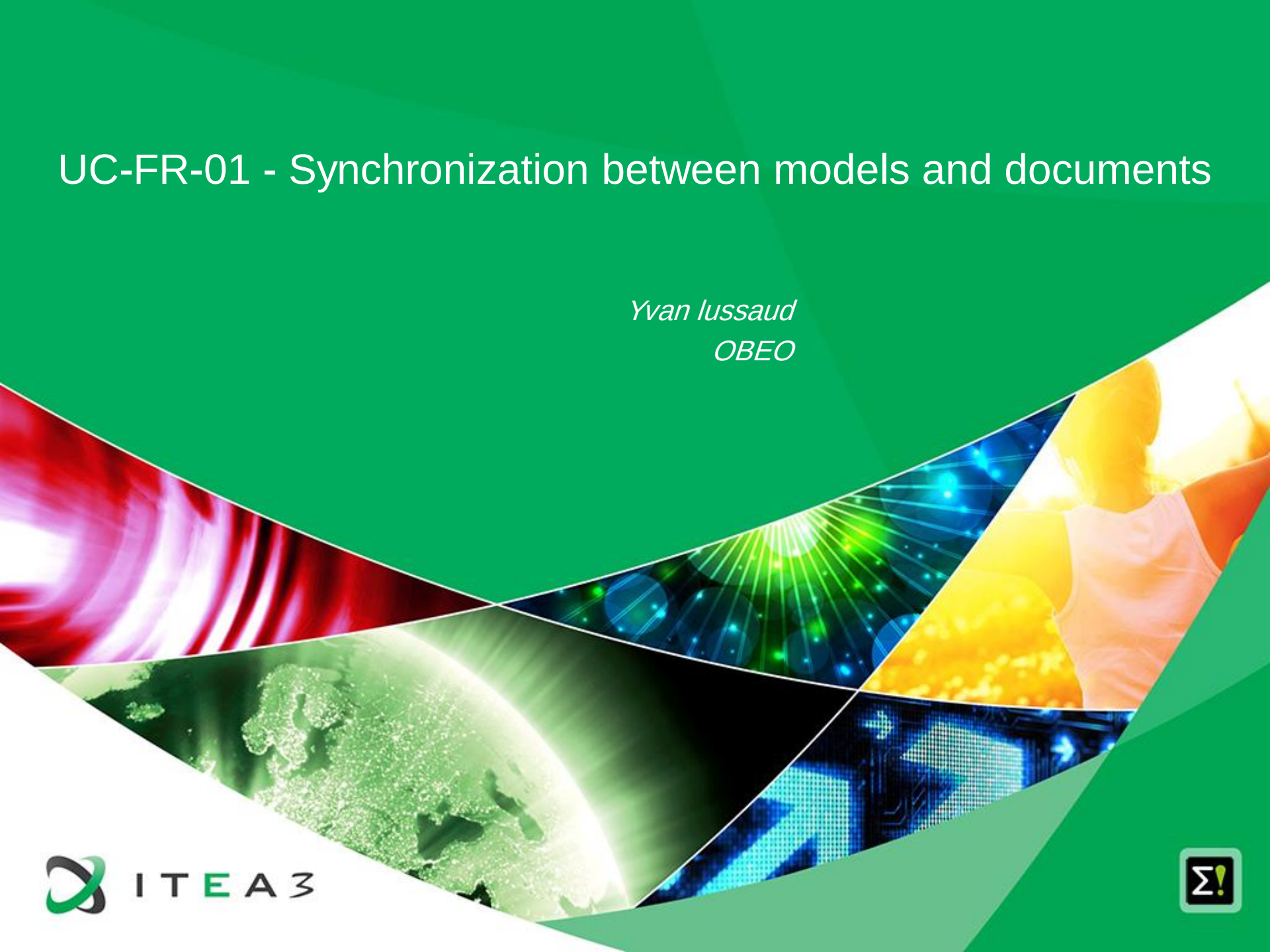
Model Writer

Progress on the Industrial Use Cases

UC-FR-01 - Synchronization between models and documents

Yvan Iussaud
OBEO



UC-FR-01

Synchronization between models and documents

UC-FR-01
Sirius

- Open source Eclipse project
- Domain Specific language
- Creates graphical modelers
- View point approach
- Easy to use (Diagram, table, tree, …)

UC-FR-01
Development of Sirius

Artifacts
- Graphical Mapping DSL
- Source code
- Documentation (specifier, user)

Life cycle
- Release train Eclipse
- Dependencies

Team
- Core team
- External contributors

Methodology
- Code review
- Plan manual synchronization of artifacts

UC-FR-01
Problematic

Synchronization gap

- Development
- Artifacts knowledge is volatile

Validation

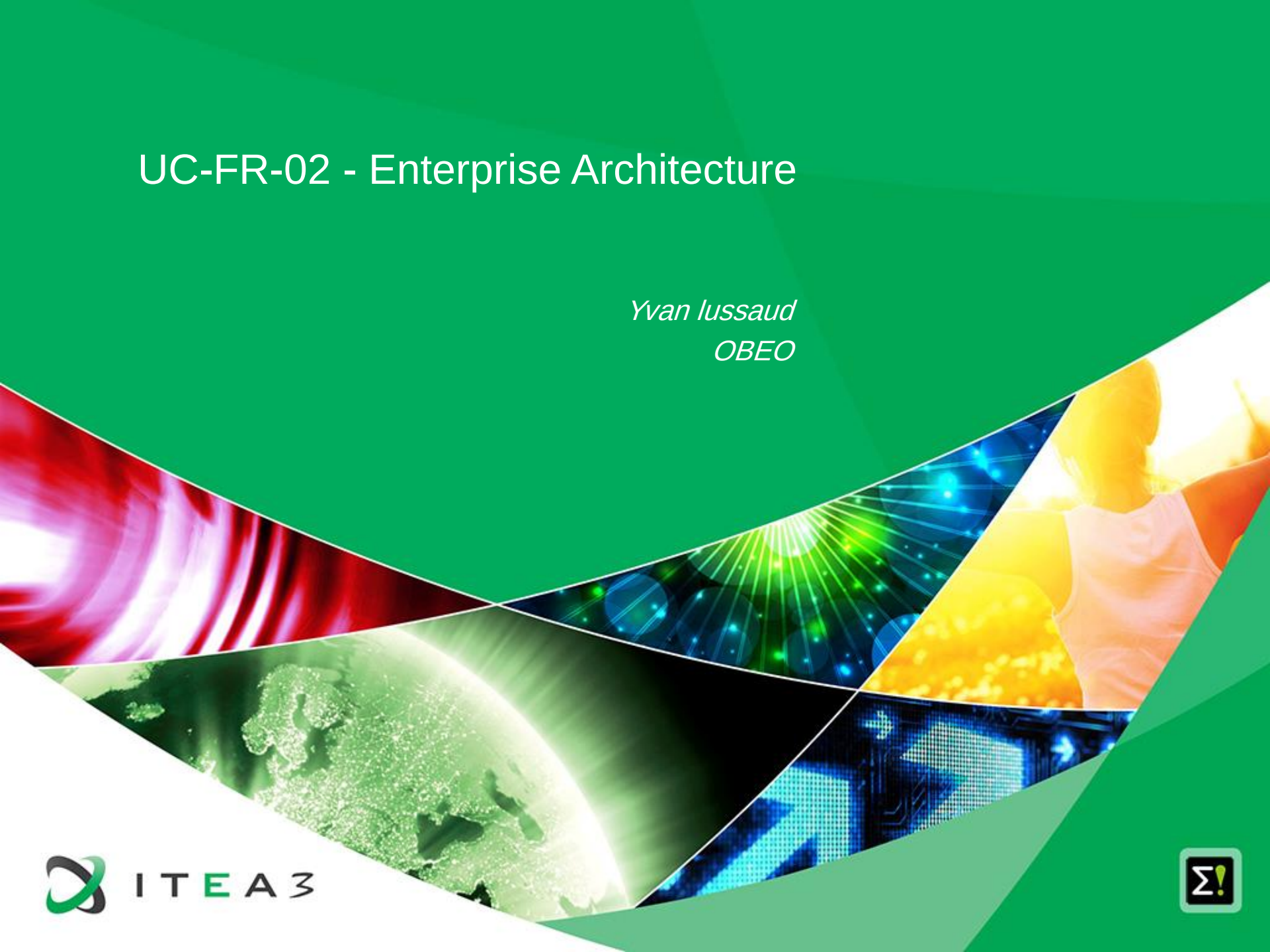
- Release
- Quality

UC-FR-01
Concern

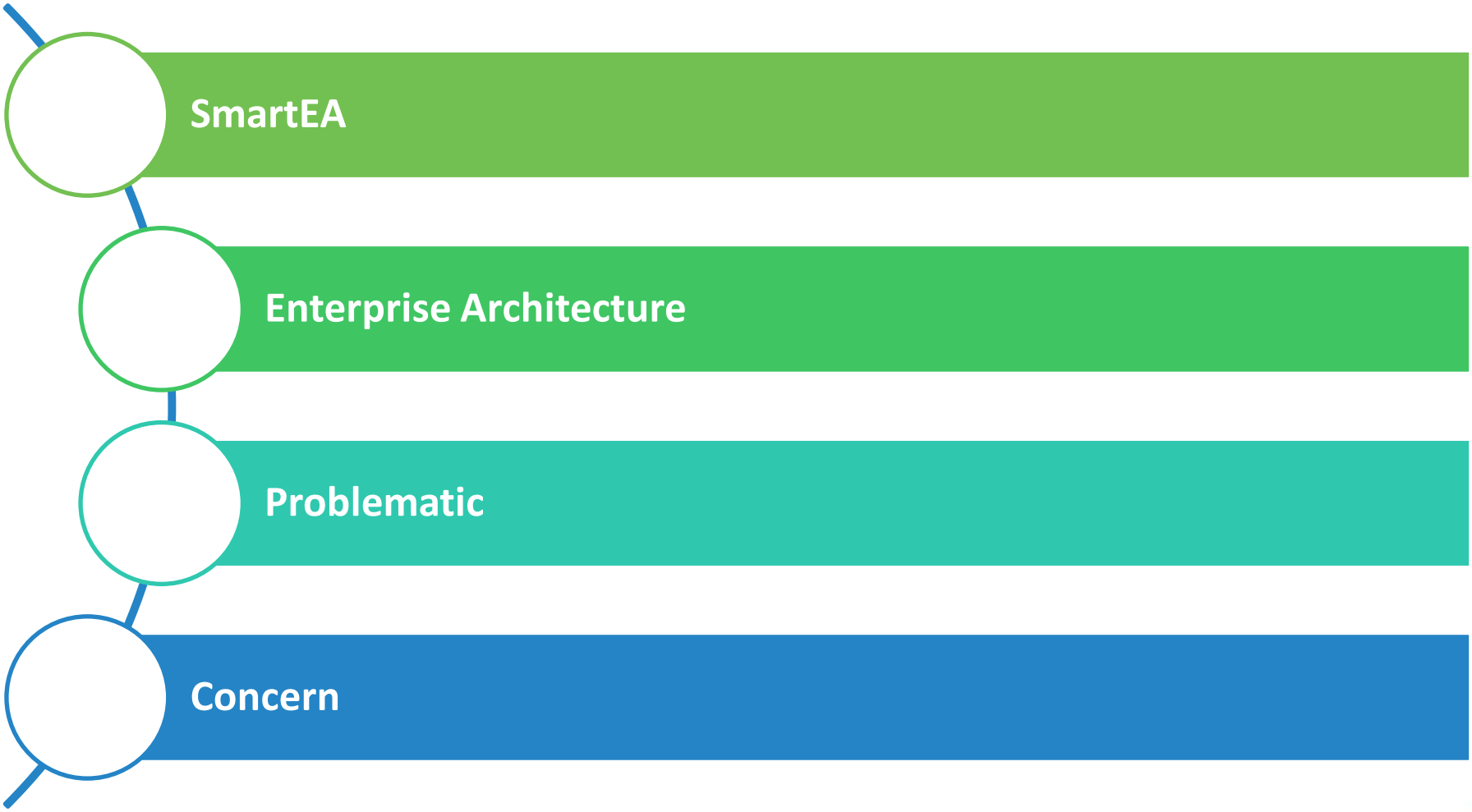
- Mapping tooling
- Live validation feedback
- Fixing assistance
- Batch validation
- Contribute to Intent
- Internal validation of ModelWriter approach

UC-FR-02 - Enterprise Architecture

Yvan Iussaud
OBEO



UC-FR-02
Enterprise Architecture



UC-FR-02
SmartEA

Model the company

- Centralize information
- Ease communication in the company
- View point approach

Support changes in the company

- Business opportunities, business changes, interoperability, new technologies
- Gap analysis
- Impact analysis

Technical information

- Web portal
- Eclipse and Sirius editors
- Internal model can be changed (TOGAF9, BPMN, …)

UC-FR-02
Enterprise Architecture

Define As-Is state
- Import documents
- Consolidate the company model

Define To-Be state
- Identify possible scenario
- Evaluate possible scenario
- Modify the company model

Define trajectories
- Gap analysis
- Impact analysis
- Define milestones

UC-FR-02
Problematic

Documentation
- Keep track of sourced documents
- Keep representation and portal up-to-date

Synchronization gap
- Organizational changes
- Artifacts knowledge is volatile

Validation
- Produce documentation of organizational changes
- Quality

UC-FR-02
Concern

- Mapping tooling
- Live validation feedback
- Fixing assistance
- Batch validation
- Contribute to Intent
- Industrial use of ModelWriter tooling

UC-FR-03 - Synchronization of Regulation Documentation with a Design Rule Repository

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Airbus Group Innovation
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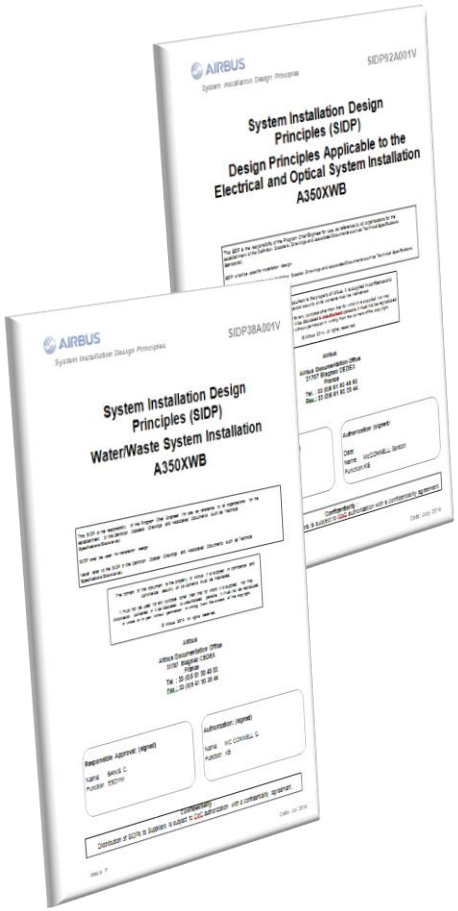
Airbus SAS

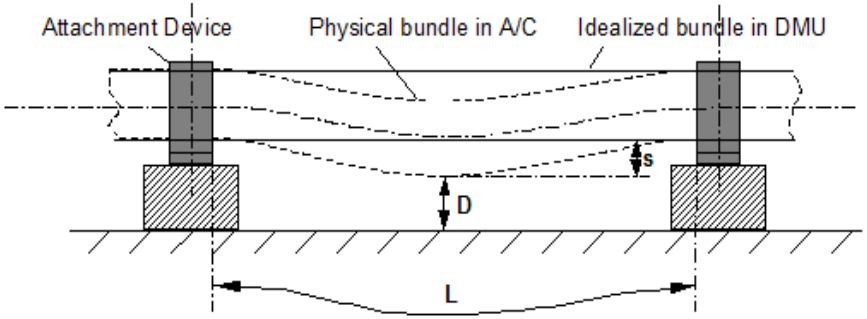
ITEA 3

SIDP: “System Installation Design Principles”



SIDP92A001V-A-784

For installation of optical and electrical harnesses additional clearance for sagging (s) shall be provided as detailed below:



s... Sagging of bundle (real behavior of physical bundle in A/C due to gravity, ageing, etc.)
D... Required Distance
L... Actual length of a bundle segment between two Attachment Points (as designed in DMU)

Figure 6: Sagging of bundles between attachment points

Note: Unless the bundle has a straight routing, L is bigger than the pitch between the Attachment Points.

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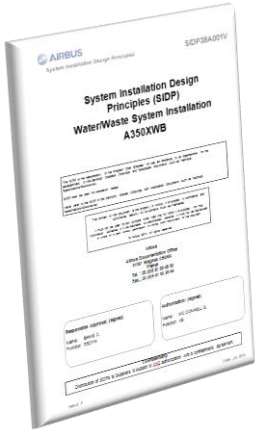
Context and problem

- SIDP documents explain how to install the aircraft systems and attach them to the structure. They capitalize the best practices & proven technical solutions.
- SIDP are defined per ATA chapter (~functional domain) to be applied for each given A/C project: for example “A350 Electrical installation”



- SIPD are open to Extended Enterprise: installation tasks are performed by risk sharing partners.
- SIDP are living documents: during the aircraft development any new DP allowing to satisfy all targets/constraints can be added, assuming it is validated by Airbus dedicated committee.

Industrial high level needs

To improve SIDP creation, maintenance and consultation in order to:

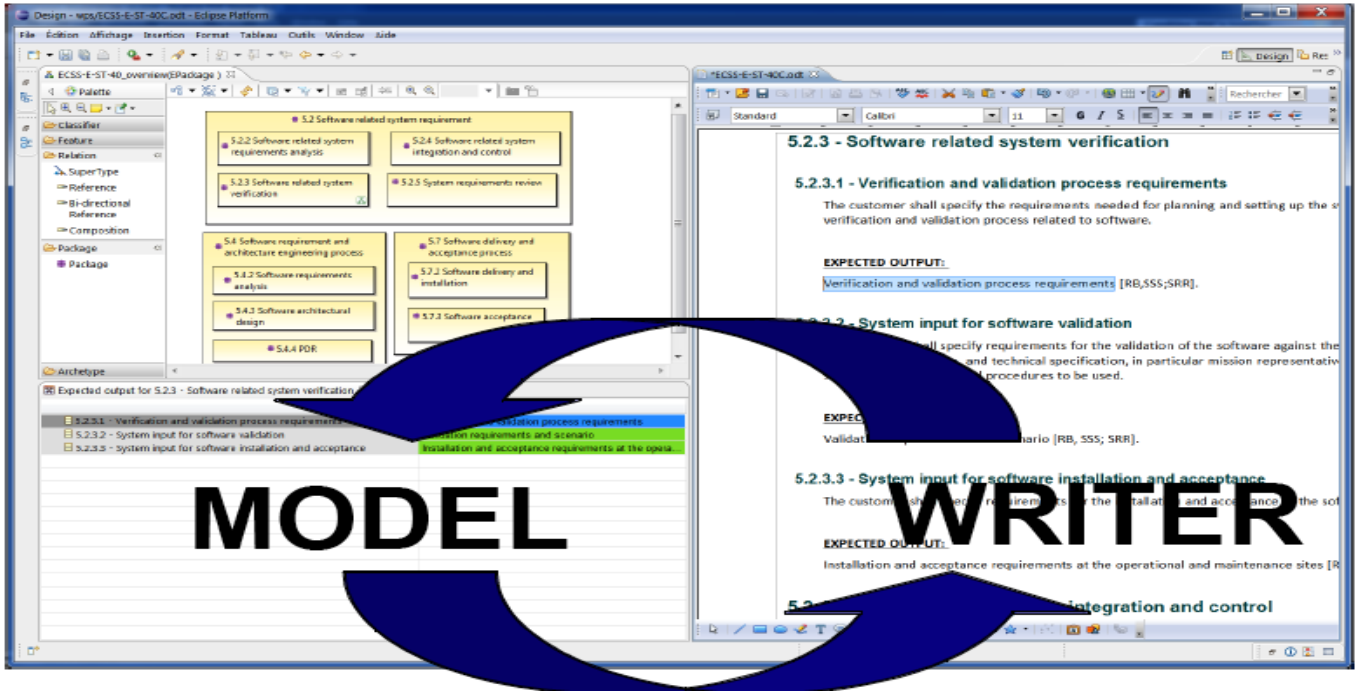
- save costs by supporting DP consultation / retrieval in accordance to the needs
- avoid non-compliance of design caused by DP updating lead times
- keep traceability with upstream regulations and requirements and downstream design models

Synchronization of regulation documentation with a design rule repository

UC-FR-03 Synchronization of regulation documentation with a design rule repository

Goal: synchronizing the SIDP database content with documentation

- Create links between text fragments & model elements (manual annotation?, semi-automatic?…)
- Manage consistent synchronization (manage changes)



UC-FR-03 Synchronization of regulation documentation with a design rule repository

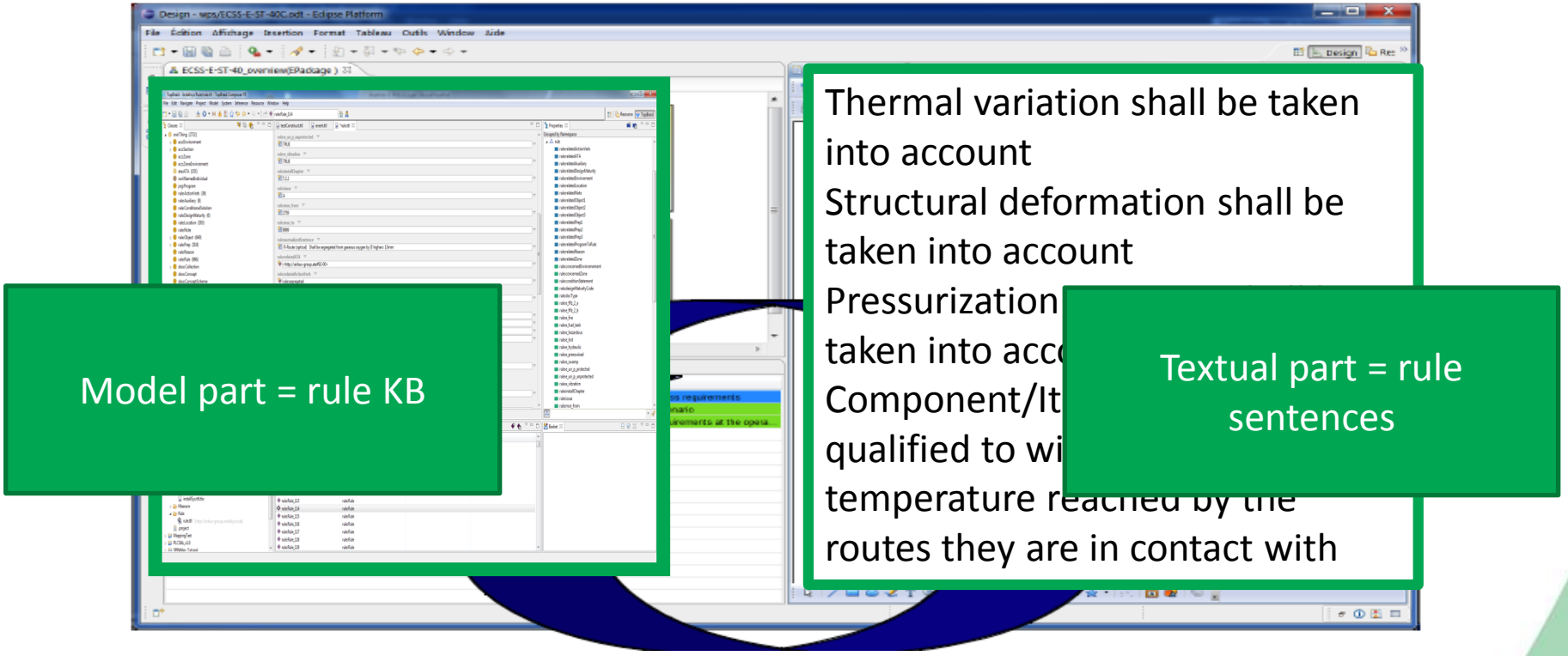
- Approach: limited case on Electrical Installation functional domain
- (Confidential Data - Non Disclosure Agreement finalized in June 2015).

- Text
  - 1 document: SIDP ATA 92
  - In our industrial context SIDP are edited using MSWord

- Models
  - An OWL model is built that reflects the DB schema: “Rule ontology” (30 classes, 35 object properties and 54 data properties)
  - Automatic population mechanism of the model from a csv BD export produces the KB (45781 triples)

UC-FR-03 Synchronization of regulation documentation with a design rule repository

Status 1st iteration: synchronizing the SIDP KB content and text part



UC-FR-04 - Production of a Context Specific Design Document

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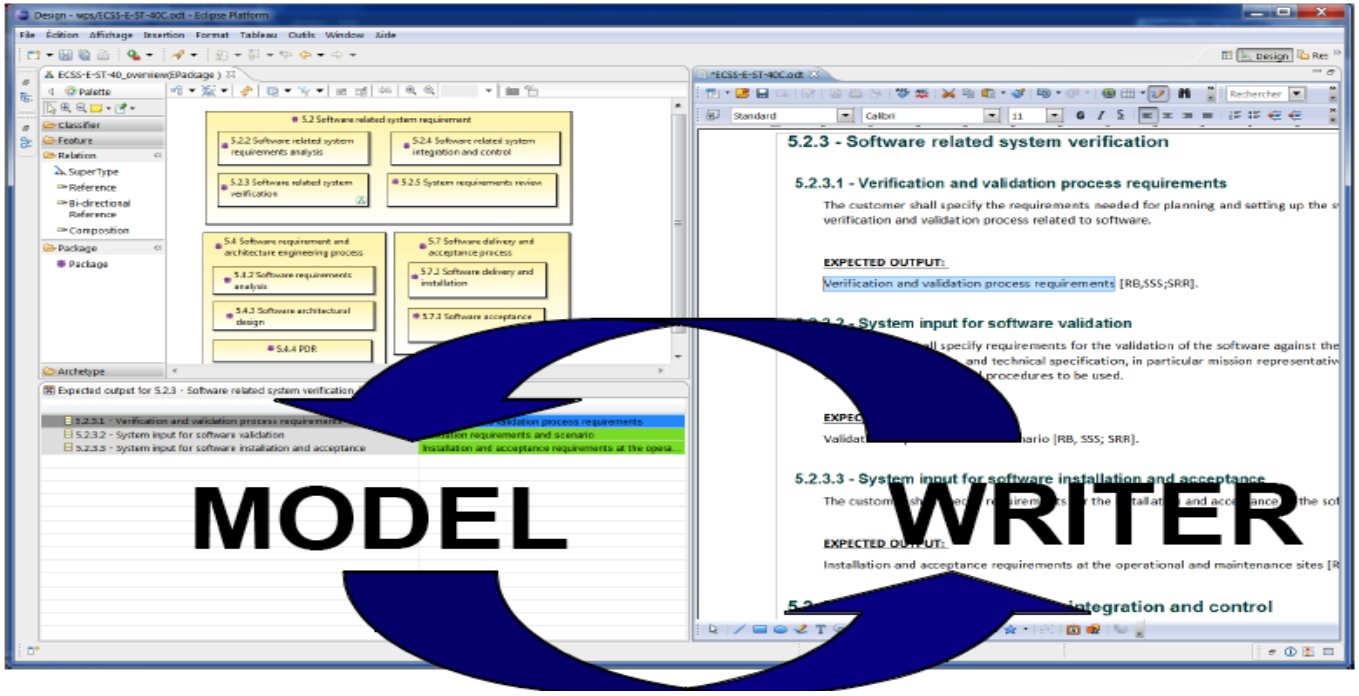
UC-FR-04 Production of a context specific design document

Goal: producing document according to usage “needs”

- Produce “filtered” document with subset of Design Principle textual elements according to usage “needs”



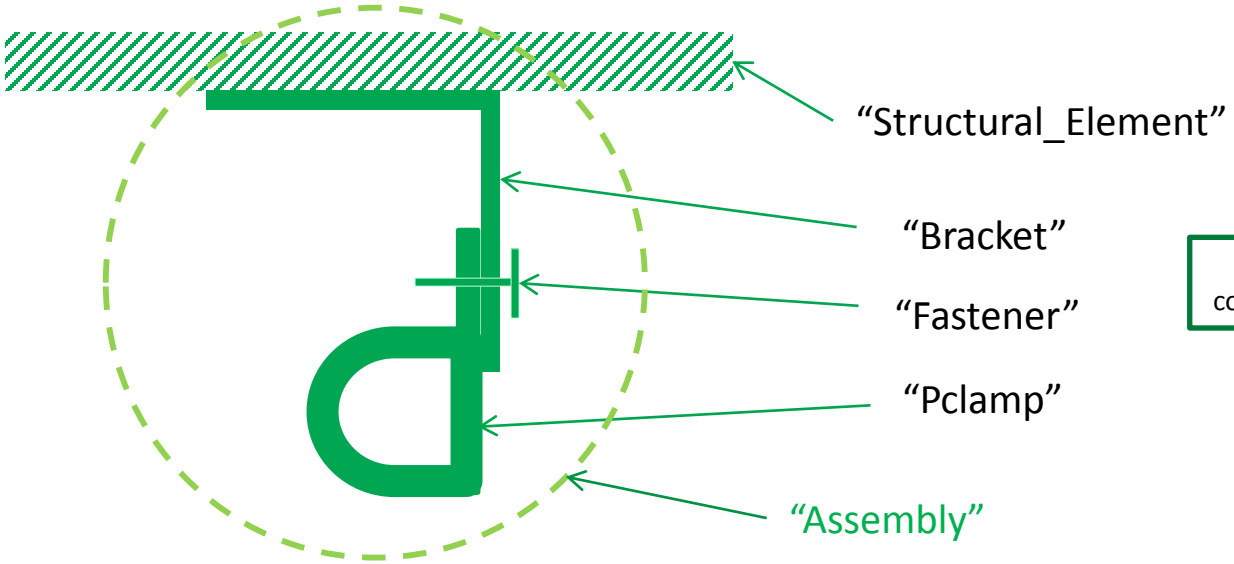
UC-FR-04 Production of a context specific design document

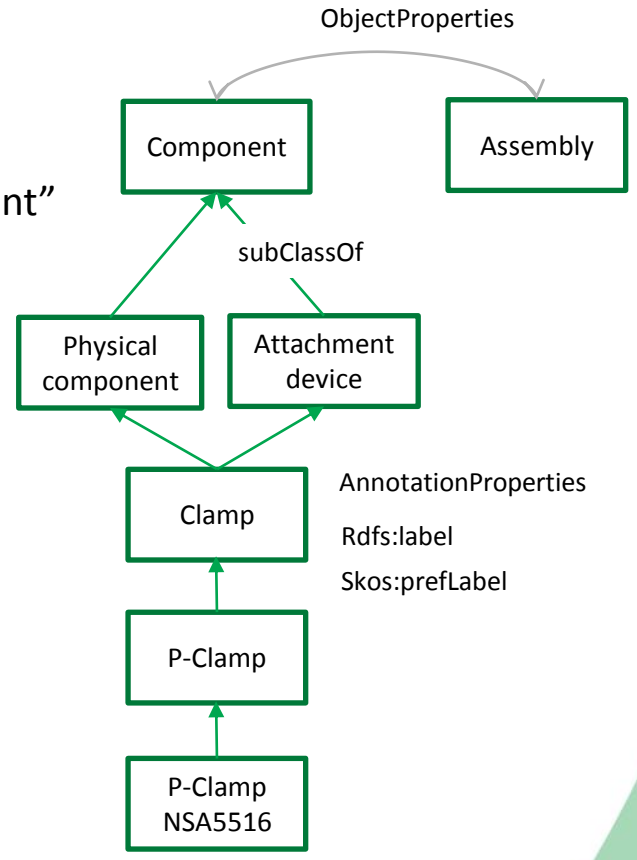
- Approach:
  - use case Electrical Installation functional domain
  - Confidential Data - Non Disclosure Agreement finalized in June 2015
  - Use model elements to retrieve relevant Design Principles

- Text
  - 1 document: SIDP ATA 92
  - In our industrial context SIDP are edited using MSWord

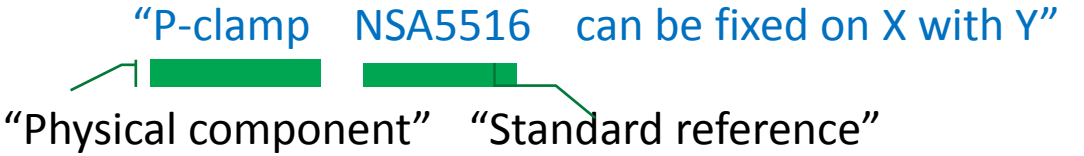
- Models
  - The previous Rule KB (populated Rule ontology)
  - Component ontology (476 classes, 21 ObjectProperties and 35 DataProperties)

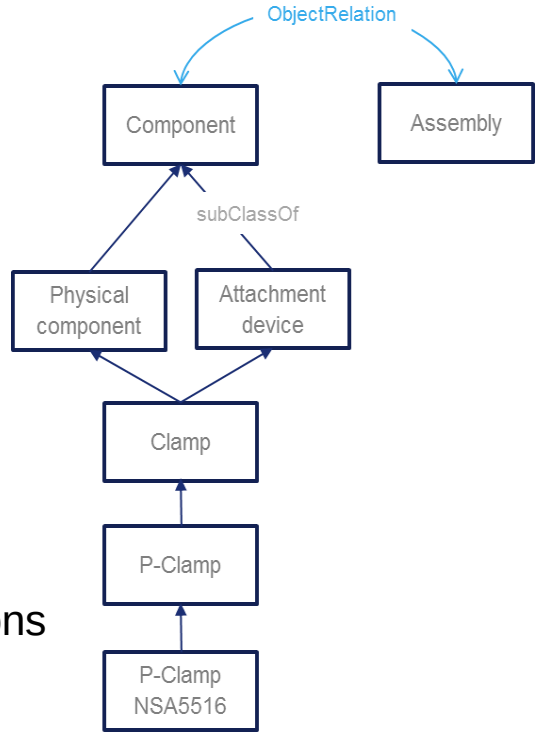
Component classes taxonomy





Component classes taxonomy



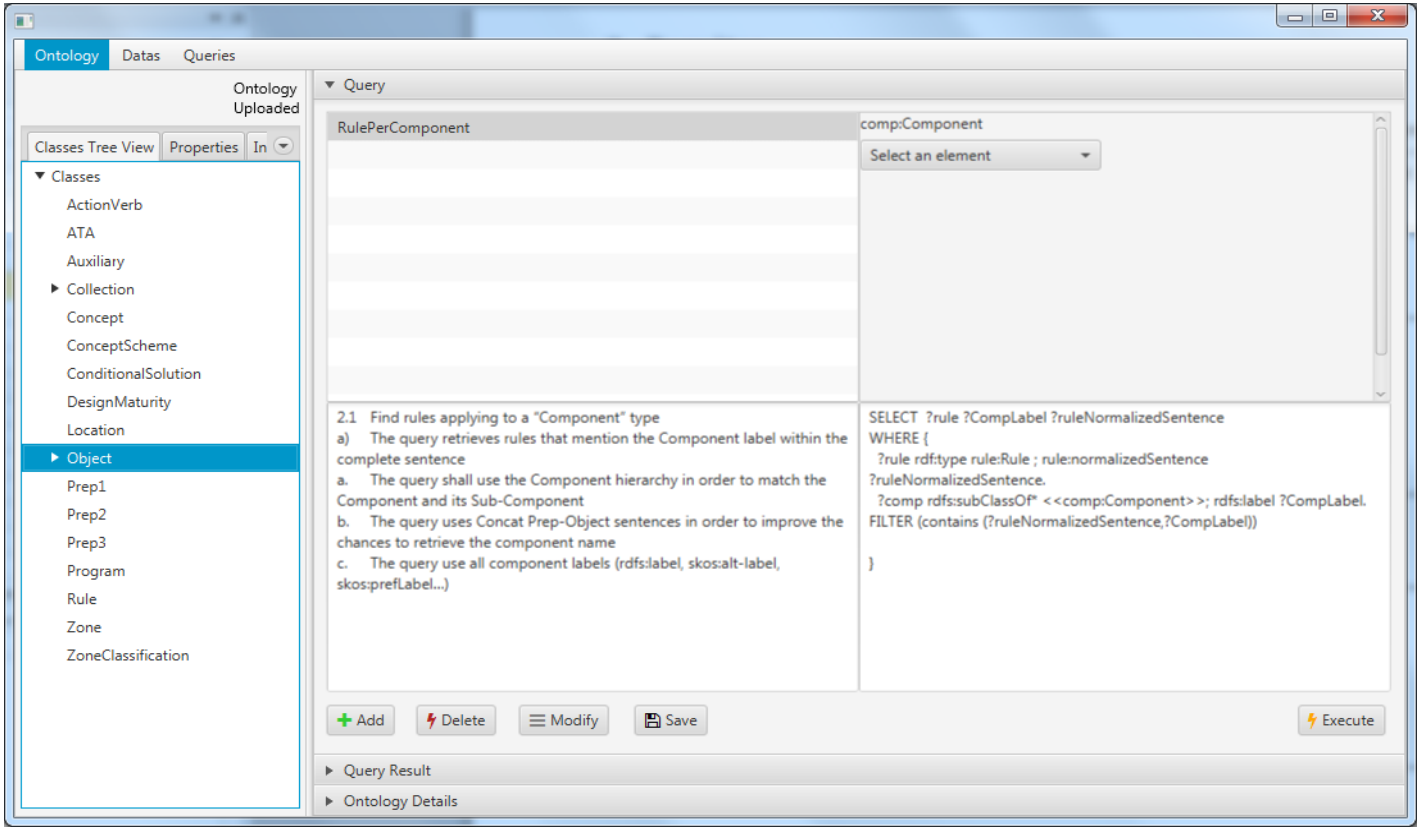


- NLP Parsing uses this taxonomy. Labels + assumptions such as a physical component may be referred to using its name or its reference or both concatenated
- Inference rule: a rule applying to a component type (Attachment device) applies to its subtypes (P-clamp)
- Document display : when searching rules applying to a component type (P-Camp) → retrieve and display rules applying to super-types

SPARQL queries

Status : model based queries specification

- Preliminary study with Loria (Text to RDF)
- 1 internship on RDFizer and Query management



UC-TR-01 - Documents of Quality Assurance Department

Ersan GÜRDOĞAN
HISBIM

UC-TR-01 Documents of Quality Assurance Department

UC-TR-01	Documents of Quality Assurance Department
Version	V1.0.0 dated 15-Nov-2014
Description	To create faster and more accurate the forms that are used in quality control progress and trigger related forms (re-work form triggering, revision needed, approved, rejected etc.)
Actors	Quality Managers, Quality Measurement Specialists, Quality Control Personnel, Quality Auditors, Production Crews
Assumptions	Quality control measurement units are standard Rejected and Approved products forms are standard Quality Certification standards are always applied
Steps	Products information forms are created according to product information comes from ModelWriter system Products are measured by quality control department authorized personnel's according to standards To decide product is standard or not according to measurement report Product would be sent rejected products section if its measures are out of standards ModelWriter system is created Rejected Product Quality Form Else Approved Product Quality Form is created by ModelWriter System Approved products are sent to warehouse as accepted products
Alternatives	If rejected products' measurement out of range in rework standards, it means cannot be applied rework on this product, it returns to scrap. Then it should be sent wasteland.
Issues	Standardizing form designs is hard because of all customers have their own unique reporting tools/formats

UC-TR-02 - Non-Disclosure Agreements

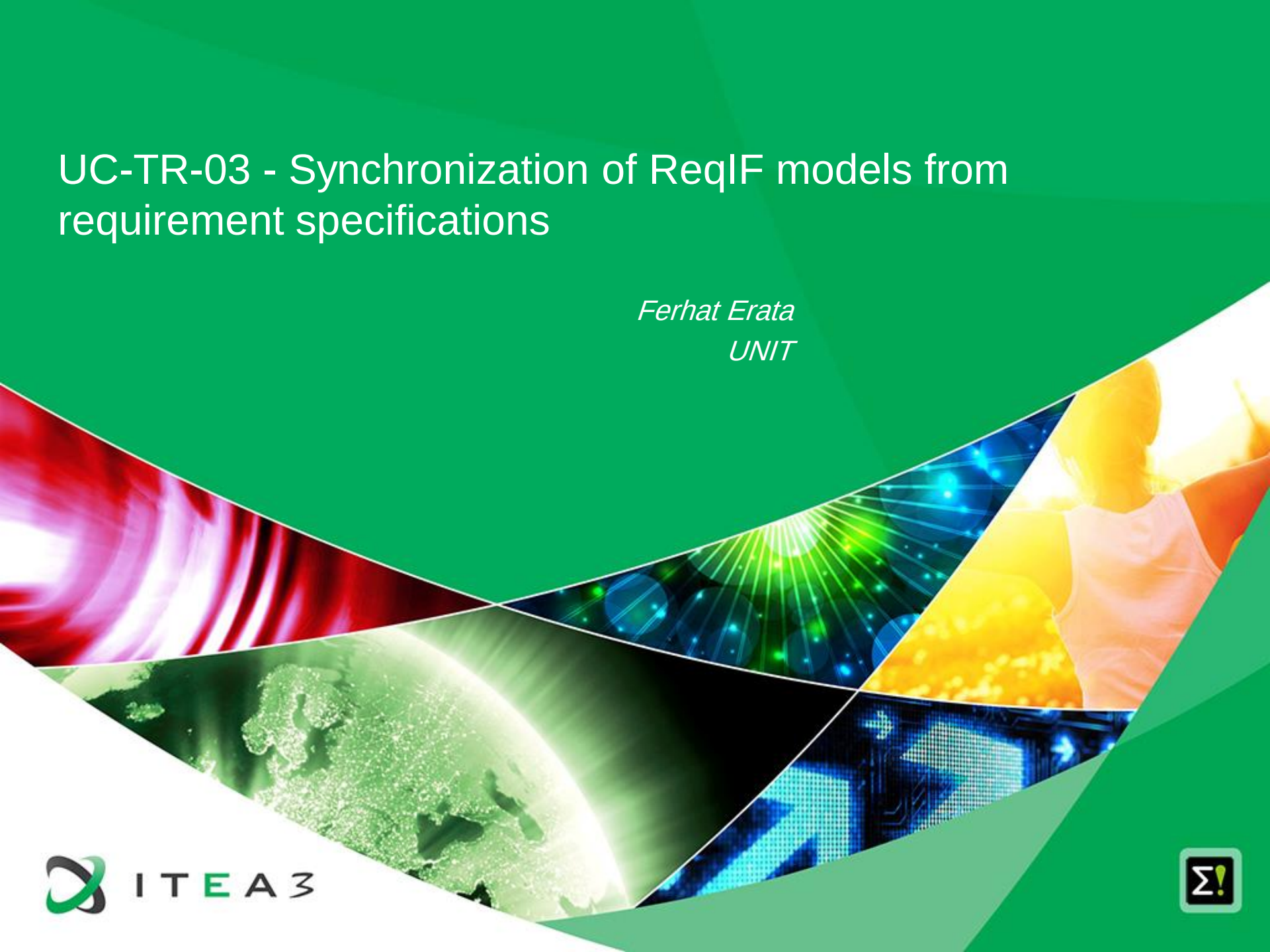
Ersan GÜRDOĞAN
HISBIM

UC-TR-01 Non-Disclosure Agreements

UC-TR-02	Non-Disclosure Agreements
Version	V1.0.0 dated 15-Nov-2014
Description	Non-Disclosure Agreement (NDA), also known as a confidentiality agreement (CA), confidential disclosure agreement (CDA), proprietary information agreement (PIA), or secrecy agreement (SA), is a legal contract between at least two parties that outlines confidential material, knowledge, or information that the parties wish to share with one another for certain purposes, but wish to restrict access to or by third parties. It is a contract through which the parties agree not to disclose information covered by the agreement. An NDA creates a confidential relationship between the parties to protect any type of confidential and proprietary information or trade secrets. As such, an NDA protects nonpublic business information. NDAs are commonly signed when two companies, individuals, or other entities (such as partnerships, societies, etc.) are considering doing business and need to understand the processes used in each other's business for the purpose of evaluating the potential business relationship. NDAs can be "mutual", meaning both parties are restricted in their use of the materials provided, or they can restrict the use of material by a single party. It is also possible for an employee to sign an NDA or NDA-like agreement with an employer. In fact, some employment agreements will include a clause restricting employees' use and dissemination of company-owned confidential information.
Actors	Responsible/Authorized personnel in both parties.
Assumptions	Agreements are prepared and written according to European Business Law.
Steps	To define both partied who would sig the NDA To write items of agreement according to scope of NDA Reviewing agreement by decision maker then getting approval Sharing NDA each other Send feedback to ModelWriter system if any change apply on NDA Sharpen final version of NDA then signing by both parties
Alternatives	After sharing NDA, both parties sign without any change and no feedback. Cancellation of NDA
Issues	Different laws could be applied in out of European Union

UC-TR-03 - Synchronization of ReqIF models from requirement specifications

Ferhat Erata
UNIT



UC-TR-03 - Synchronization of ReqIF models from requirement specifications

- Tech doc to ReqIF model
  - e.g Req doc => ReqIF

Examples:

- Airbus SIDP template=> ReqIF
- Havelsan Req doc template=> ReqIF
- Univ Man. System Use cases screenshot as the corpora doc to ReqIF
- Eclipse RMF use case specification ReqIF

- Snapshot

UC-TR-04 - Integration with Application Lifecycle Management (ALM) Tools

Eray Tüzün
Yagup MACİT

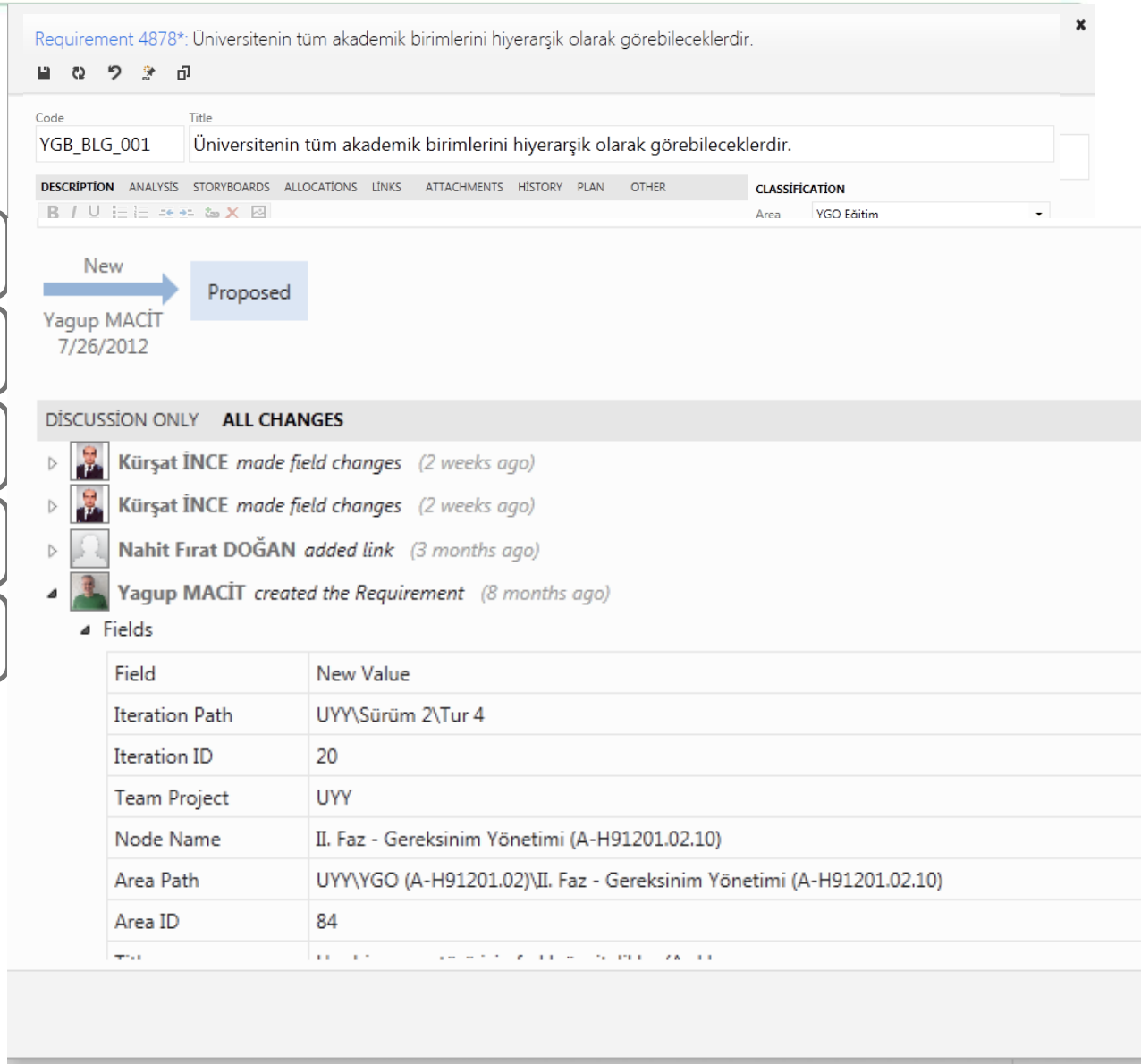
HAVELSAN

UC-TR-04 - Integration with Application Lifecycle Management (ALM) Tools

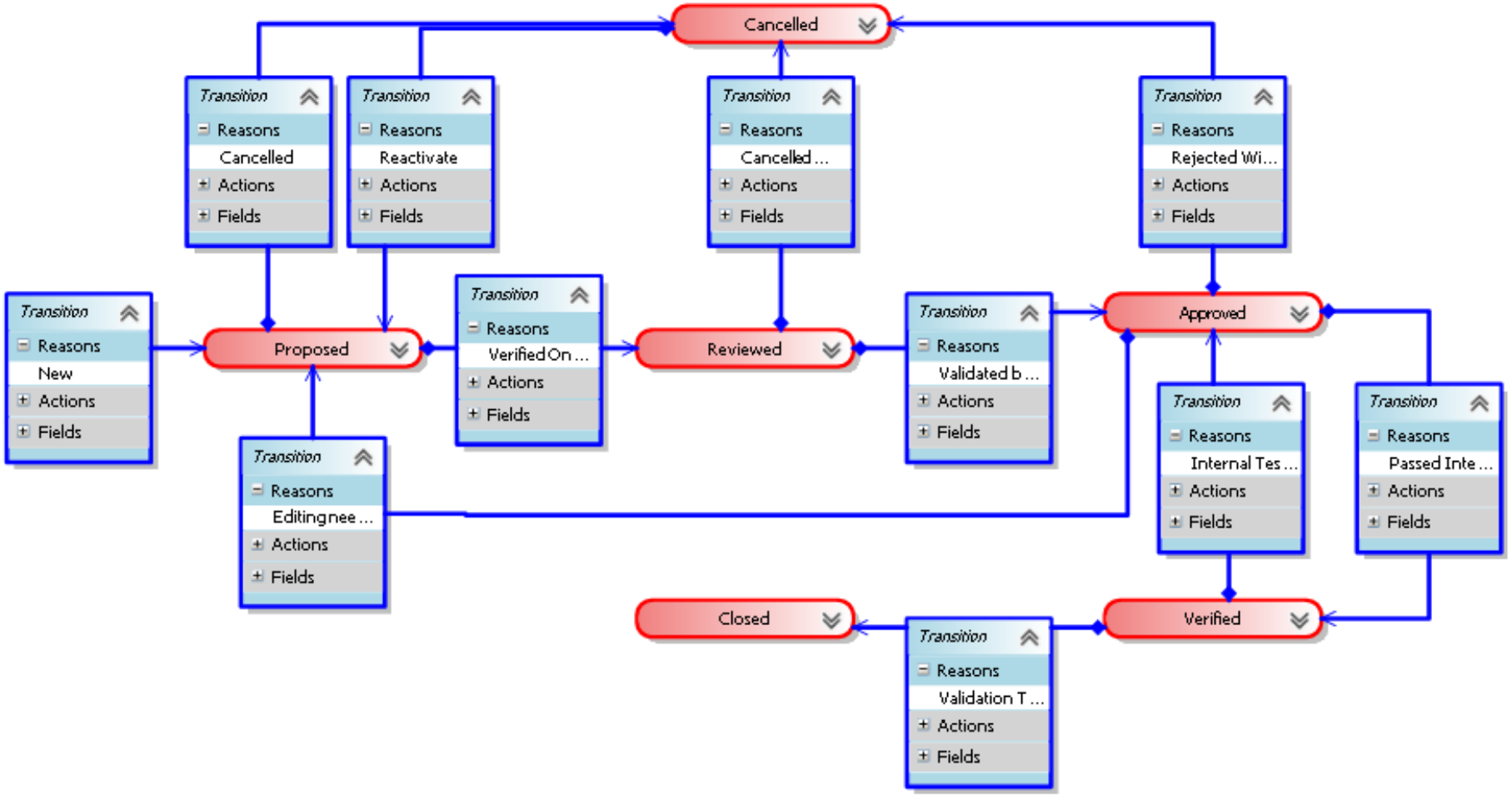
UC-TR-03	Integration with ALM tools
Versioning Info	V1.0.0 dated 28-Apr-2015
Description	Show that the ModelWriter can extract required elements from structured requirement objects in ALM tool to generate automatic design model. Show that the ModelWriter's can generate requirements specification document from structured requirement objects in ALM tool.
Actors	Requirements Engineer/Manager, System/Software Architect
Assumptions	• All the traceability information would continue to be followed from the structured requirement object via ALM tool. (ModelWriter does not need to have any traceability information) • Textual representation of requirements are stored in MS Word documents. • Design models are stored in Sparx Systems Enterprise Architect. • Structured requirement objects are stored in Microsoft Team Foundation Server.
Steps	Scenario1: o From a set of structured requirement objects in the ALM tool, ModelWriter would create a natural-language text requirement document. Scenario2: o From a set of structured requirement objects in the ALM tool, ModelWriter would create/synch a design model. o From a design model, ModelWriter would create/synch to a set of structured requirement objects.
Variations (optional)	Scenario1: From a natural-language text requirement document, ModelWriter would create/synch to a set of requirement objects.
Non-functional (optional)	The system should have a Word plugin for natural-language text transformation. The natural-language support should be in both English and Turkish
Issues	A common format between ALM platforms and ModelWriter may need to be implemented.

Requirement Work Item

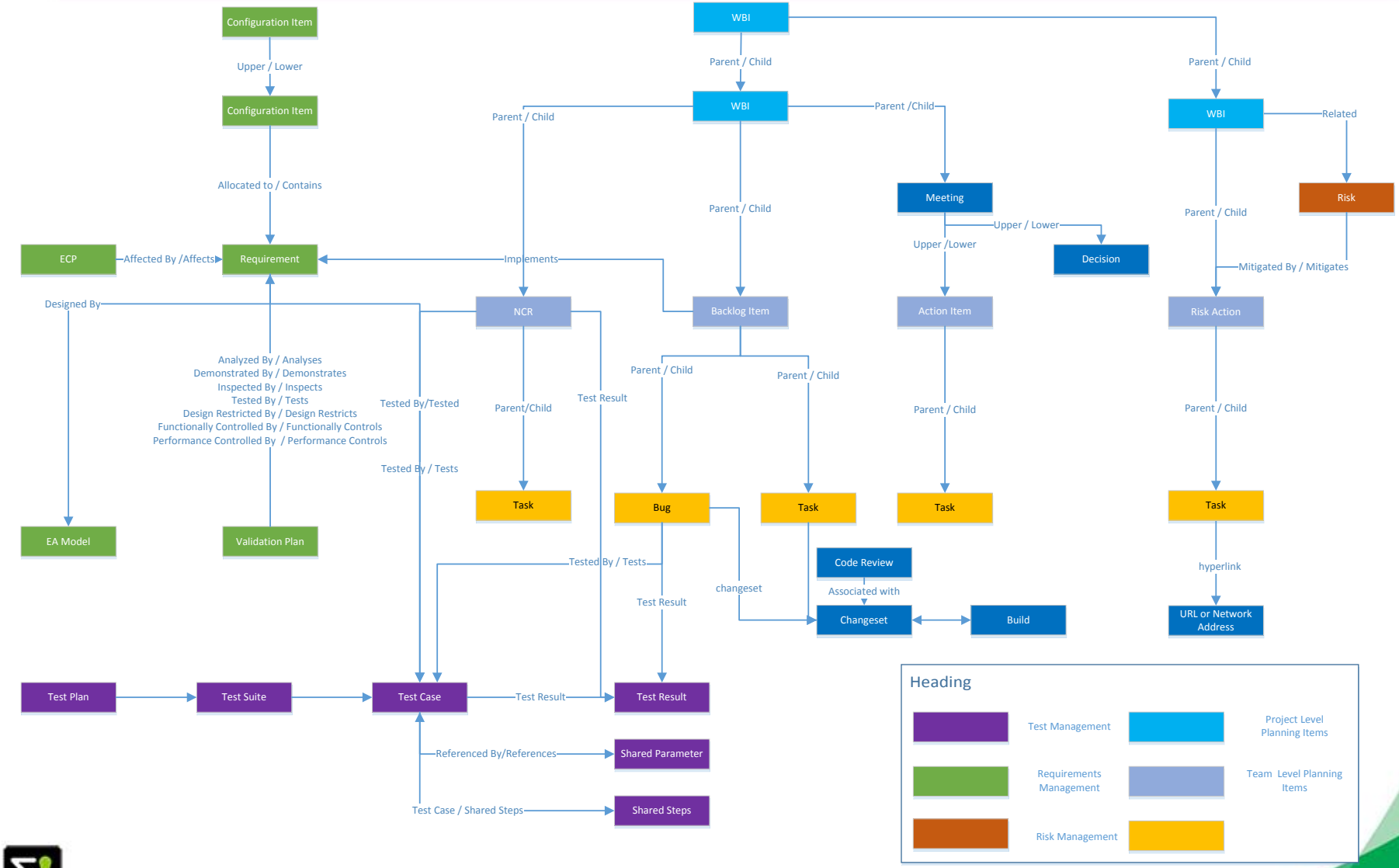
- Customized Form
- Attributes
- WorkItem Number Patterns
- History
- Discussion



Requirement LifeCycle



Modeling Artifacts in ALM

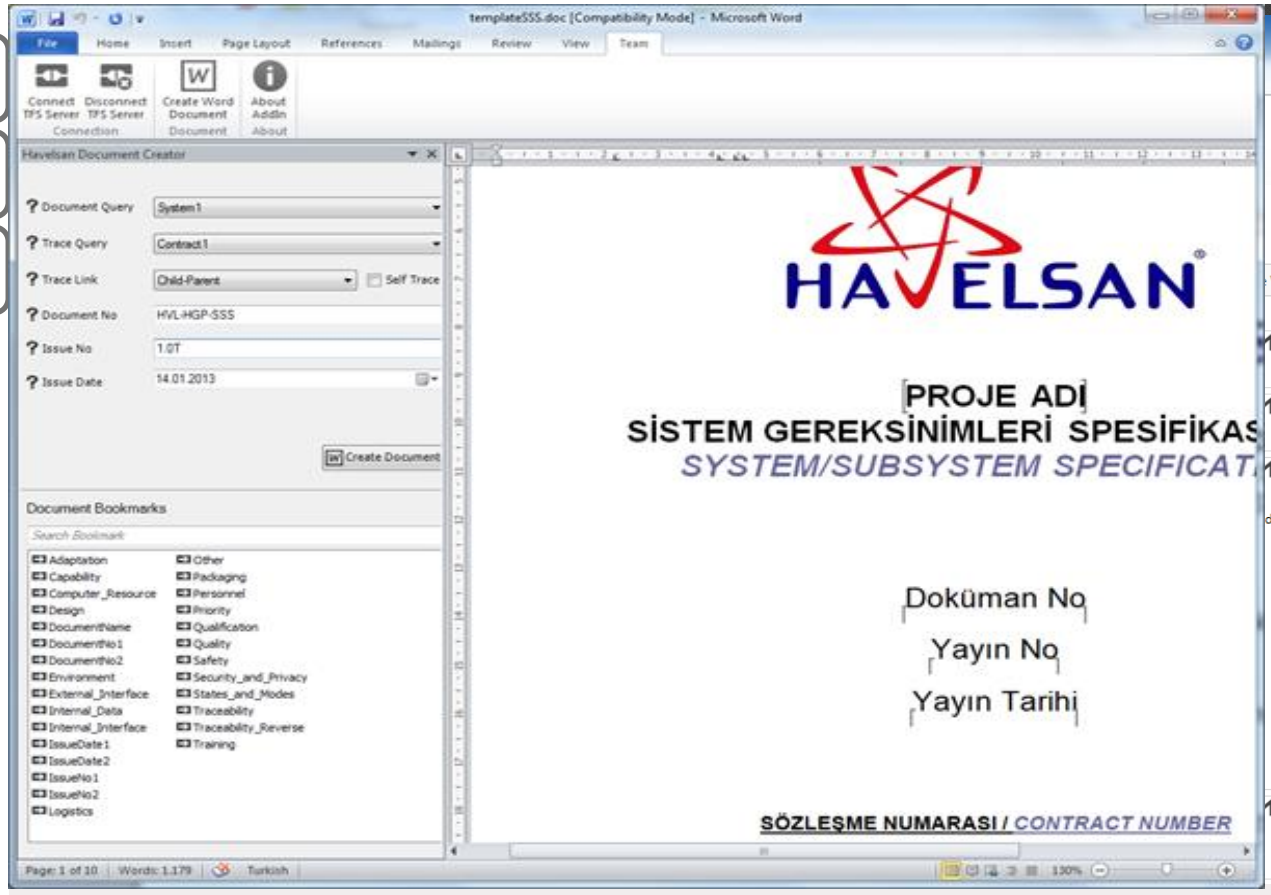


Requirements in ALM

- Traceability with other artifacts is key
  - Requirements to other requirements
    - Customer/System/Software/Hardware..
    - Dependency relation between requirements
  - Requirements to tasks (Project management)
  - Requirements to Test Cases
  - Requirements to Design elements
  - Requirements to generated documents
  - Requirements to source code
  - Requirements to Build
  - Requirements to bugs
  - Requirements to risks
  - …

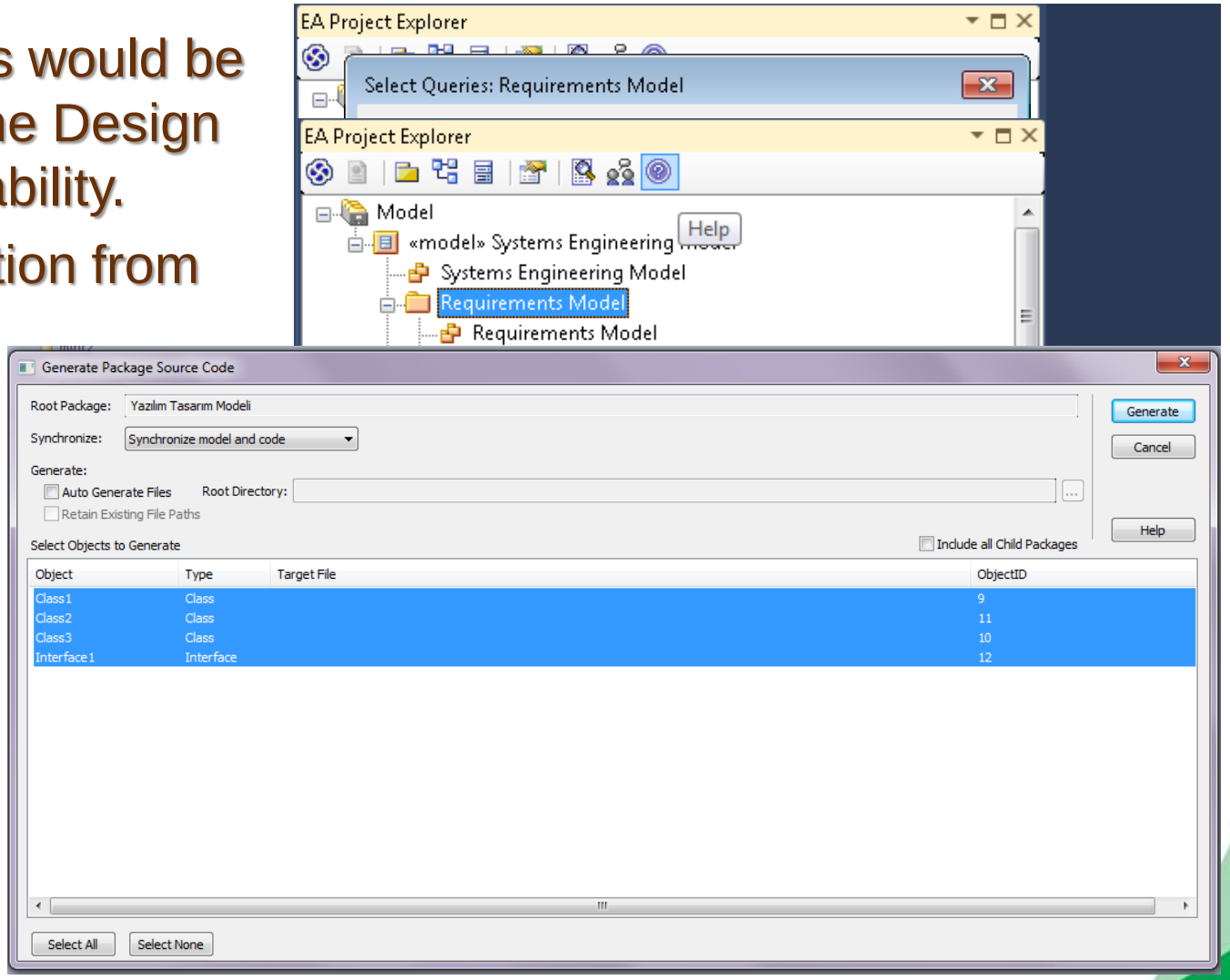
Havelsan Ext - Document Generation

- Preview
- Word Extension
- Support for Templates

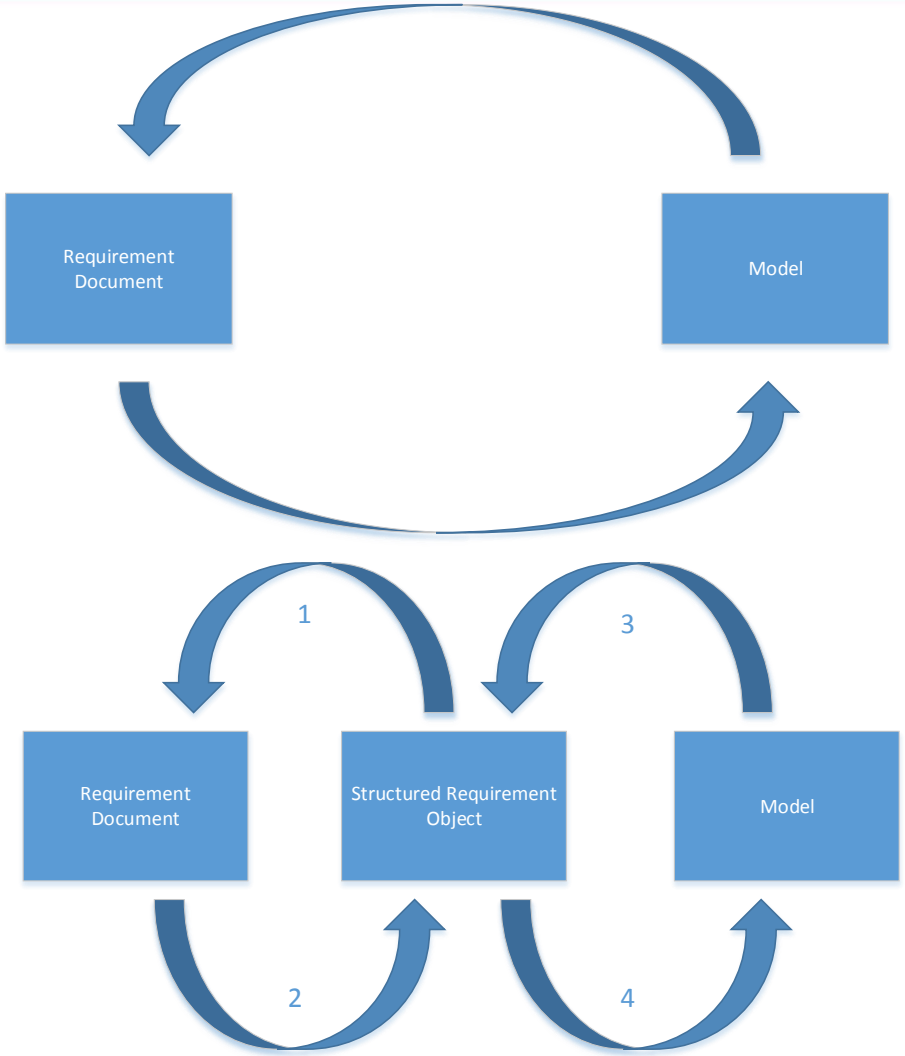


Requirements - Design Model Traceability

- Requirements would be imported to the Design tool for traceability.
- Code generation from design



HAVELSAN Use case for ModelWriter



Currently we support scenario #1 and #4, and interested in Scenario #3, #2

UC-TR-05 - Synchronous Business Process Design with Use Cases

Geylani Kardaş

KoçSistem

UC-TR-05 - Synchronous Business Process Design with Use Cases

- Use case document to BPMN model transformation
  - Univ Man. System Use cases screenshot as the corpora doc to BPMN
  - Eclipse RMF use case specification BPMN
- (Planned) BPMN model transformation to Use case document (screenshot of the corpora model)
- Next step: using technique documents of Ford-Otosan;

- screenshots

Thank you for your attention!
Any question ?