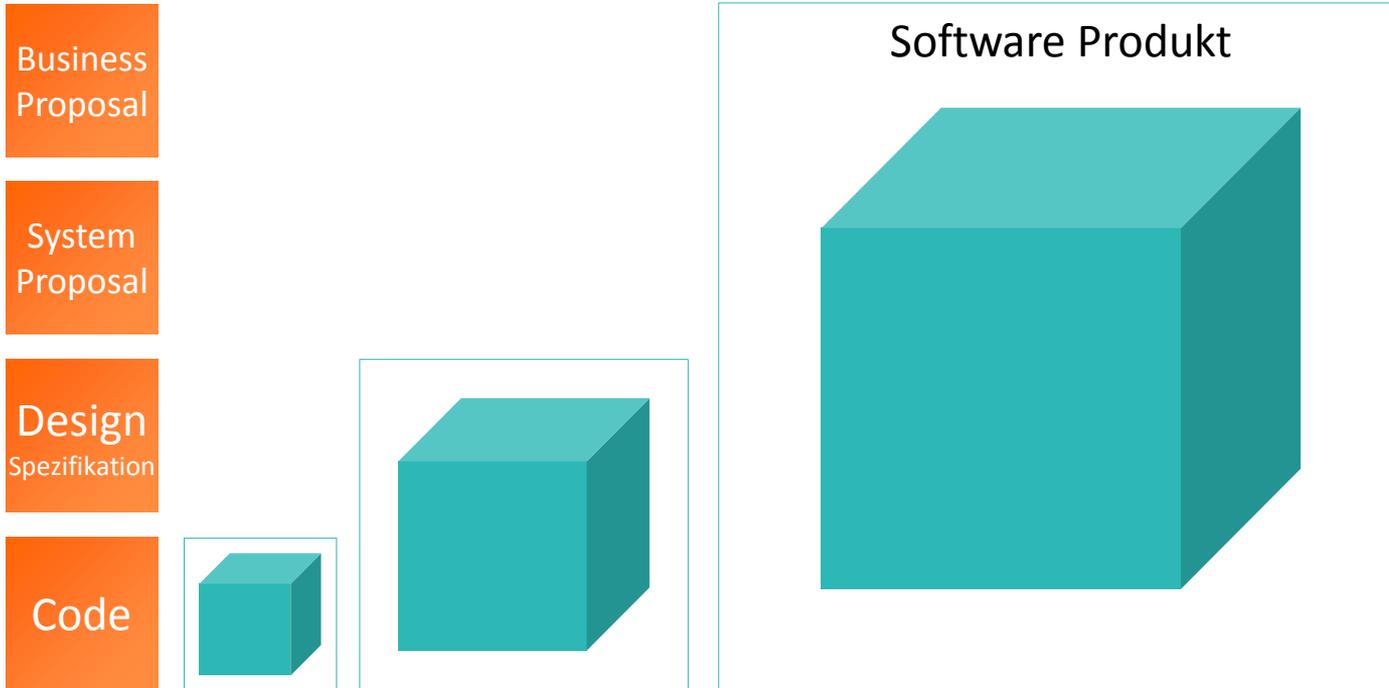
RE in der klassischen Entwicklung



RE in der klassischen Entwicklung



RE in der klassischen Entwicklung



Agenda

Gegensätze?

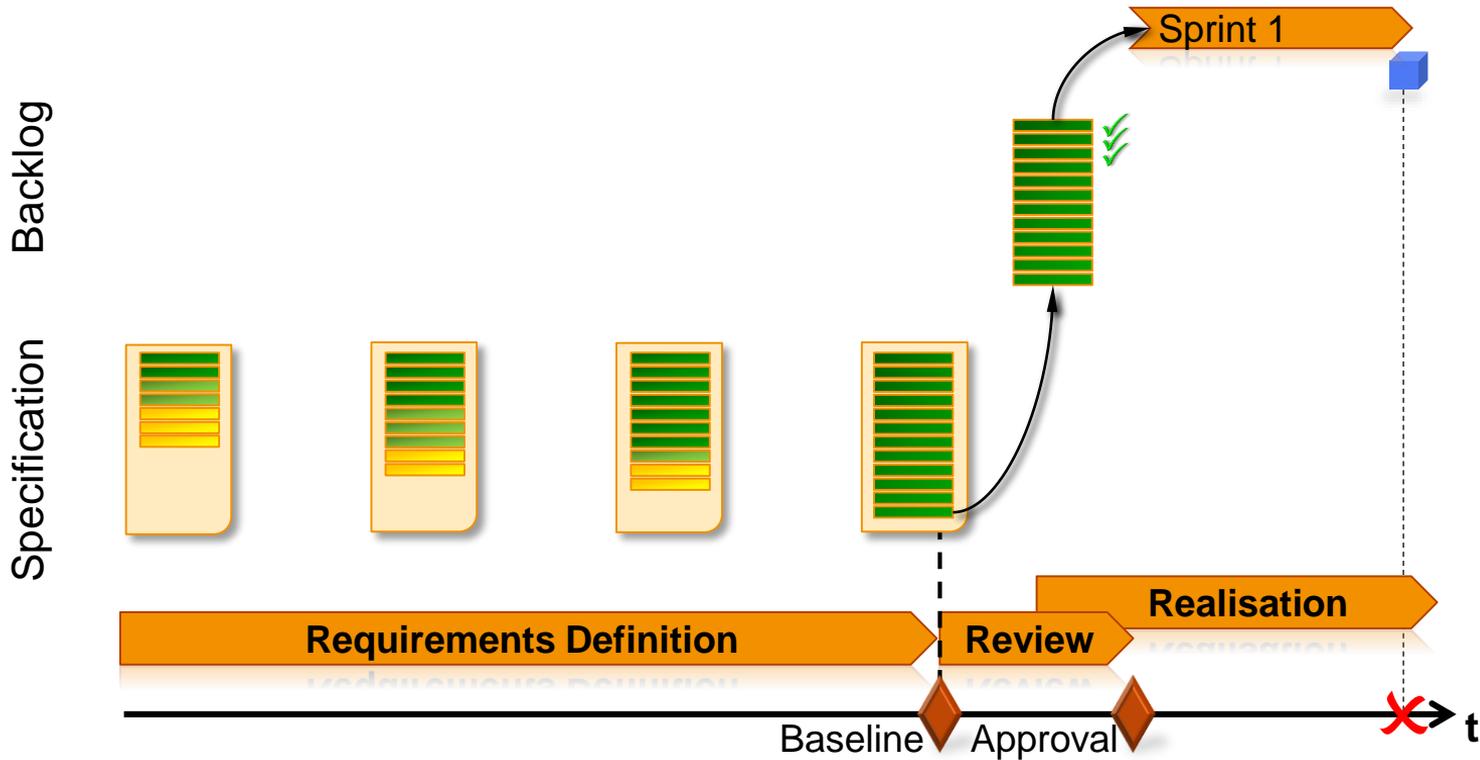
RE in der
agilen
Entwicklung

RE in der
klassischen
Entwicklung

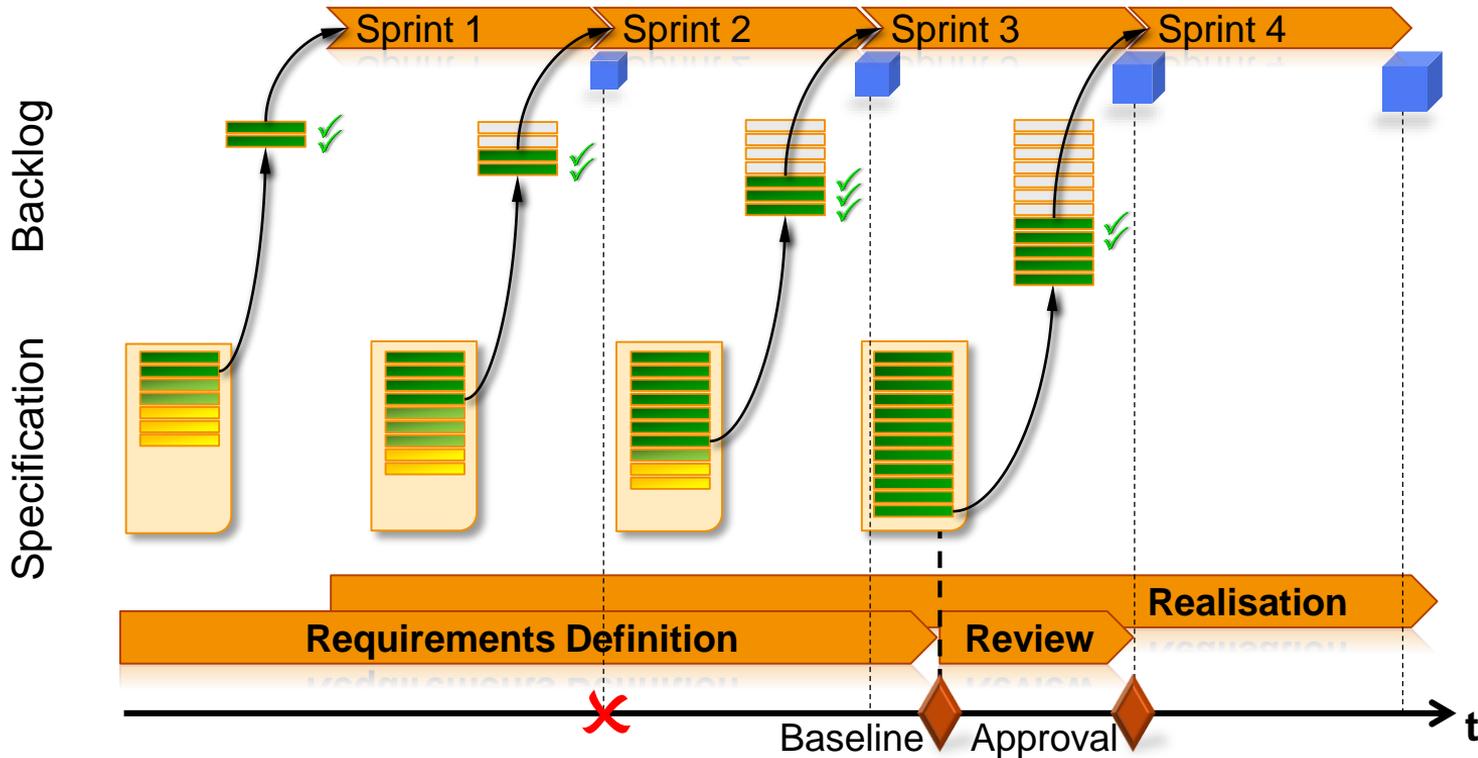
Unterschiede
und
Gemeinsamkeiten

Integration

„Wasserfallsprint“



Iterativ und Inkrementell



Agenda

Gegensätze?

RE in der
agilen
Entwicklung

RE in der
klassischen
Entwicklung

Unterschiede
und
Gemeinsamkeiten

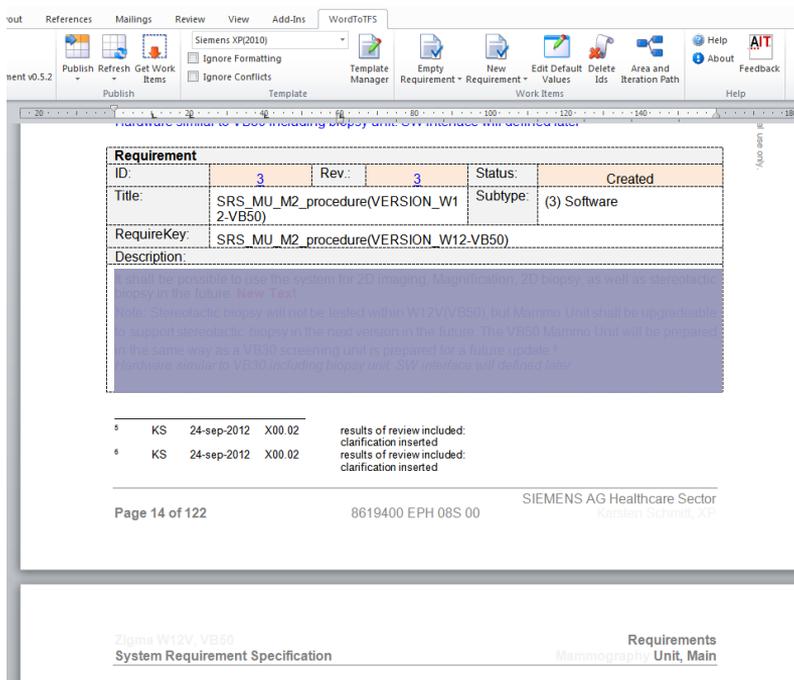
Integration

Artefakte in einem Repository

The screenshot displays the HOOD software interface for creating or editing a requirement. At the top, a yellow warning banner reads: "New Requirement (Modified): Field 'Title' cannot be empty." Below this, the form is organized into several sections:

- Title:** A text input field that is currently empty.
- Status:** A dropdown menu.
- Owner:** A dropdown menu.
- Assigned To:** A dropdown menu with "TFS Administrator" selected.
- State:** A dropdown menu with "Created" selected.
- Reason:** A dropdown menu with "Request accepted" selected.
- Classification:** A section containing "Area:" (XP_Test_Project_v0.5.2_Draft01), "Iteration:" (XP_Test_Project_v0.5.2_Draft01), and "Tags:".
- Planning:** Fields for "Priority:", "Value:", "Story Points:", "Stack Rank:", and "Project Risk:".
- Effort (Days):** Fields for "Original Estimate:", "Completed:", and "Remaining:".
- Details:** A section with tabs for "All Links" and "Attachments". It contains a rich text editor with a toolbar and a large text area.
- Caliber Context:** A section with tabs for "Transfer" and "History". It includes:
 - Requirement Header:** Fields for "Requirement Key:", "ID:", "Requirement Status:", "Version:", "Entry Type:", and "Charm ID:".
 - Risk Analysis:** Fields for "Hazard:", "Initial Risk Assessment:", and "Residual Risk Assessment:".
 - Partition:** Fields for "System S1:" and "Target Release S1:".

Dokumentensicht – Autorenumgebung



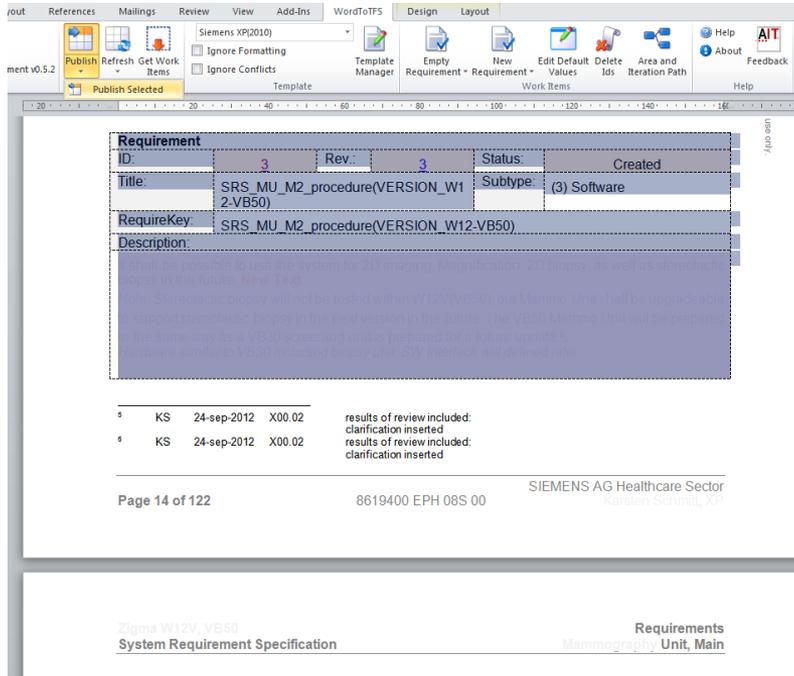
The screenshot shows the HOOD software interface with the 'Document View' active. The ribbon includes 'References', 'Mailings', 'Review', 'View', 'Add-Ins', and 'WordToTFS'. The 'Review' tab is selected, showing options like 'Ignore Formatting' and 'Ignore Conflicts'. The main document area displays a requirement table and a description.

Requirement				
ID:	3	Rev.:	3	Status: Created
Title:	SRS_MU_M2_procedure(VERSION_W12-VB50)		Subtype:	(3) Software
RequireKey:	SRS_MU_M2_procedure(VERSION_W12-VB50)			
Description:	<p>Support Siemens in VB50 including display unit SW interface will defined later</p> <p>copy in the future. New Text</p> <p>Support Siemens in VB50 including display unit SW interface will defined later</p> <p>Support Siemens in VB50 including display unit SW interface will defined later</p> <p>Support Siemens in VB50 including display unit SW interface will defined later</p> <p>Support Siemens in VB50 including display unit SW interface will defined later</p>			
5	KS	24-sep-2012	X00.02	results of review included: clarification inserted
6	KS	24-sep-2012	X00.02	results of review included: clarification inserted

Page 14 of 122 8619400 EPH 08S 00 SIEMENS AG Healthcare Sector
Karsten Schmitt, XP

Zigma W12V, VB50 Requirements
System Requirement Specification Mammograph Unit, Main

Dokumentensicht – Autorenumgebung



The screenshot shows the HOOD software interface with a document view of a requirement table. The table has the following data:

ID	Rev	Status	Created
SRS_MU_M2_procedure(VERSION_W12-VB50)	3		
RequireKey: SRS_MU_M2_procedure(VERSION_W12-VB50)		Subtype: (3) Software	
Description:			

Below the table, there are two review entries:

- 5 KS 24-sep-2012 X00.02 results of review included: clarification inserted
- 6 KS 24-sep-2012 X00.02 results of review included: clarification inserted

Page 14 of 122 8619400 EPH 08S 00 SIEMENS AG Healthcare Sector
Karlsein Schmitt, XP

Siemens W12M_VB50 Requirements
System Requirement Specification Mammography Unit, Main



Dokumentensicht – Autorenumgebung

The screenshot shows the HOOD software interface with a requirement document open. The document is displayed in a table-like structure with the following content:

ID	Rev.	Status	Created
	3	3	
Title	SRS_MU_M2_procedure(VERSION_W1_2-VB50)		Subtype: (3) Software
RequireKey	SRS_MU_M2_procedure(VERSION_W12-VB50)		
Description			

Below the table, there are two entries:

- 5 KS 24-sep-2012 X00.02 results of review included: clarification inserted
- 6 KS 24-sep-2012 X00.02 results of review included: clarification inserted

Page 14 of 122 8619400 EPH 08S 00 SIEMENS AG Healthcare Sector
Karlstein Schmitt, XP

Thema: W12U_VB50 Requirements
System Requirement Specification Memmograph Unit, Main

This close-up shows the software toolbar with the following buttons and options:

- Refresh**: A yellow button with a circular refresh icon.
- Get Work Items**: A button with a downward arrow icon.
- Refresh Selected**: A yellow button with a refresh icon and a selection icon.
- Other visible options include 'Ignore Formatting', 'Ignore Conflicts', 'Template Manager', 'Empty Requirement', 'New Requirement', 'Edit Default Values', 'Delete Ids', 'Area and Iteration Path', 'Help', 'About', and 'Feedback'.

Dokumentensicht – Autorenumgebung

The screenshot displays the HOOD software interface in document view. The top ribbon includes tabs for File, Home, Insert, Page Layout, References, Mailings, Review, View, WordToTFS, Design, and Layout. Below the ribbon is a toolbar with icons for Disconnect, Publish, Refresh, Get Work Items, Template Manager, Empty Requirement, New Requirement, Edit Default Values, Delete Ids, Area and Iteration Path, Help, and Feedback. The main area contains four panels, each with a table header and a diagram. The diagrams include a complex flowchart, a state machine diagram, a test case flowchart, and a table of test case data.

Artefakte in einem Repository

The screenshot shows a web-based form for editing a requirement. The title is 'Requirement #3: SRS_MU_M2_procedure(VERSION_W12-VB50)'. The form is divided into several sections:

- Title:** SRS_MU_M2_procedure(VERSION_W12-VB50) Subtype: (3) Software
- Status:** Owner, Assigned To (TFS Administrator), State (Created), Reason (Request accepted).
- Classification:** Area (Siemens XP Agile Software Development v0.5.2), Iteration (Siemens XP Agile Software Development v0.5.2), Tags.
- Planning:** Priority, Value, Story Points, Stack Rank, Project Risk.
- Effort (Days):** Original Estimate, Completed, Remaining.
- Details:** All Links, Attachments.
- Description with Acceptance Criteria:** A rich text editor containing the following text:

It shall be possible to use the system for 2D imaging, Magnification, 2D biopsy, as well as stereotactic biopsy in the future.
 Note: Stereotactic biopsy will not be tested within W12(VB50), but Mammio Unit shall be upgradeable to support stereotactic biopsy in the next version in the future. The VB50 Mammio Unit will be prepared in the same way as a VB30 screening unit is prepared for a future update. [1]

Hardware similar to VB30 including biopsy unit. SW interface will be defined later

[1] W5 24-sep-2012 X00.02 results of review included: classification inserted
- Caliber Context:** Transfer, History.
- Requirement Header:** Requirement Key (SRS_MU_M2_procedure(VERSION_W12-VB50)), ID, Entry Type, Requirement Status, Version, Charm ID.
- Risk Analysis:** Hazard, Initial Risk Assessment, Residual Risk Assessment.
- Partition:** System S1, Target Release S1.

Artefakte in einem Repository

The screenshot shows a software development tool interface with the following components:

- Menu Bar:** Save, Save & Close, Refresh, Send as Email, State Diagram.
- Title Bar:** Requirement #3: Class diagram for meta model of process template. Close Editor.
- Metadata Panels:**
 - Title:** Class diagram for meta model of process template
 - Status:** Owner, Assigned To: TFS Administrator, State: Created, Reason: Request accepted.
 - Classification:** Area: Interface_InnovatorZIFS_for_Siemens_XP_v0.1_Draft01, Iteration: Interface_InnovatorZIFS_for_Siemens_XP_v0.1_Draft01, Tags.
 - Planning:** Priority, Value, Story Points, Stack Rank, Project Risk.
 - Effort (Days):** Original Estimate, Completed, Remaining.
- Details Panel:**
 - Description with Acceptance Criteria:** Following is the meta model diagram of the process template, especially the work item type definition.
 - Innovator Context:** Caliber Context, Transfer, History.
 - Diagram Header:** Innovator Link: http://www.mid.de, Diagram Status: created, Diagram Name: WITD Meta Model, Diagram Type: Class Diagram.
 - Innovator Transfer:** Innovator Last Import Date: 10/22/2012, Innovator Last Changed By: Jens Donig.
- Diagram:** A complex class diagram showing a meta model of a process template, with numerous classes and their relationships.

Artefakte in einem Repository

Requirement #8: Class diagram for meta model of workflow rules

Close Editor

Title: Subtype:

Status:

Owner:

Assigned To:

State:

Reason:

Classification

Area:

Iteration:

Tags:

Effort (Days)

Original Estimate: Completed: Remaining:

Stack Rank: Project Risk:

Details | All Links | Attachments

Description with Acceptance Criteria:

Following is the meta model diagram of the process template, especially the WIT workflow rules definition:

```

classDiagram
    class Field
    class Run
    class Commit
    class AllowedValues
    class Action
    class ServerDefault
    class ReadOnly
    class Copy
    class GlobalList
    class SuggestValues

    Field "1" -- "1" Run
    Run "1" -- "1" Commit
    Run "1" -- "1" AllowedValues
    Run "1" -- "1" Action
    Commit "1" -- "1" AllowedValues
    AllowedValues "1" -- "1" Action
    Action "1" -- "1" ServerDefault
    Action "1" -- "1" ReadOnly
    Action "1" -- "1" Copy
    GlobalList "1" -- "1" SuggestValues
    
```

Innovator Context | Caliber Context | Transfer | History

Diagram Header

Innovator Link:

Diagram Status:

Diagram Name: Diagram Type:

Innovator Transfer

Innovator Last Import Date: Innovator Last Changed By:

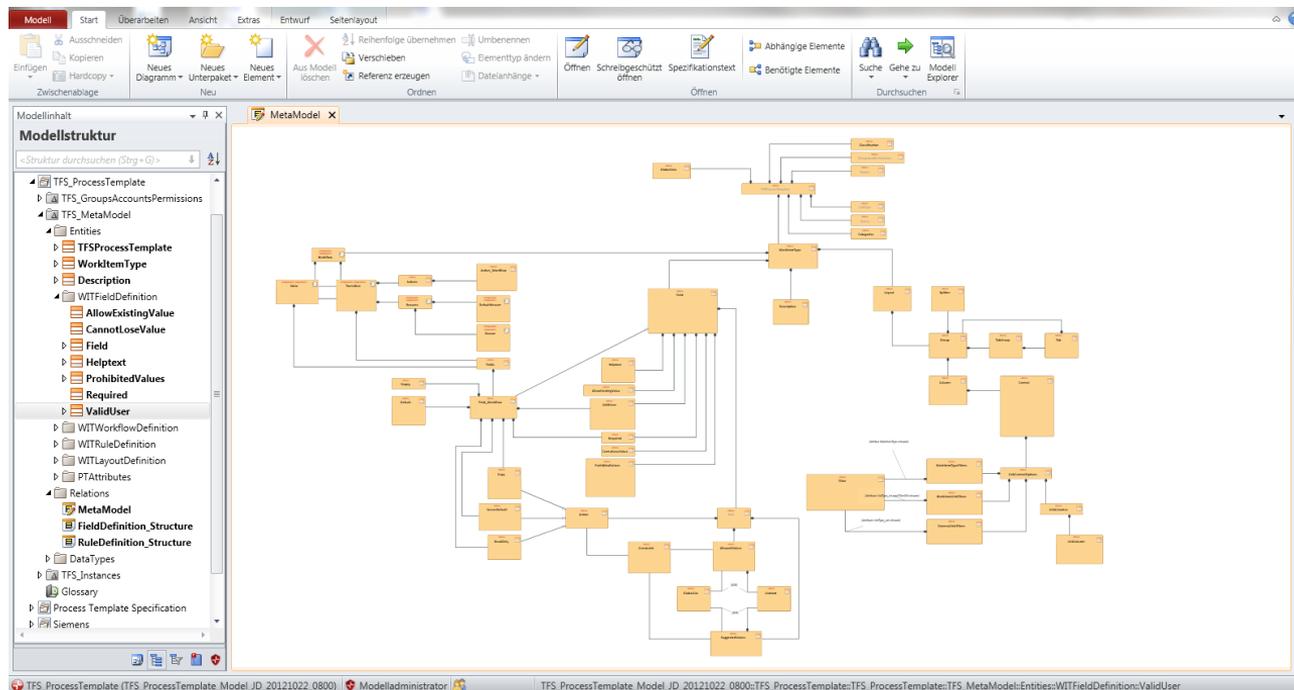
Agile Planung

Sprint Backlog

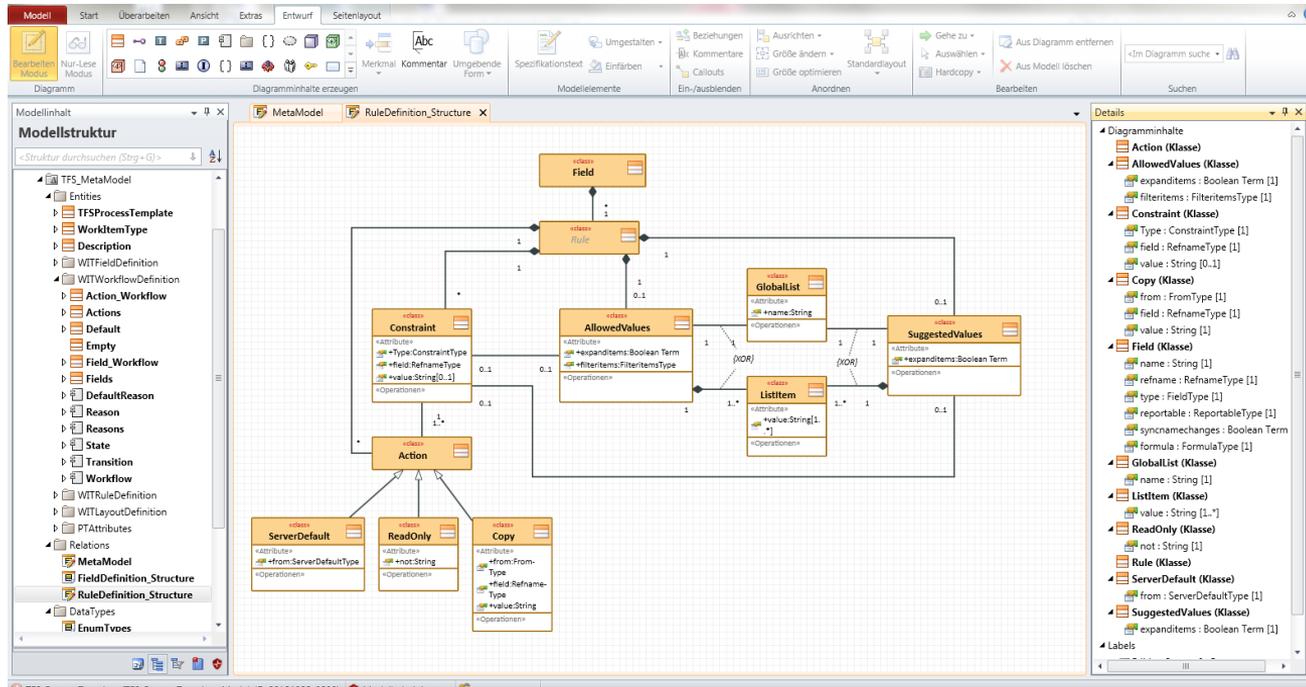
Query Results: 5 results found (1 currently selected).

	ID	▲ Stack R...	Story Poi...	Title	State	Assigned To	I
	2	10	3	SRS_MU_tomo_procedure(VERSION_W12-VB30)	Defined	Diekuh Liefumdenreich	S
	3	12	3	SRS_MU_M2_procedure(VERSION_W12-VB50)	Defined	Häbke Feng	S
	5	15	2	HM_MU_SRS2_F1G1U1M6(VERSION_W12-VB30 Z...	Defined	Oberta Sse	S
	4	25	5	SRS_MU_General_Stability(VERSION_W12-VB30...	Defined	Klär Grube	S
	6	30	8	HM_MU_SRS2_F14G2U5M1(VERSION_W12-VB30...	Defined	Router Boot	S

Integration modellbasierter Vorgehensweisen



Integration modellbasierter Vorgehensweisen



Fazit

- › Fokussierung auf die Ergebnisse (Artefakte)
- › Ergebnisse auf ihre Werte untersuchen (Maturity Levels)
- › Stabile Artefakte für die Realisierung – anhand deren Qualität – definieren
- › Spezifikation nach Ranking – das Dringende zu erst
- › Dokumente als Sichten verstehen, die zu Meilensteinen eingefroren werden können

Agenda

Gegensätze?

RE in der
agilen
Entwicklung

RE in der
klassischen
Entwicklung

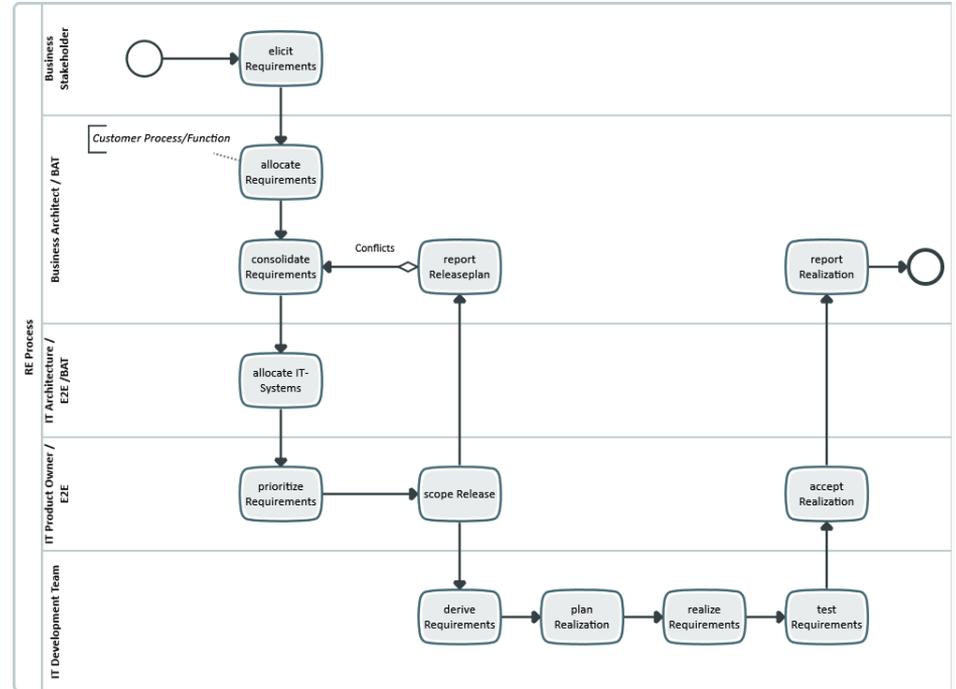
Unterschiede
und
Gemeinsamkeiten

Integration

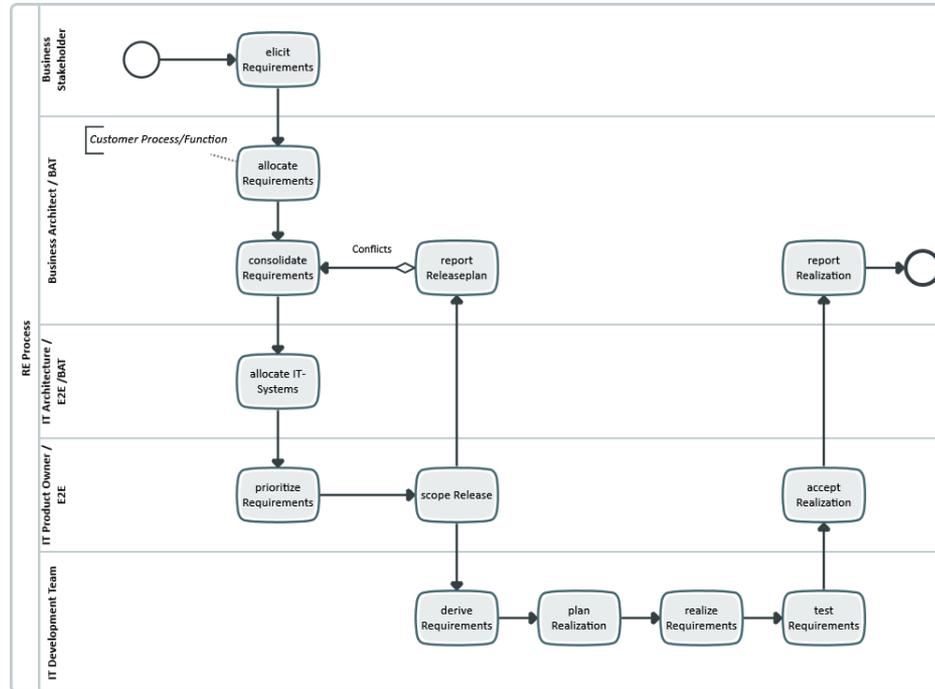
Value-oriented
Practices

Eigenschaften ablaforientierter Prozesse

- EVA Prinzip
- Aktivitätsreihenfolge wird festgelegt
- Ablauf steuert den Prozessfortschritt
- Ergebnisse sind über den Ablauf verteilt
- Übersicht kann schnell erreicht werden
- Gültigkeit auf hoher Abstraktion
- Verfeinerung schränkt immer mehr die Freiheitsgrade bei der Ablaufgestaltung ein



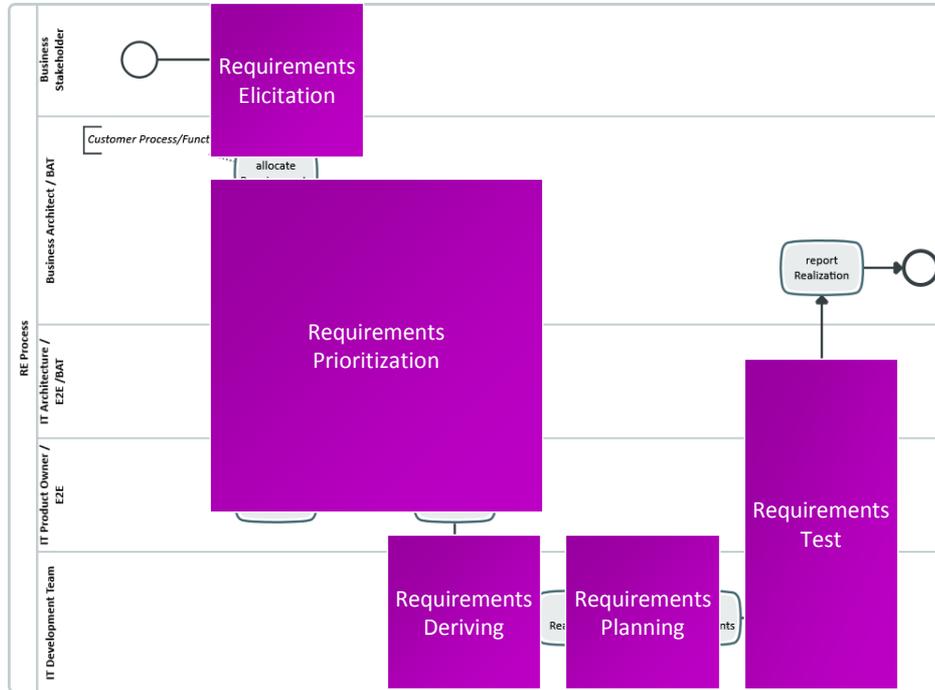
RE Geschäftsprozess



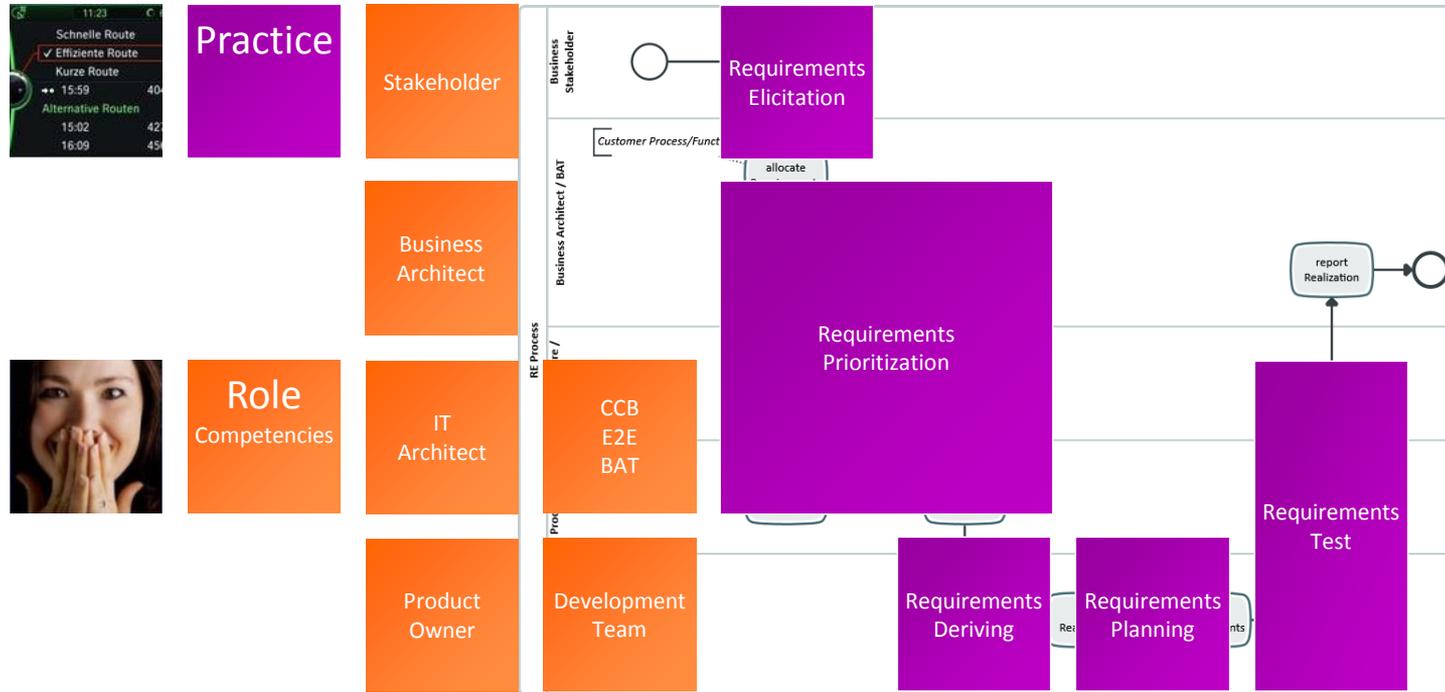
Modulare Practices



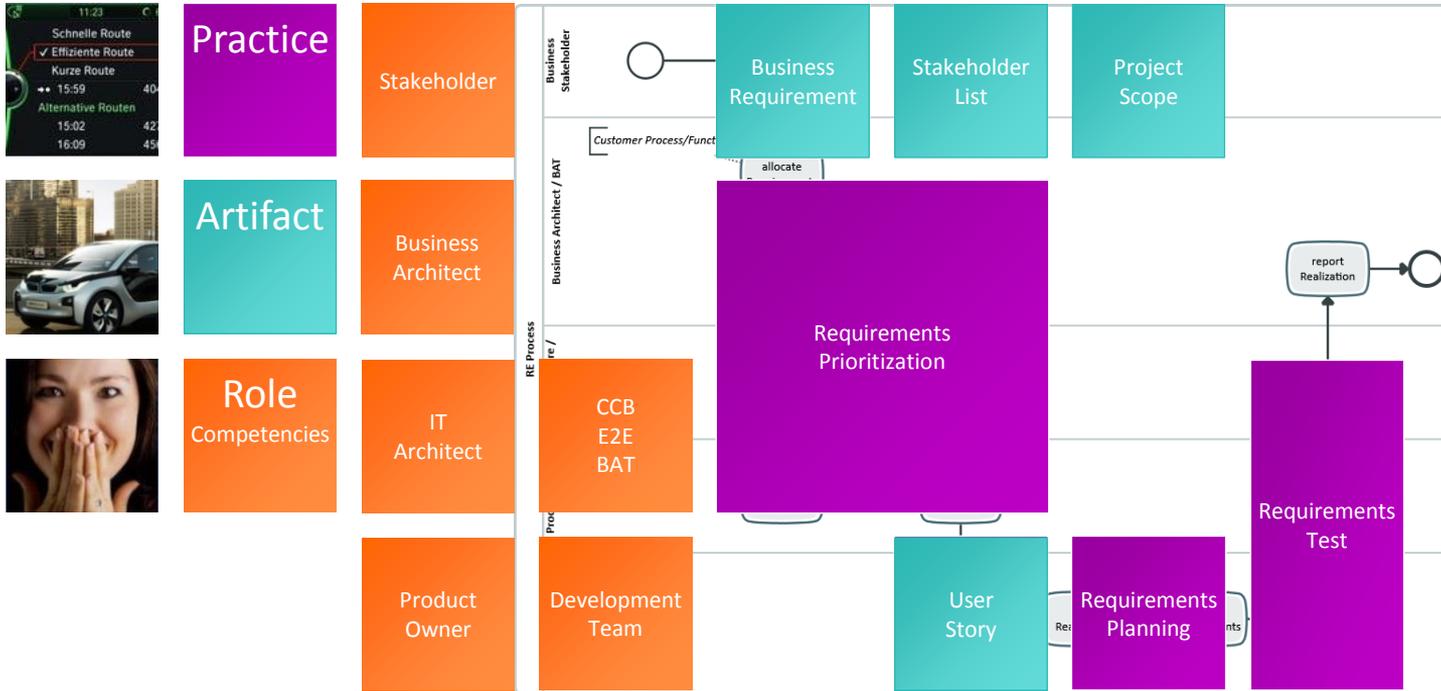
Practice



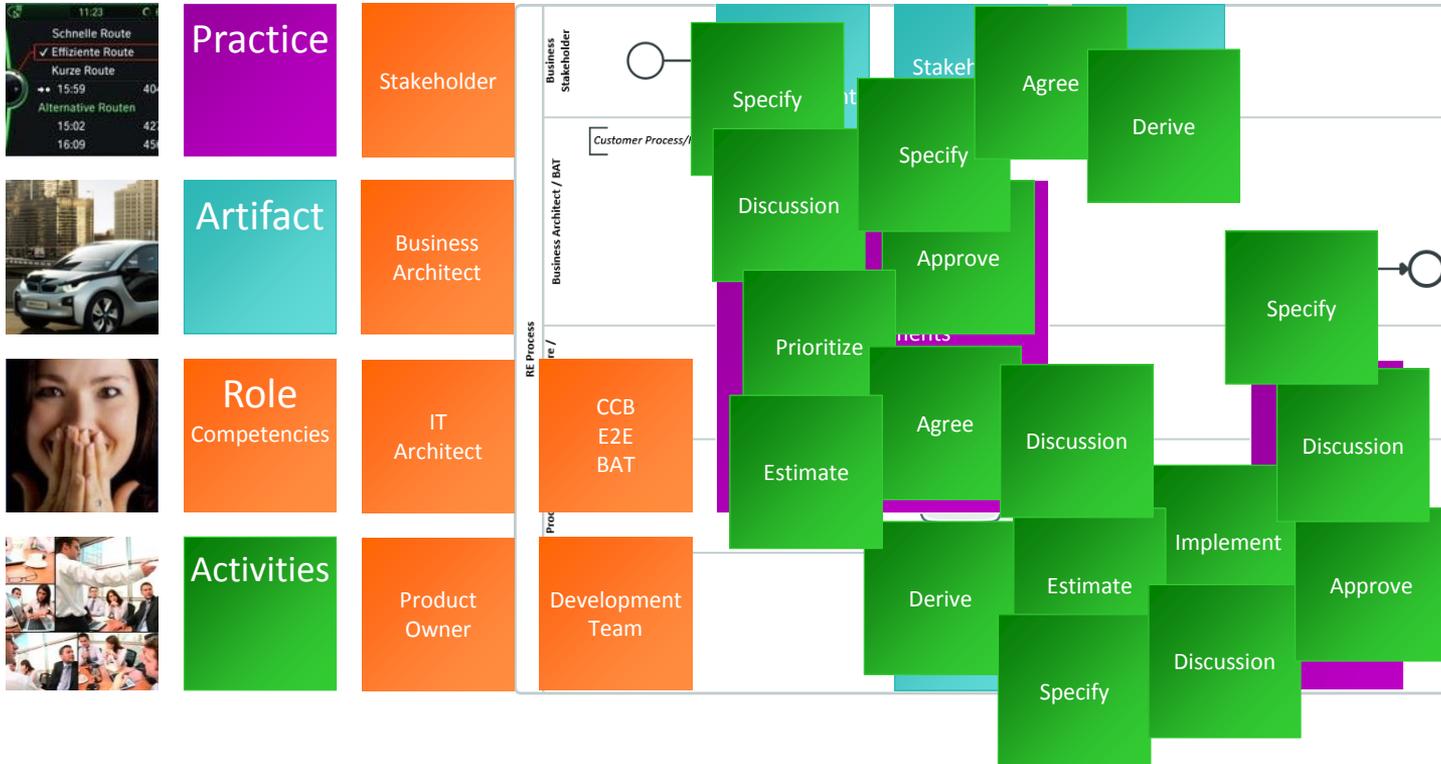
Rollen und Kompetenzen



Arbeitsergebnisse

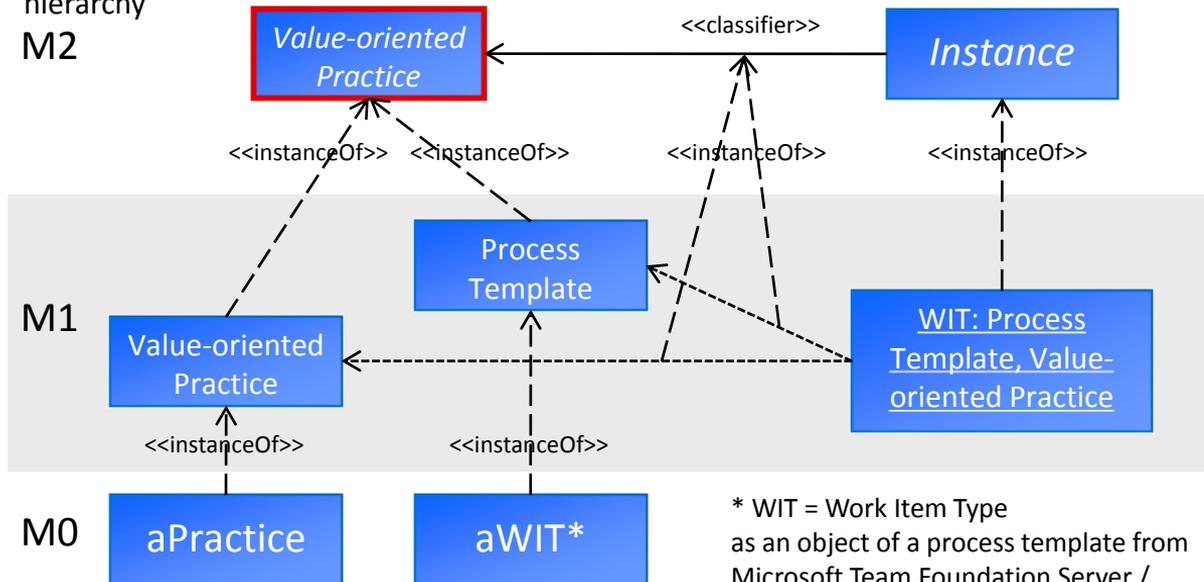


Vielfältige Aktivitäten



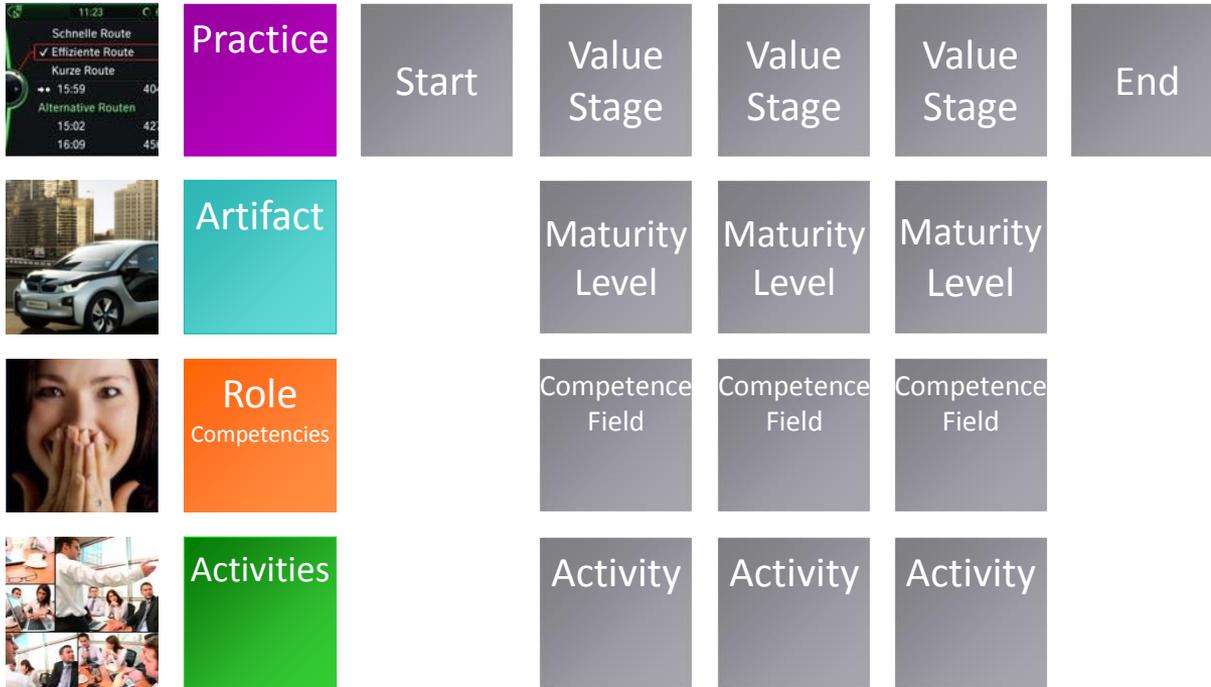
v-o-p MOF

metamodeling
hierarchy
M2

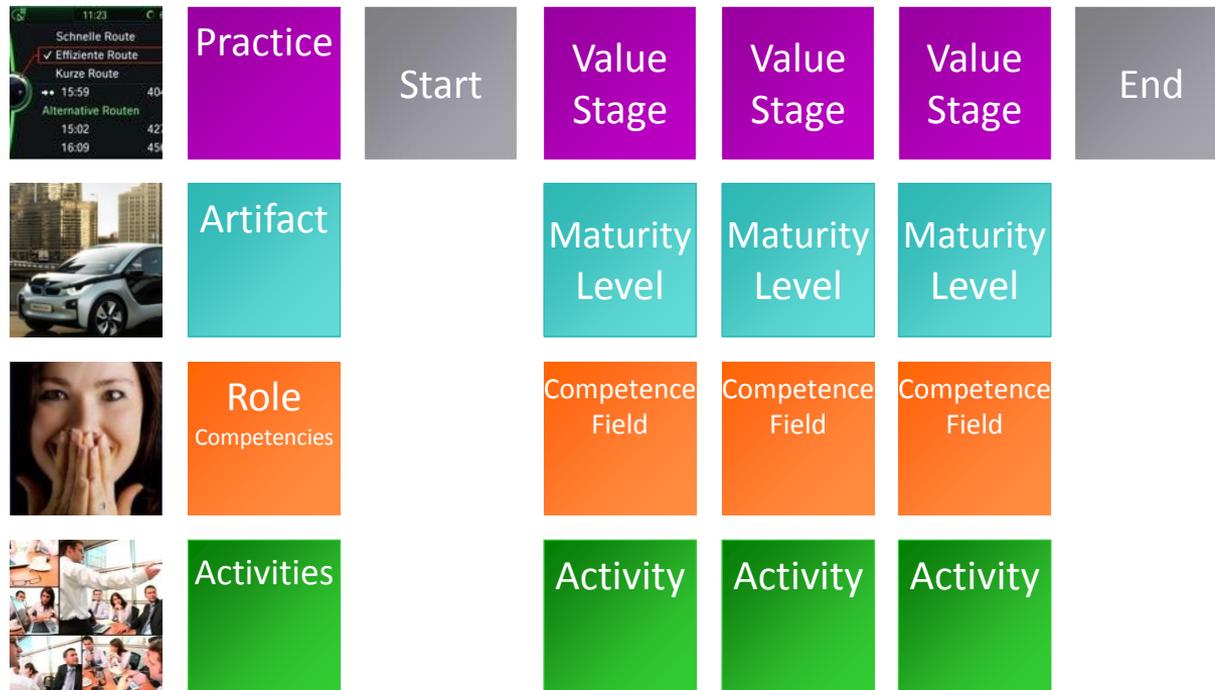


* WIT = Work Item Type
as an object of a process template from
Microsoft Team Foundation Server /
Visual Studio

Practice Elements

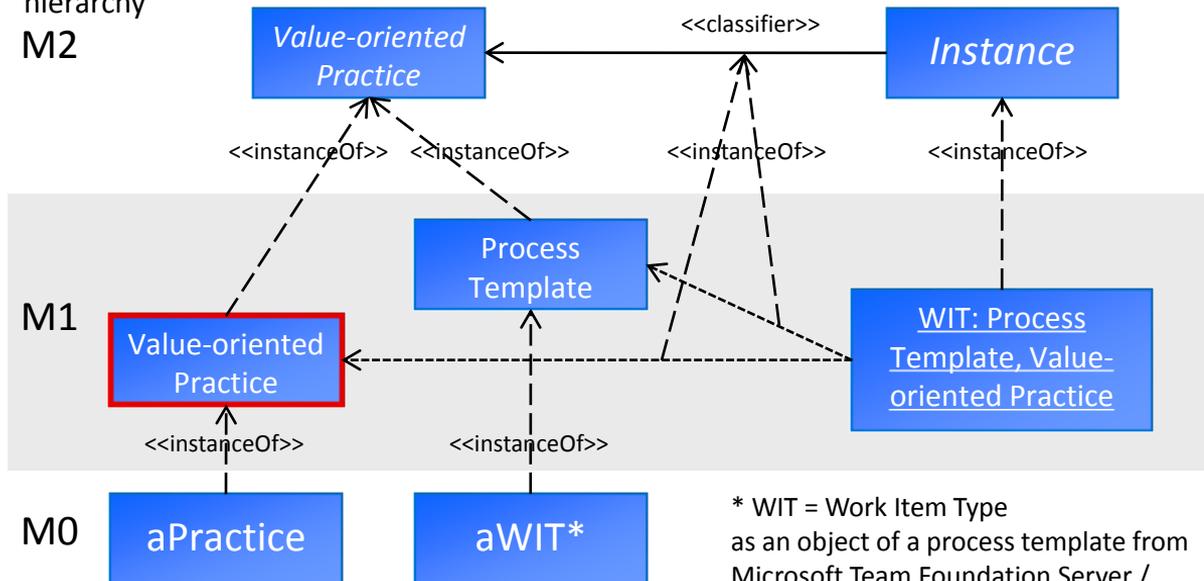


Practice Rules



v-o-p MOF

metamodeling
hierarchy
M2



* WIT = Work Item Type
as an object of a process template from
Microsoft Team Foundation Server /
Visual Studio

Practice Requirement Elicitation



Practice
Requirement
Elicitation

Start

Scoped

Allocated

Completed

End



Artifact

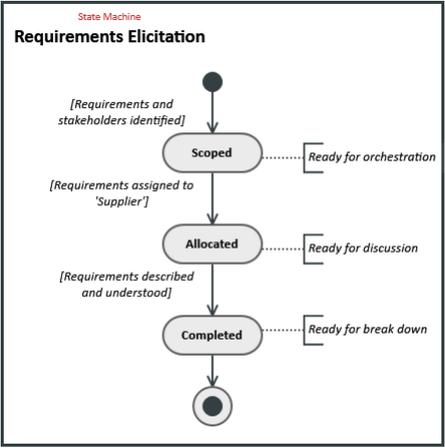
Business
Requirement
CREATED

Business
Requirement
Assigned To

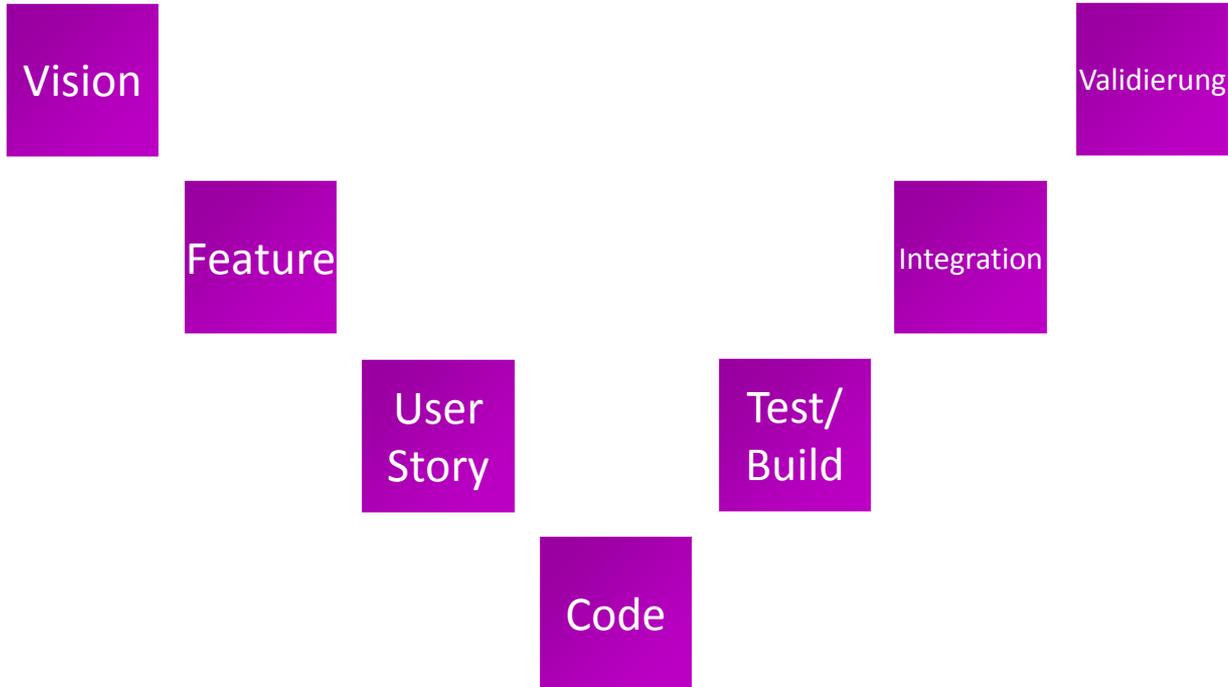
Business
Requirement
DEFINED

Project
Scope

Stakeholder
List



RE in der agilen Entwicklung



Artefakt User Story



Practice

Requirements Elicitation

Requirements Elicitation

Requirements Test



Artifact

Created

Defined

Verified



Role Competencies

Development Team

Development Team & Product Owner

Product Owner

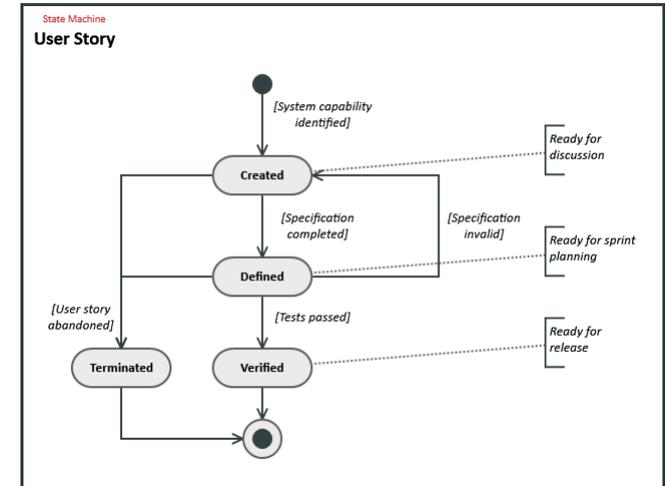


Activities

Specify

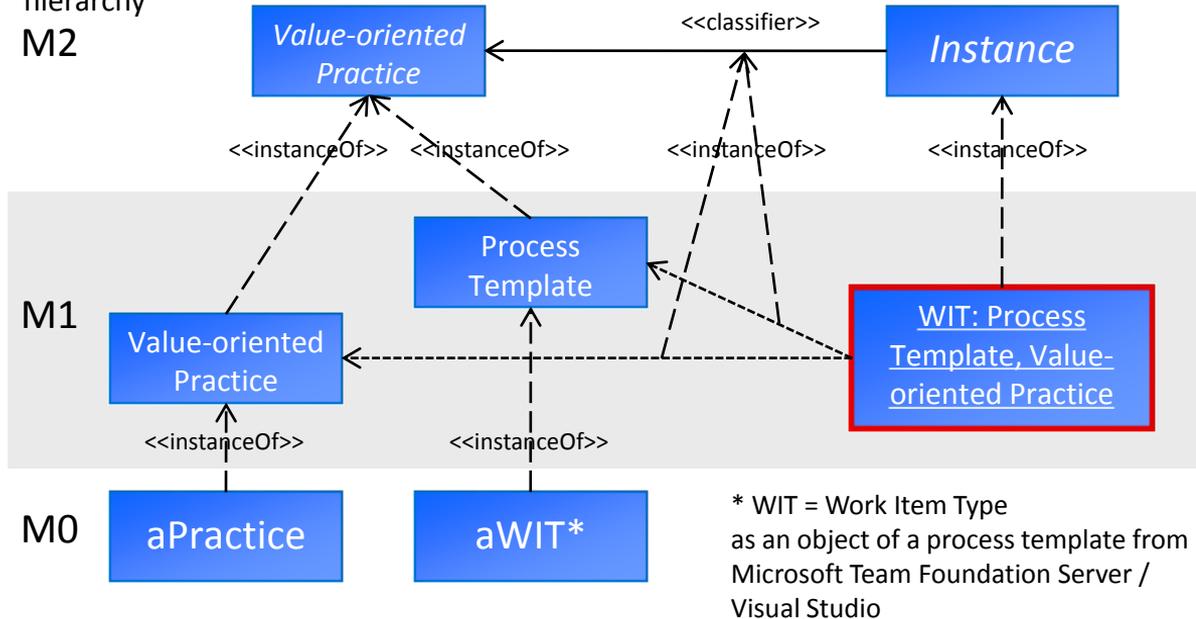
Discussion & Estimate

Approve

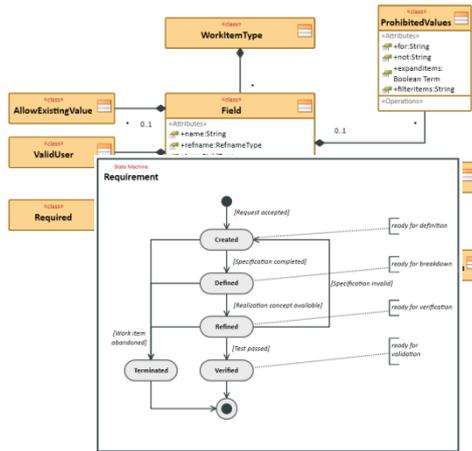


v-o-p MOF

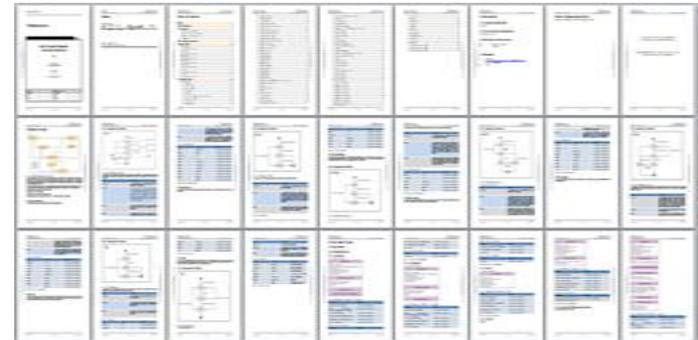
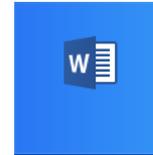
metamodeling
hierarchy
M2



Technical Design



Meta-Model Schema-Model Instance-Specification



```

<Slot>
name: String = "Description"
refname: RefnameType = System.Description
type: FieldType = PlainText
reportable: ReportableType
synchmechanges: Boolean Term
formula: FormulaType

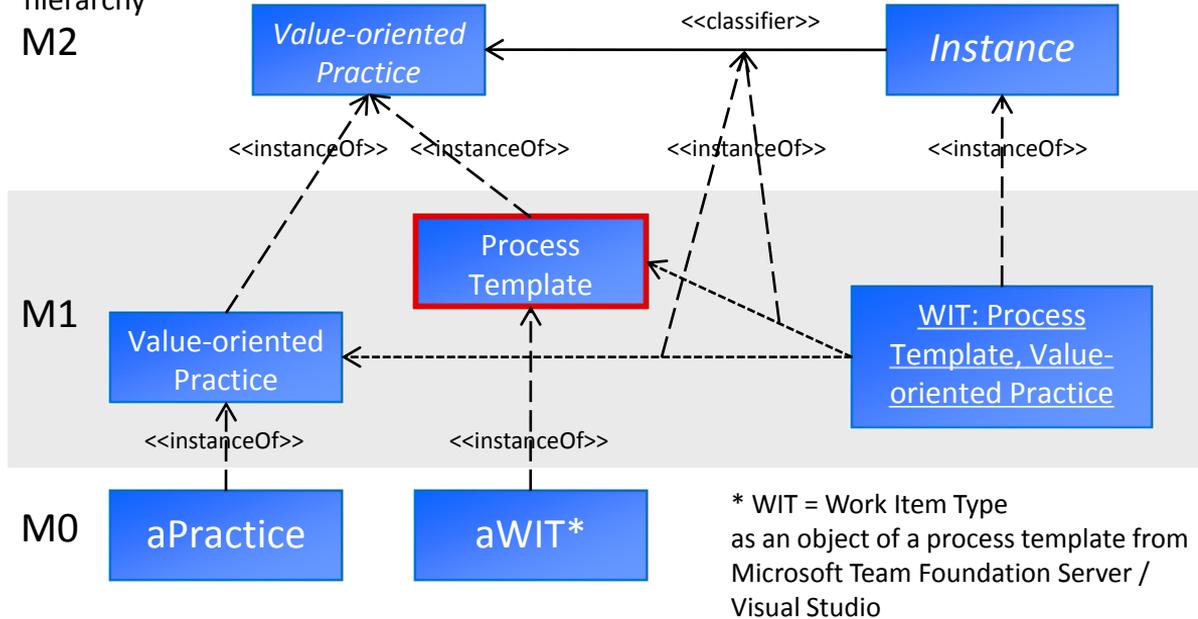
<Slot>
String String = "Detailed description of this work item."

<Slot>
Type: ConstraintType = When
Field: RefnameType = System.State
value: String = "Terminated"

instanceReadOnly_ReadOnly
    
```

v-o-p MOF

metamodeling
hierarchy
M2



Code

```

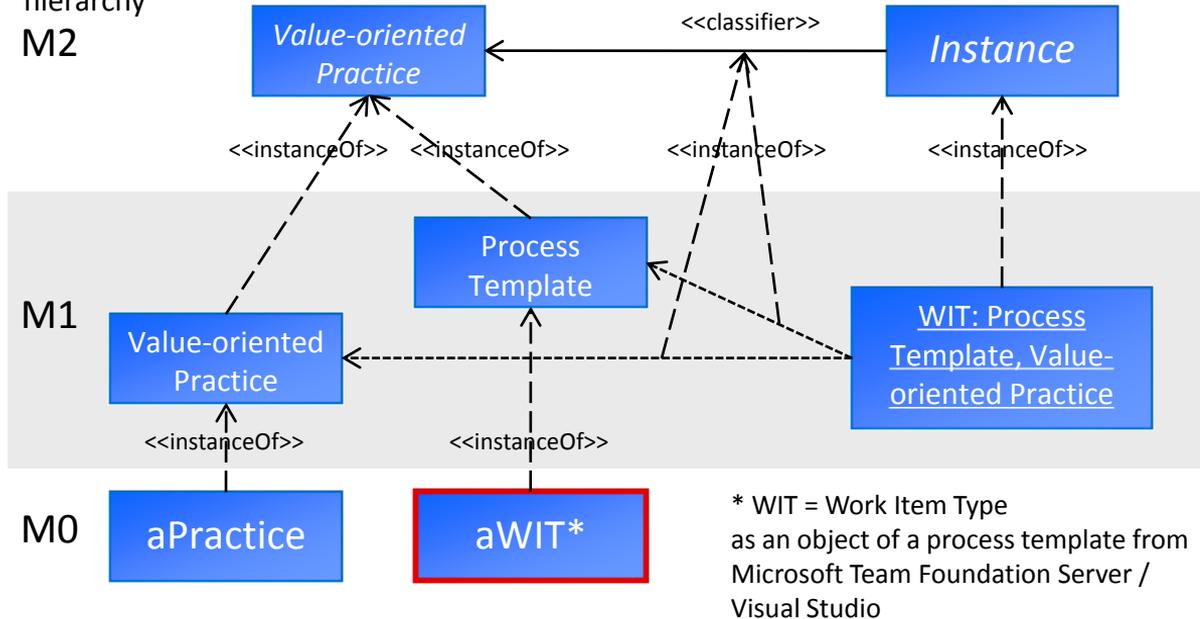
Requirement.xml
1 <?xml version="1.0" encoding="utf-8"?>
2 <xsd:base application="Work item type editor" version="1.0" xmlns:witd="http://schemas.microsoft.com/VisualStudio/2008/workitemtracking/typesedef">
3   <XSD:ITEMTYPE name="Requirement">
4     <DESCRIPTION>Tracks a stakeholder need.</DESCRIPTION>
5     <FIELDS>
6       <!-- *** Global *** -->
7       <FIELD name="ID" refname="System.ID" type="Integer" reportable="dimension">
8         <HELPTXT>The internal TFS ID of this work item; automatically assigned by TFS.</HELPTXT>
9       </FIELD>
10      <FIELD name="Title" refname="System.Title" type="String" reportable="dimension">
11        <HELPTXT>Short title or name of this work item.</HELPTXT>
12        <REQUIRED />
13        <WHEN field="System.State" value="Terminated" >
14          <READONLY />
15        </WHEN>
16      </FIELD>
17      <FIELD name="Subtype_" refname="Siemens.SSF.Common.Subtype" type="String" reportable="dimension">
18        <HELPTXT>Additional classification of the work item type.</HELPTXT>
19        <ALLOWEDVALUES expanditems="true">
20          <LISTITEM value="(1) Market" />
21          <LISTITEM value="(2) System" />
22          <LISTITEM value="(3) Software" />
23          <LISTITEM value="(4) Hardware" />
24        </ALLOWEDVALUES>
25        <WHEN field="System.State" value="Terminated" >
26          <READONLY />
27        </WHEN>
28      </FIELD>
29      <!--
30      <FIELD name="External ID" refname="Siemens.SSF.Common.ExternalID" type="String">
31        <HELPTXT>External identifier of this work item; not the internal TFS ID.</HELPTXT>
32        <REQUIRED />
33      </FIELD>
34      <!--
35      <!-- *** Status *** -->
36      <FIELD name="Owner" refname="Siemens.SSF.Common.Owner" type="String" syncnamechanges="true" reportable="dimension">
37        <HELPTXT>The stakeholder of this work item.</HELPTXT>
38        <SUGGESTEDVALUES>
39          <SUGGESTION name="MyStakeholder::H-IT_PM_TFSatXP" />
40        </SUGGESTEDVALUES>
41        <WHEN field="System.State" value="Terminated" >
42          <READONLY />
43        </WHEN>
44      </FIELD>
45      <!--
46      <ALLOWEXISTINGVALUE />
47    </XSD:ITEMTYPE>
48  </XSD:ITEMTYPE>

```

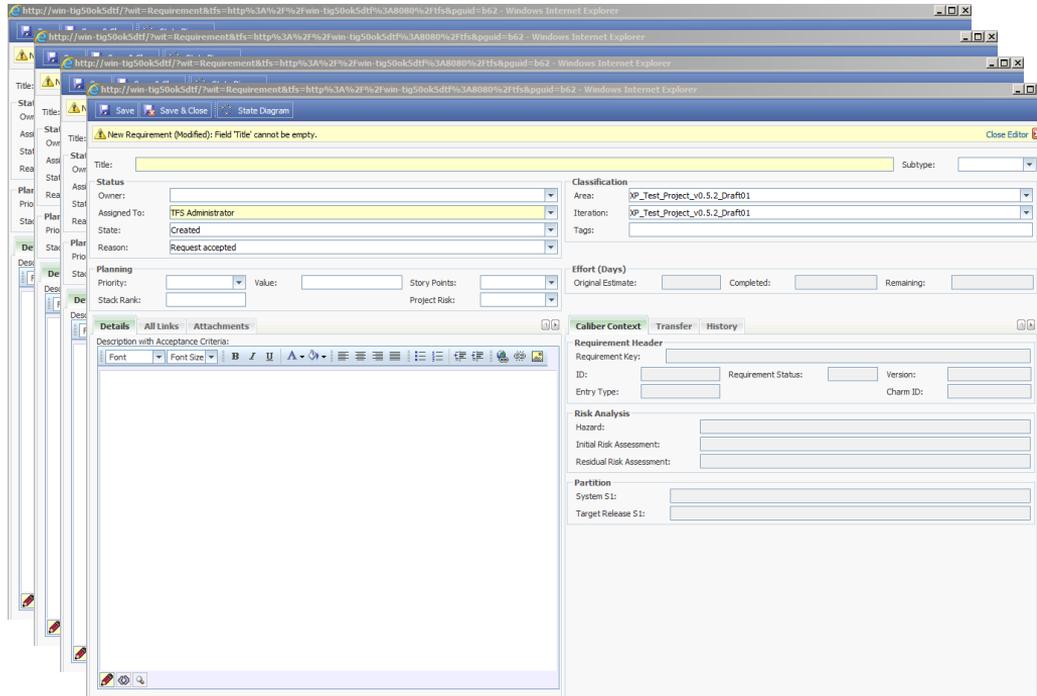
length: 5476 lines: 1116

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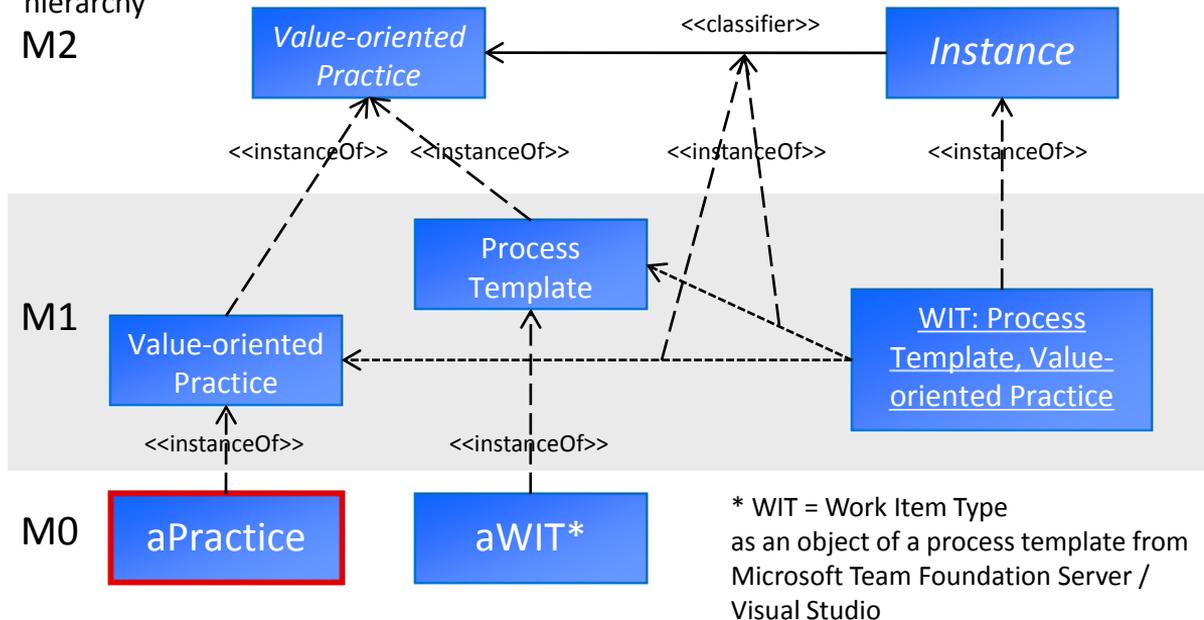


Arbeitsumfeld



v-o-p MOF

metamodeling
hierarchy
M2



v-o-p für RE



Practice

Requirements Elicitation

Requirements Prioritization

Requirements Deriving

Requirements Planning

Requirements Test

Requirements Change



Artifact

Business Requirement

Project Scope

Stakeholder List

System Requirement

User Story

Change Requests



Role

Competencies

Stakeholder

Requirements Manager

Business Architect

IT Architect

CCB
E2E
BAT

Product Owner

Development Team



Activities

Specify

Discussion

Approve

Prioritize

Agree

Derive

Estimate

Implement

Zusammenfassung

- Freiheitsgrade für selbstorganisierte Teams
- Practices können modular und nach Teambedarf im Arbeitsumfeld eingesetzt werden
- Der Arbeitsfortschritt und die Arbeitsqualität ist durch die Maturity Levels der Artefakte transparent und eindeutig messbar
- Die Synchronisation der Projekte kann über die Value Stages und auf Basis erreichter Artefakt-Qualität erfolgen
- Verschiedene Vorgehensmodelle (Agil, Iterativ, Inkrementell, Wasserfall) können in einem gewissen Maße synchronisiert werden

Gegensätze ziehen sich an!



Vielen
Dank!

Diskussion
und Fragen

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