

SPEs UND PTC INTEGRITY MODELER

Andreas Korff und Martin Meßner
iCenter CER
Parametric Technology GmbH

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ptc



AGENDA

- Kurzvorstellung PTC
- Unsere Motivation zu SPES und SPEDiT
- PTC Integrity Modeler
- SPES Profil
- Automatisierung und V&V
- Unser Angebot
- Zusammenfassung



- Global Software Company, \$1B+ Revenue
- Design, Manufacture, Operate, and Service “Things”
- Leading Industrial Innovation Platform and Solutions
- Global Network of 400K+ Developers and 1K+ Partners

The Boston Globe
**TOP
PLACES
TO WORK**
2017



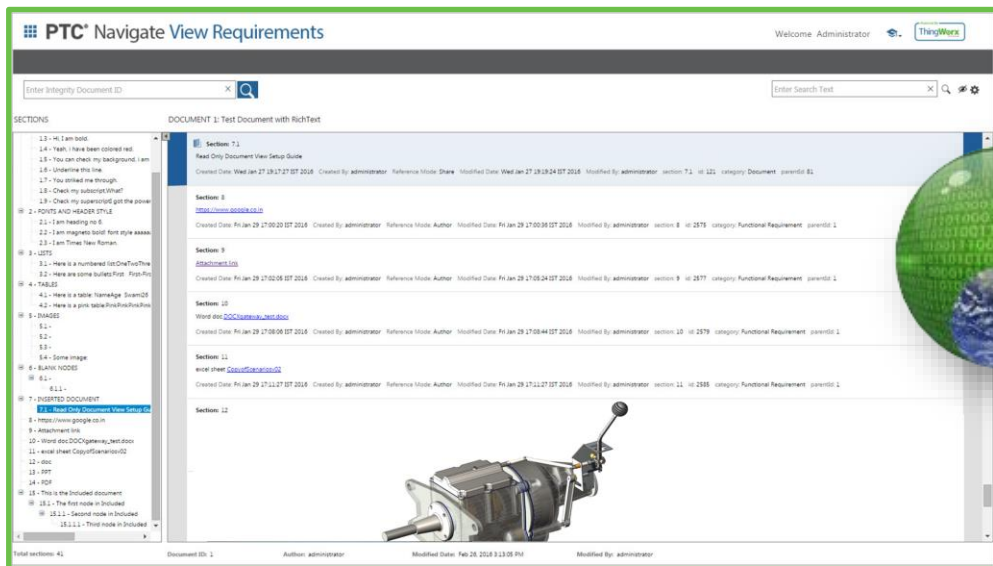
Collaborative Model-based Systems Engineering

**A holistic, multi-disciplinary
and collaborative approach to designing
and maintaining complex systems**

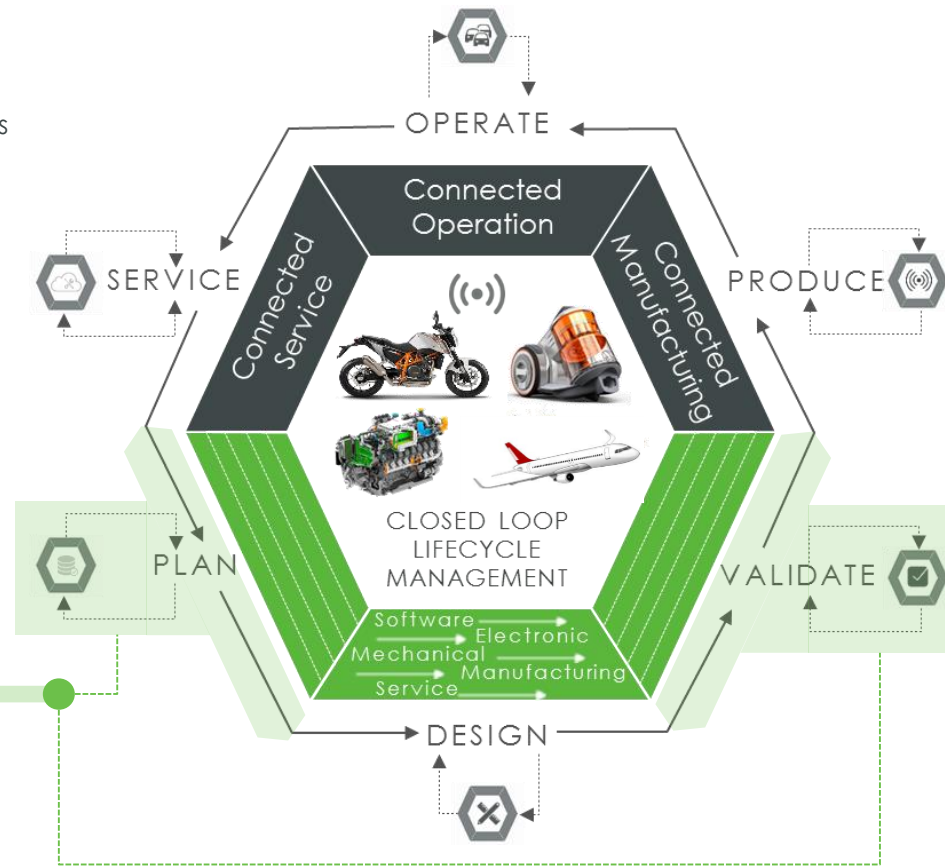


SYSTEMS AND SOFTWARE ENGINEERING

EASILY MANAGE SYSTEM MODELS, REQUIREMENTS & TESTS ACROSS THE ENTERPRISE



System Requirements & Tests



Requirements Management

Model Based Systems Engineering

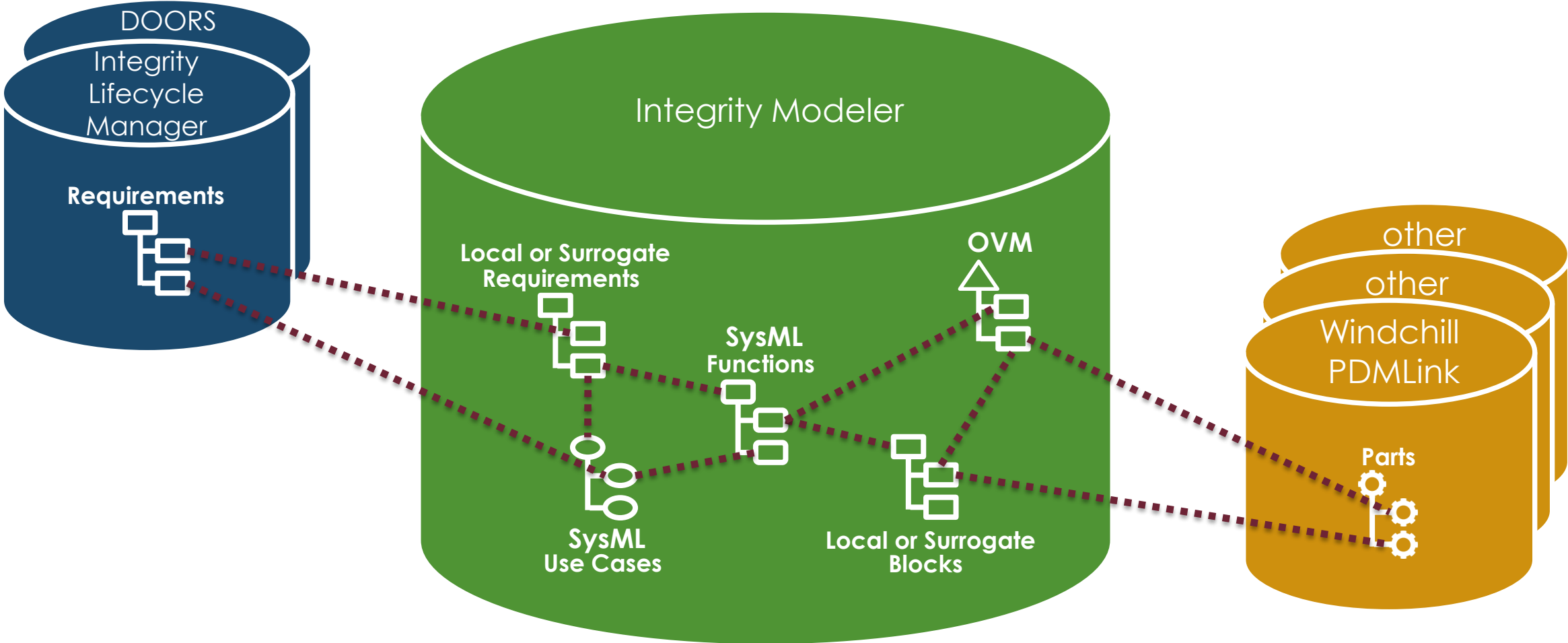
Software Configuration Management

Test Management



MBSE MODELL ALS ORDNENDE "SPINNE IM NETZ"

Am Beispiel Requirements & PLM



MULTI-DOMAIN ENGINEERING



Digital Product Definition

- Gemeinsame Systemarchitektursprache (UML/SysML)
- Transparenz im Team
- Zugriff auf andere Artfakte
OSLC, URL, ThingWorx...
- Stakeholders in-the-loop



Product Owner



Project Manager



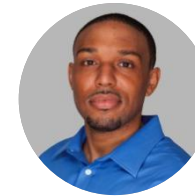
Software Developer



Systems Engineer



Electrical Engineer



Quality Manager



Mechanical Engineer

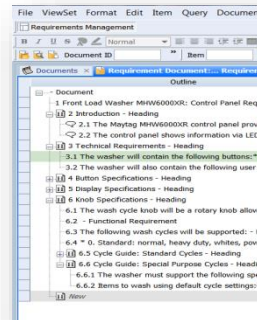
integrity™ modeler

Standard Language Functional Modeling Structural System Modeling

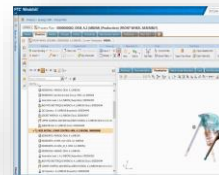
Use Case Modeling ptc mbse Modular Design

Incremental Modeling Simulation Trade Study Analysis

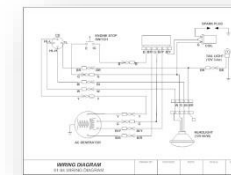
Requirements & Stories



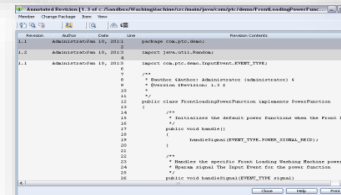
Hydraulic



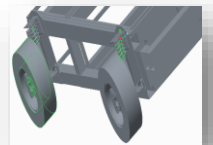
Electrical



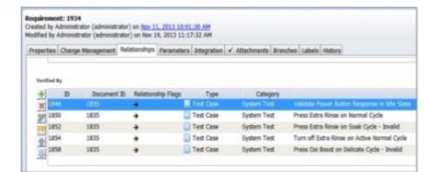
Software



Mechanical



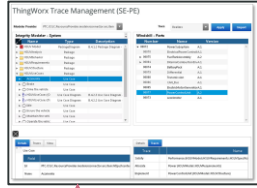
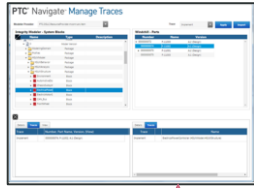
Test Cases & Results



Systems of Engagement

ThingWorx

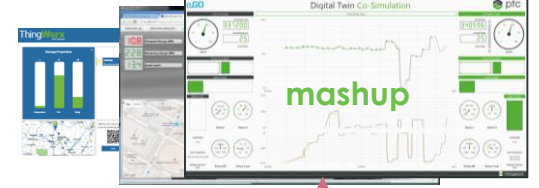
Role Based Business & Engineering Apps



navigate



AR/VR



Crosscutting Workflow Orchestration - Symphony

integrity lifecycle manager



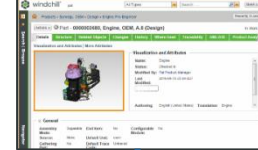
integrity modeler



integrity lifecycle manager



windchill



Others...



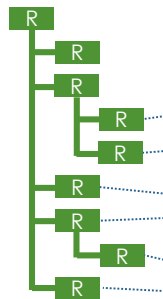
integrity lifecycle manager



Crosscutting Link & Context - OSLC/REST

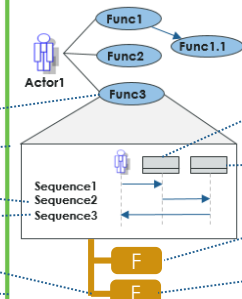
Thing Library

integrity lifecycle manager



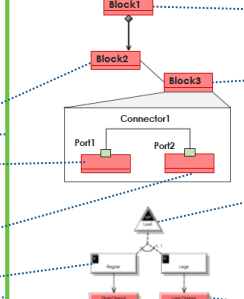
Requirements

integrity modeler



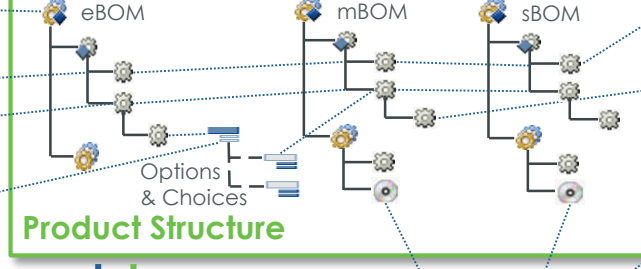
Functions

integrity modeler



Logical Structure

windchill pdmlink windchill bom management windchill platform structures



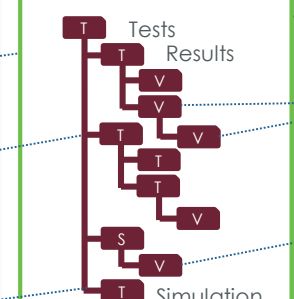
Software Structure

integrity lifecycle manager SCM

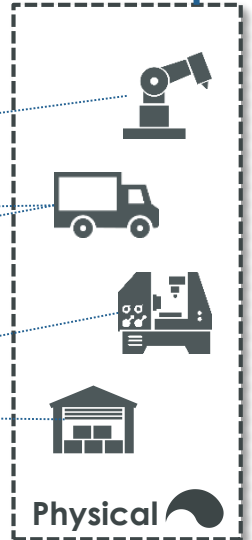


3rd Party...

integrity lifecycle manager integrity modeler sysim



Validation



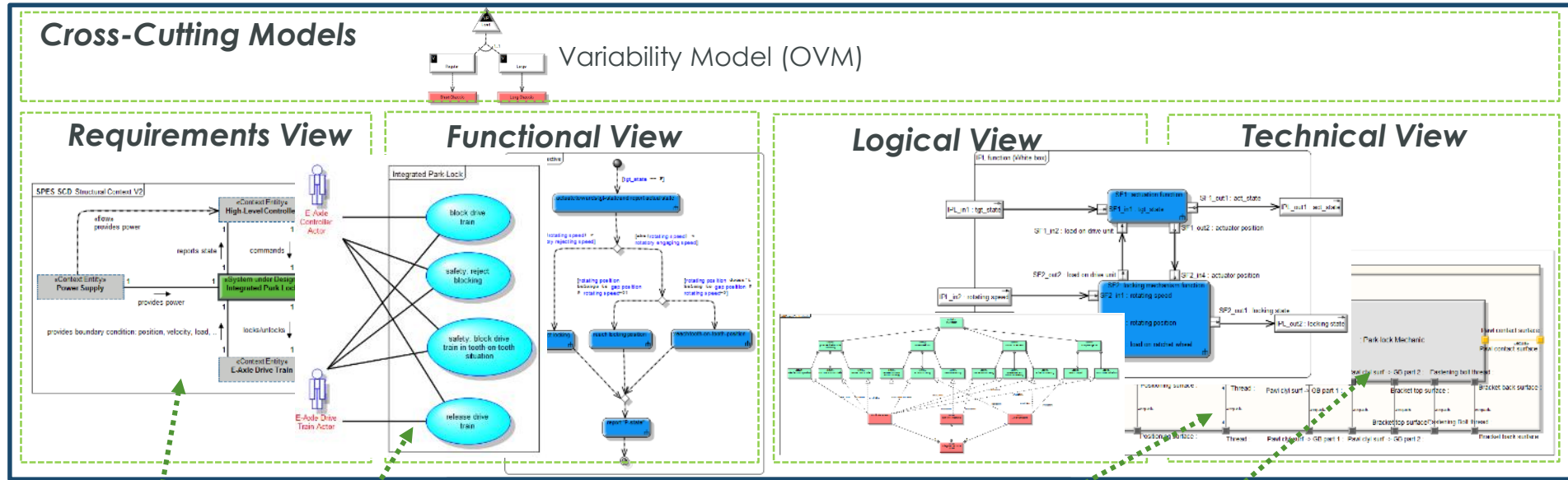
Physical

Systems of Record

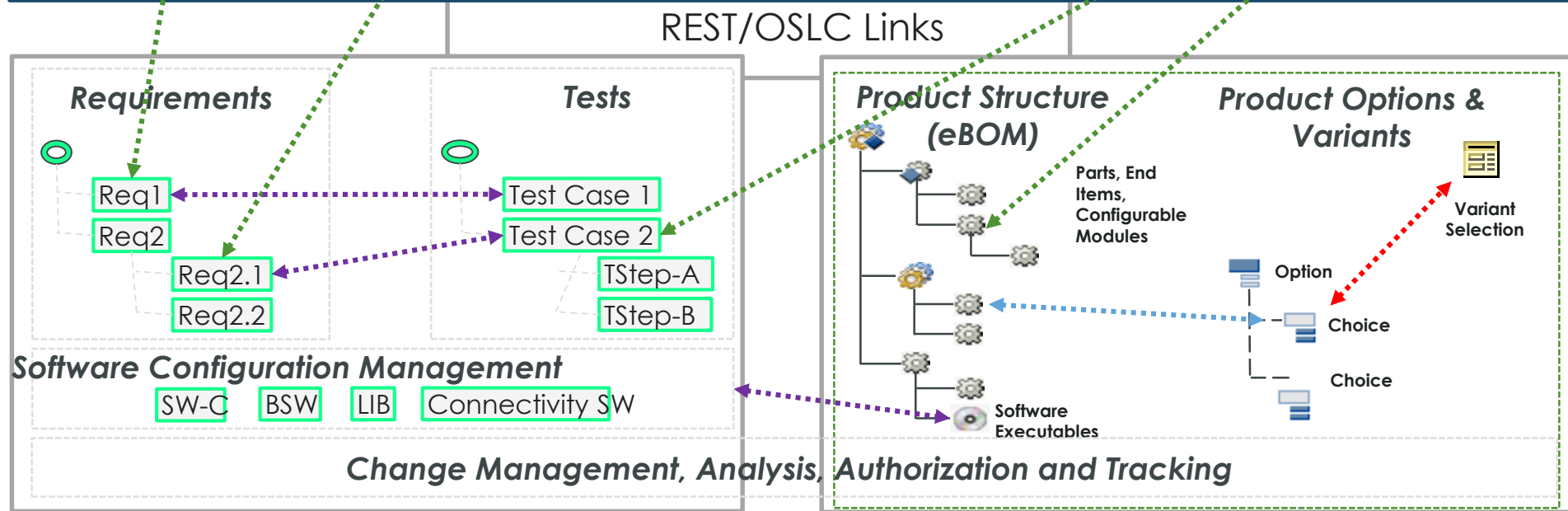
Authoring & Sourcing = Data Authority



FÖDERALES METAMODELL ALS BASIS EINES DIGITAL TWINS

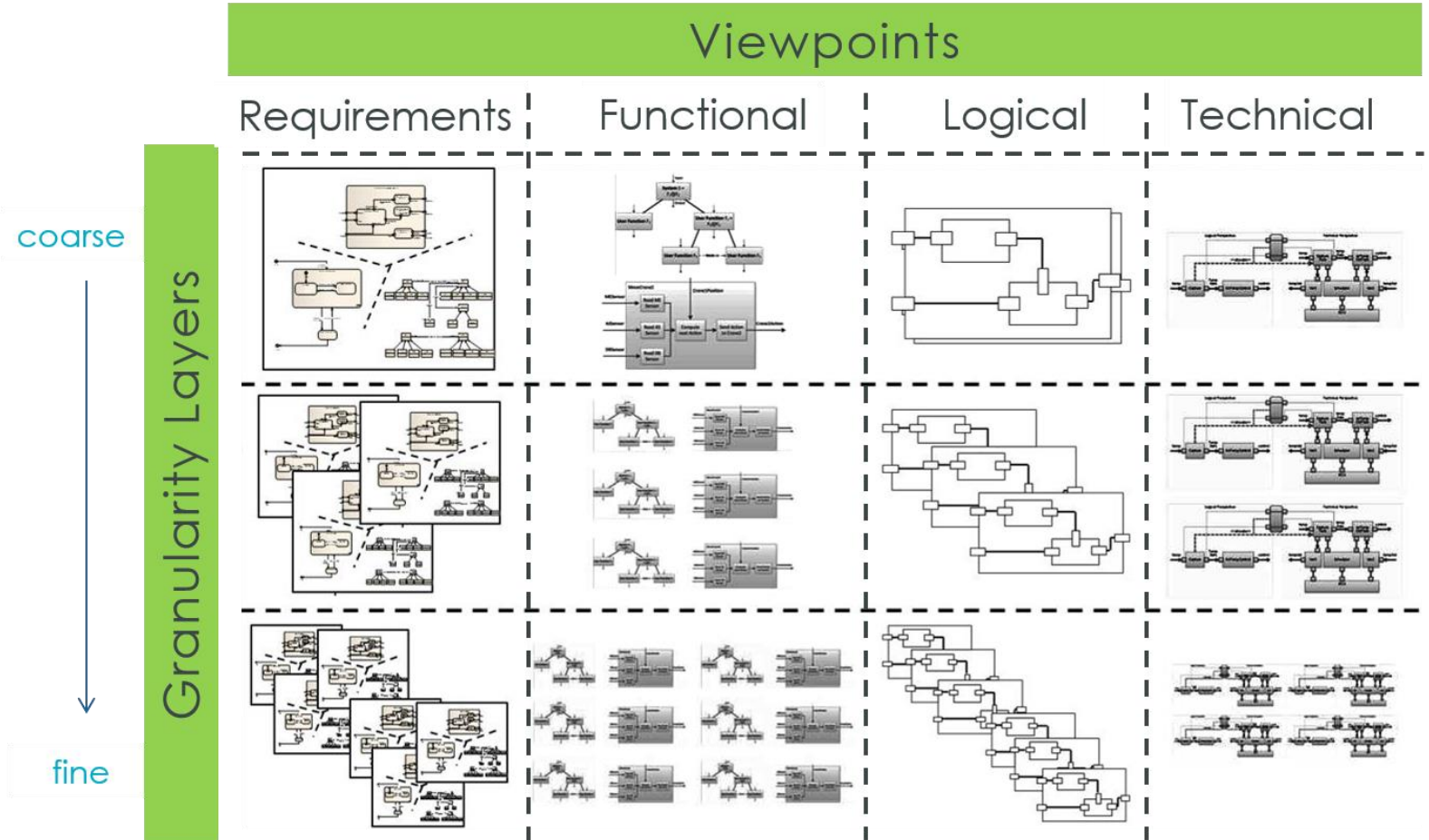


System Model (SysML)

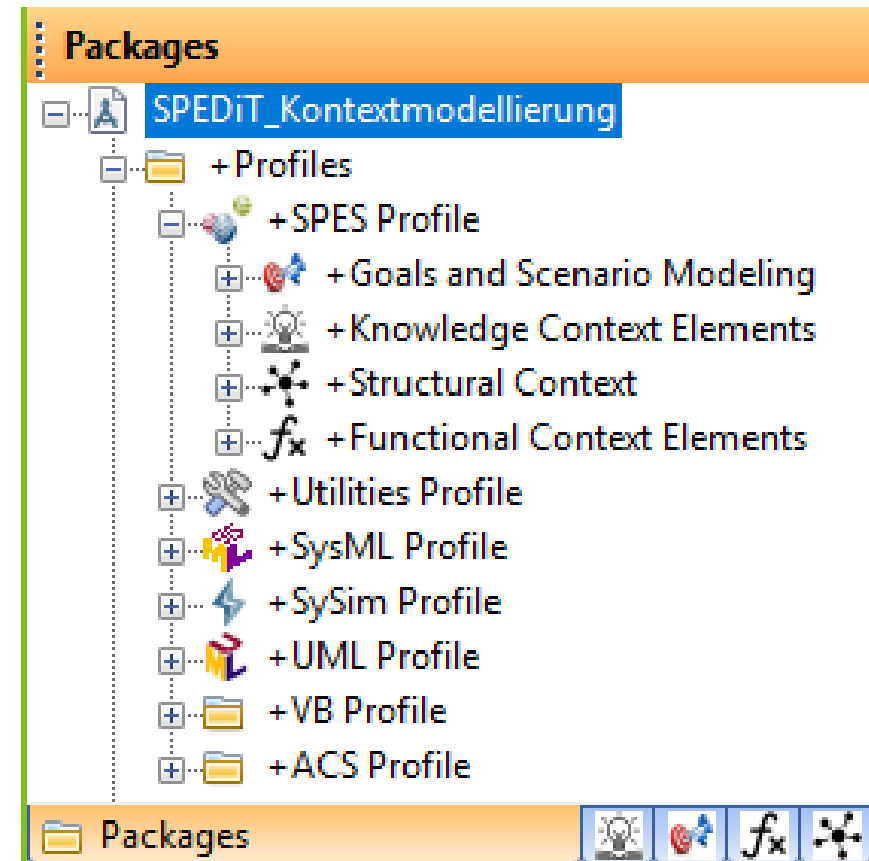


windchill®
PLM/CAD

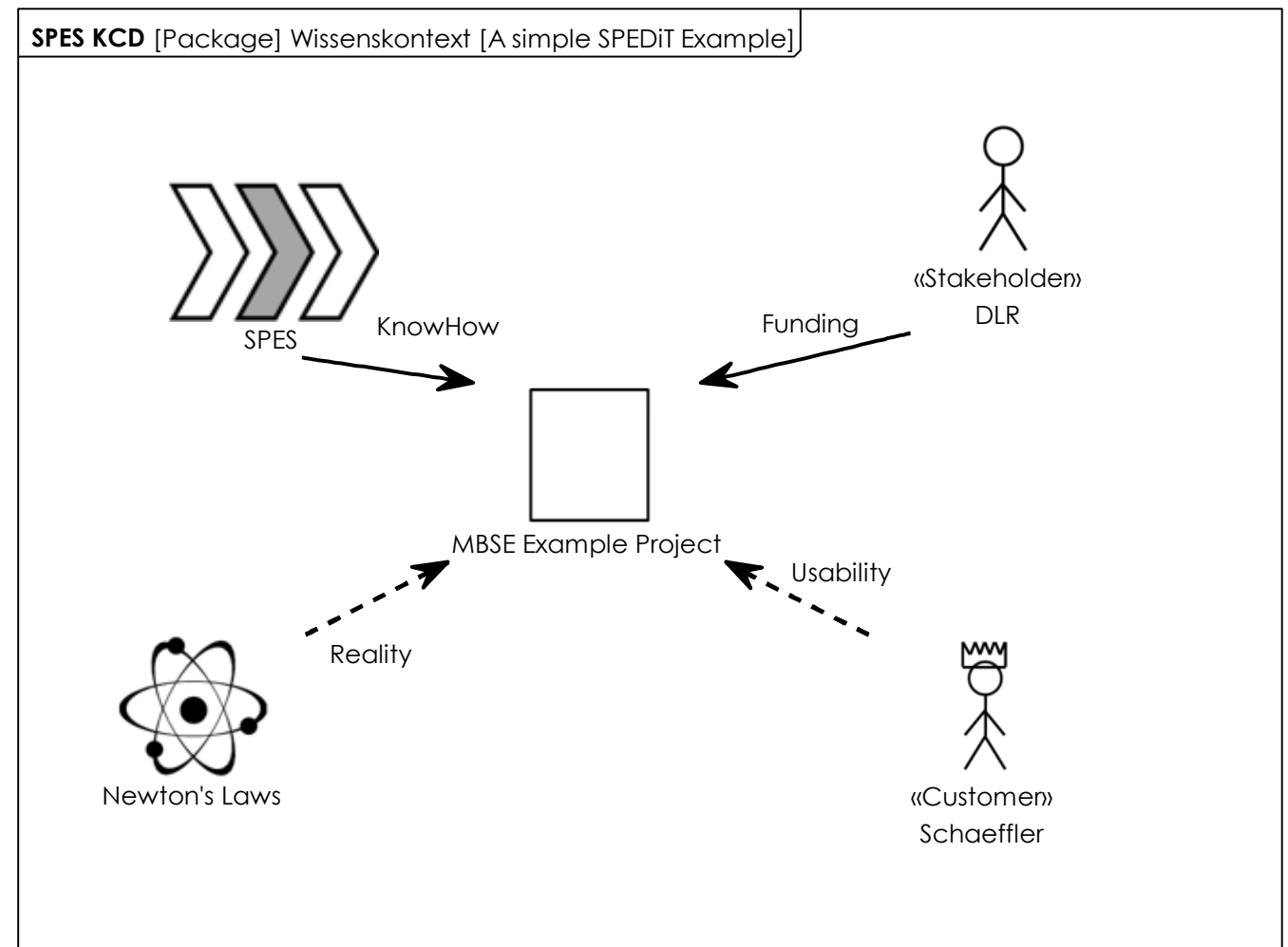
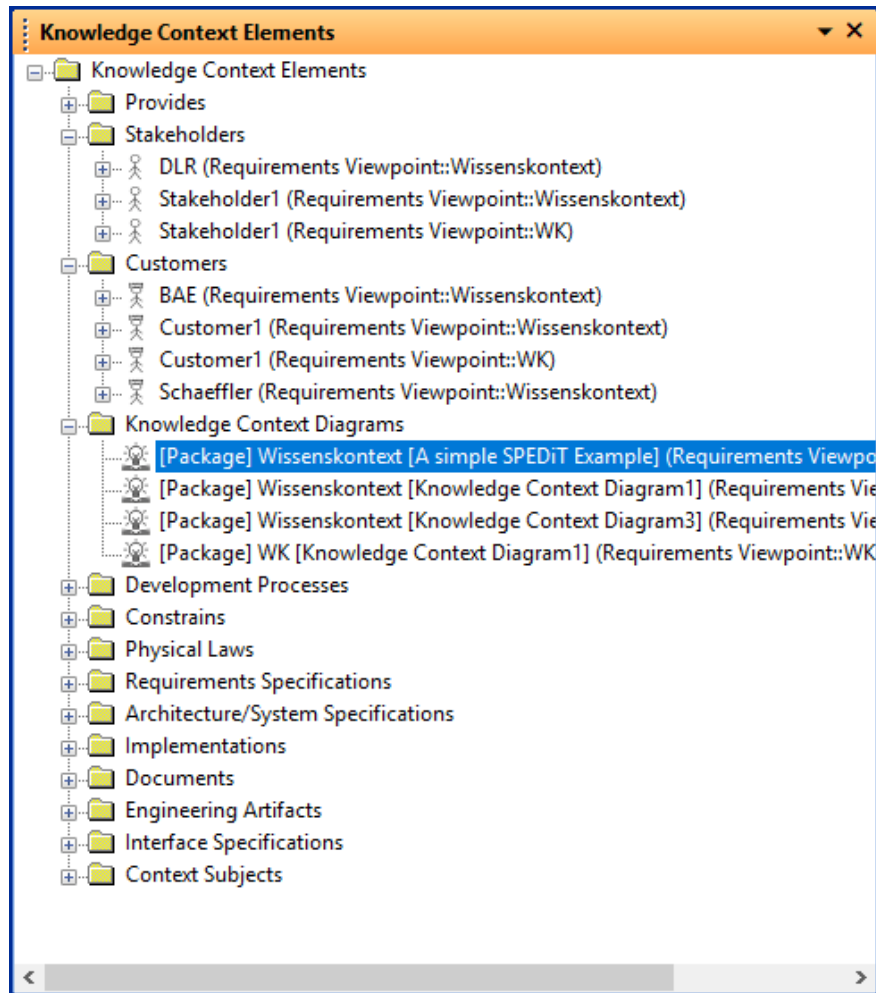
- 160+ Methoden in einem Grid bezogen auf
 - RFLP Viewpoints
 - Granularität
- Basis ist das Entwicklungsparadigma von Black-Box-Komponenten
 - Mit präzise definierten Schnittstellen



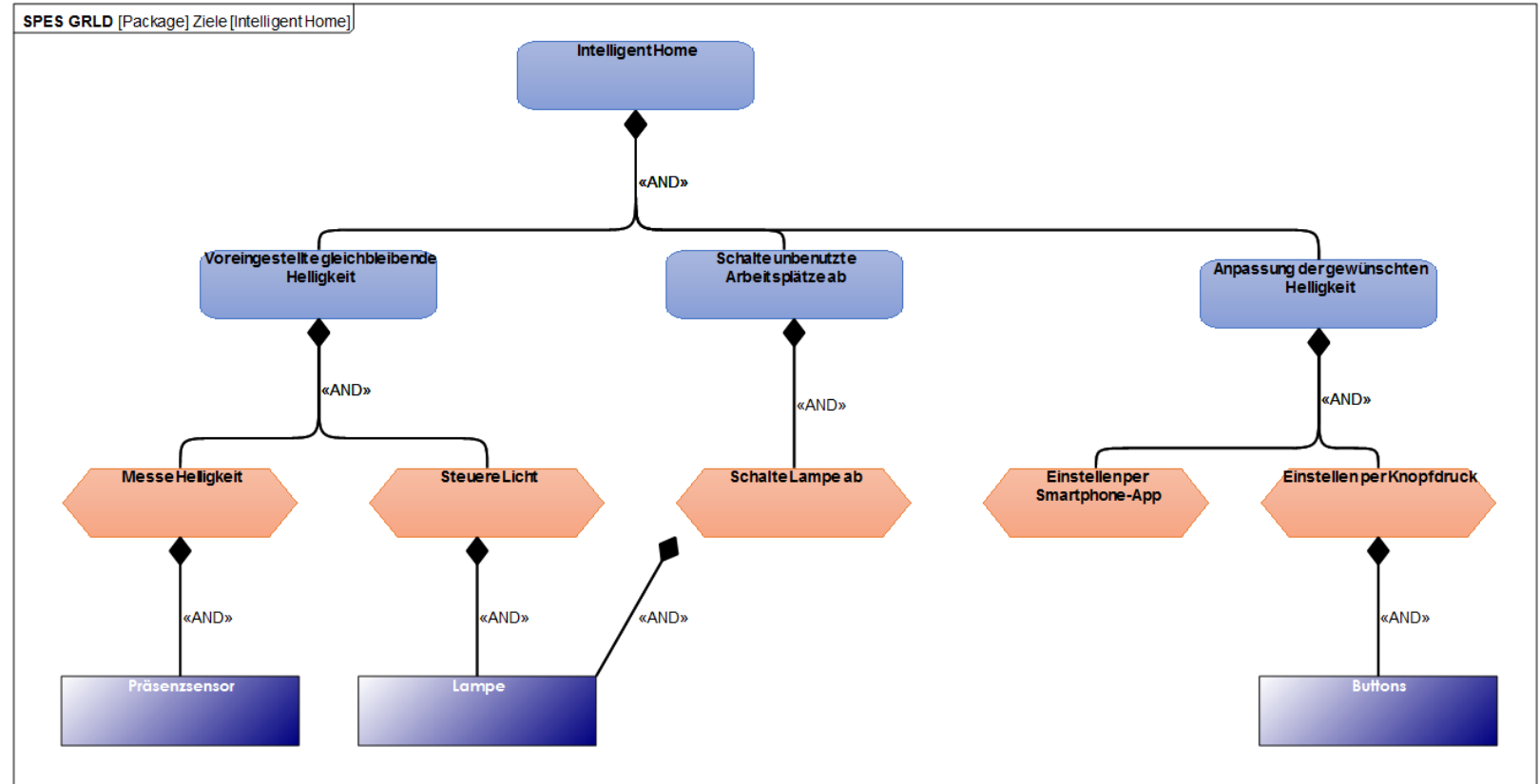
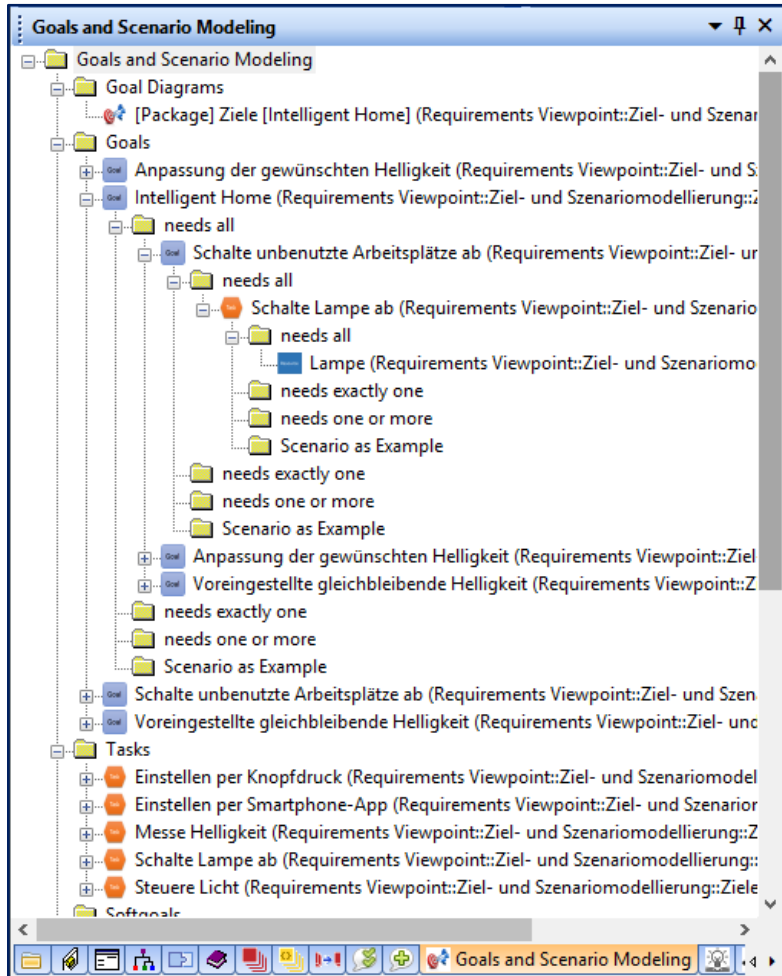
- SPES Profil
 - Wissenskontext
 - Ziele und Szenarien
 - Funktionaler Kontext
 - Strukturkontext
- Ergänzt die Modellierungsmöglichkeiten von
 - SysML (Systemsichten)
 - UML (Software-Sichten)
 - OVM (Produktlinien und Variabilität)



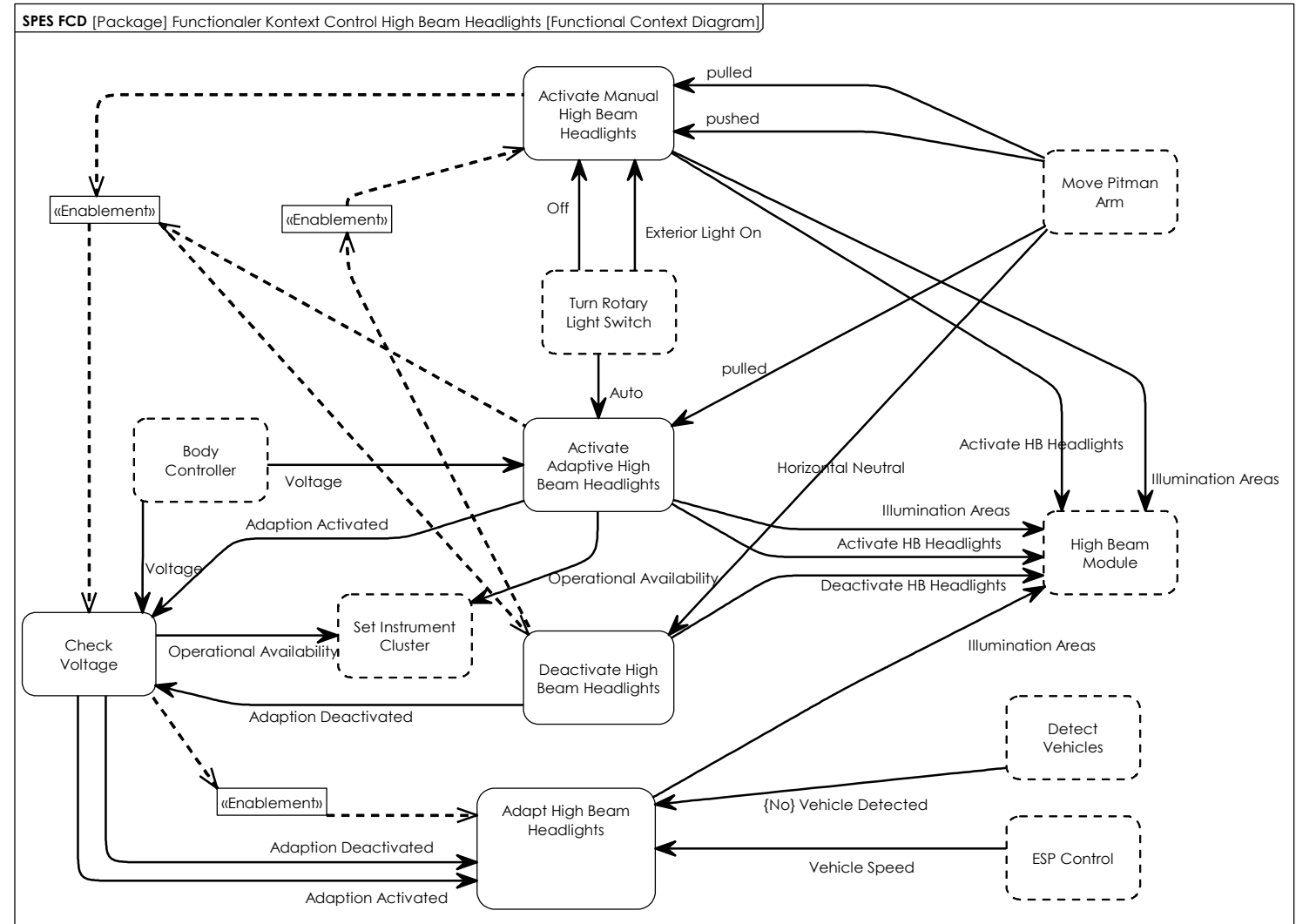
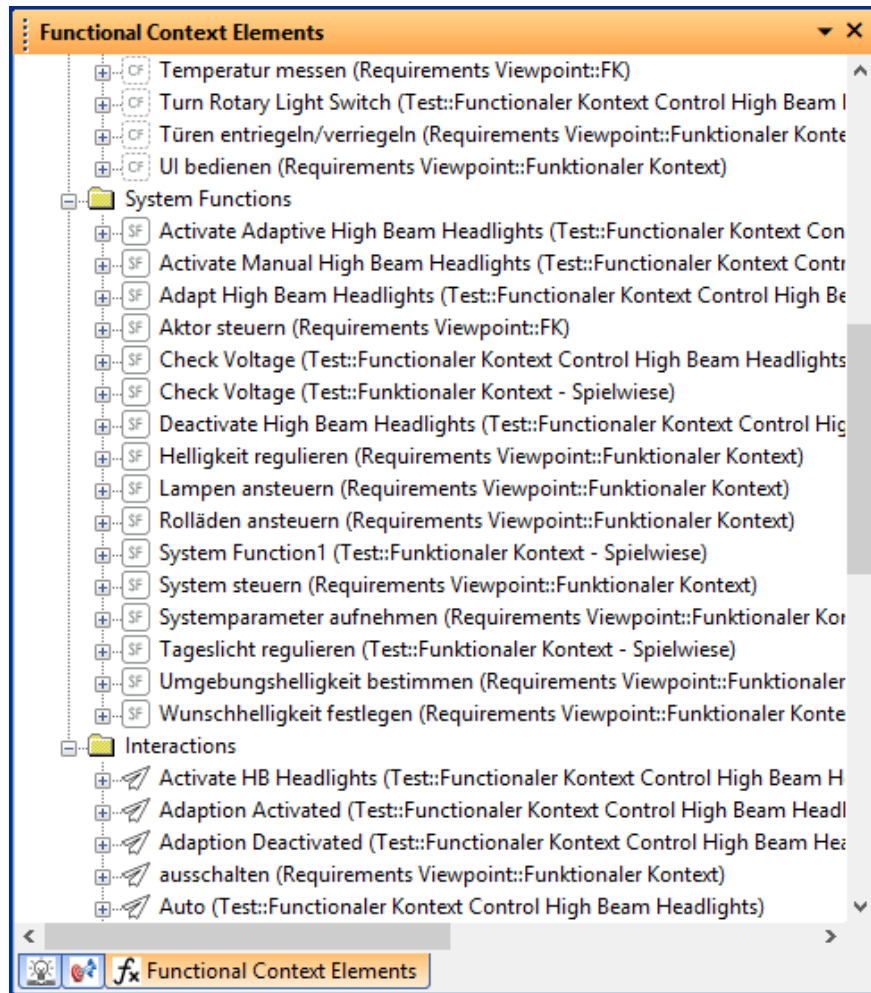
BEISPIEL FÜR WISSENSKONTEXT



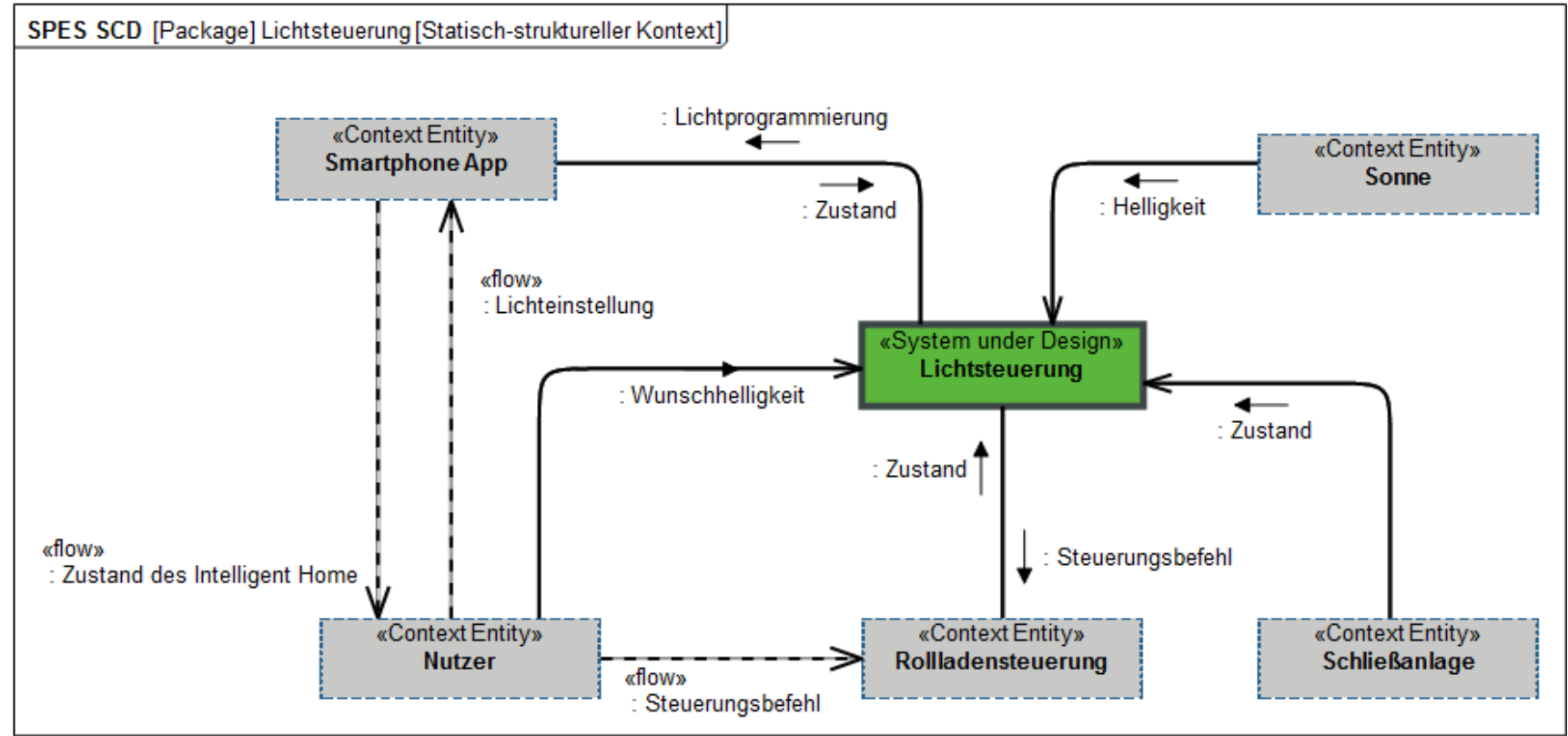
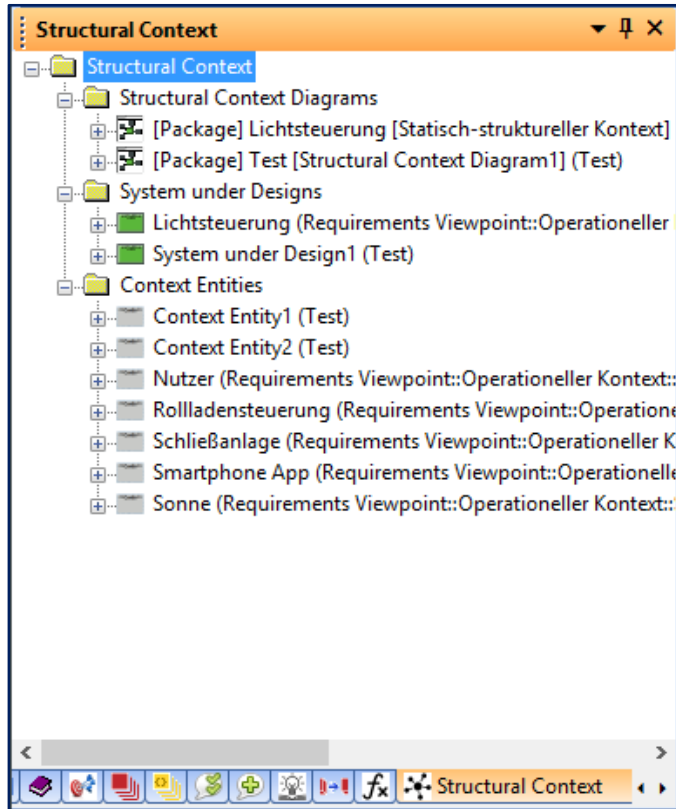
BEISPIEL FÜR ZIELMODELLIERUNG



BEISPIEL FÜR FUNKTIONALEN KONTEXT



BEISPIEL FÜR STRUKTURELLEN KONTEXT



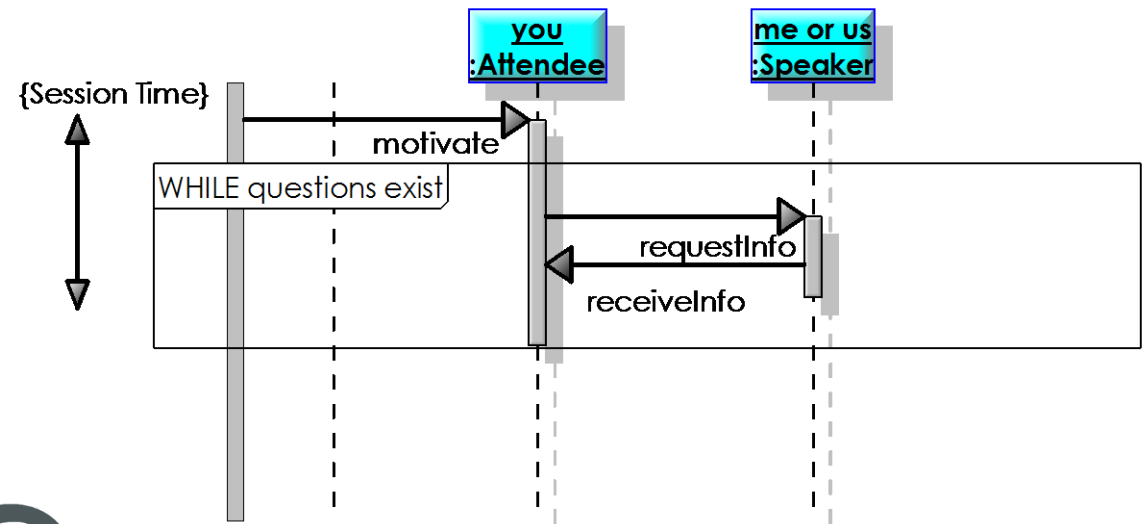
MODUL 3 - TEST ENGINEER

SIMULATION DES TESTFALLS (SYSIM)

- MBSE Einführung bedeutet ein neues (Zusammen-)Arbeitsparadigma
 - Vorteile müssen von allen im Team gesehen werden
 - Darf nicht mit gängigen, dokumentenbasierten Prozessen und Methoden vermischt werden
- Architekturmodelle als Kommunikationsbasis
 - Erweiterbare Standardsprachen (UML/SysML, PLE)
 - Wiederverwendbarkeit und Automatisierbarkeit
- Eine passende Methodik ist ein wichtiger Schlüssel zum Erfolg!
 - SPES passt genau für die Entwicklungsdomänen unserer Kunden
 - SPEDiT erlaubt einen einfachen Einstieg in MBSE, der auch skaliert

Description

Q&A Session starts
loop
 Question
 Answer
end loop



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