OUTPUT VALIDATION

Validation of the content

• **Completeness of artefact/document**
  – Does the requirement artefact / document contain all relevant information and requirements

• **Completeness of requirements**
  – Does each requirement contain all the information
    • that is needed according to the relevant reference model (e.g., template)
    • that is needed to perform subsequent development activities?

• **Completeness of artefact/document**
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  – Does each requirement contain all the information
    • that is needed according to the relevant reference model (e.g., template)
    • that is needed to perform subsequent development activities?

• **Consistency**
  – Can the system meet all requirements together
  – Are there requirements that contradict each other

• **Correctness of requirements**
  – Does the content of each requirement correspond to the actual stakeholder needs and wishes
  – Are all assumptions about the system context made when defining the requirements correct?

• **Correctness of requirements classification**
  – Has each requirement
    • assigned to the right requirement type
      – goal, scenario, functional, quality, constraint, etc.
    • documented at the proper place

Validation of Documentation

• **Correct documentation format**
  – Does the requirements artefact have the prescribed documentation format

• **Comprehensibility**
  – Are the documented requirements comprehensible in the given context
    • e.g., all terms that are used in the requirements artefacts clearly defined

• **Unambiguous documentation**
  – Does the documentation format of the requirements artefacts allows for an unambiguous interpretation of the requirements
  – Could ambiguities be avoided
    • by using a different, more appropriate documentation format

**Compliance with documentation rules**
  – Does the requirements artefact adhere the documentation (or specification) rules and guidelines?

Validation of Agreement
• **Agreement**
  – Did the relevant *stakeholders agree* upon each requirement

**Agreement after modification**
  – Has *approval* of the relevant stakeholders been obtained anew after
    • a requirements was modified
    • the content of the requirement changed

• **Check for conflicts**
  – Have the requirements been *checked for potential conflicts* caused
    • e.g., by conflicting goals?

**Conflicts resolved**
  – Have all *known conflicts* been resolved for each requirement

**INPUT VALIDATION**

**Subject facet**

• Have all relevant *objects* been *identified* and *documented*?
• Have all identified *objects* been captured *completely* and *correctly*?
• Have all *quality requirements* for the *representation of objects* been captured?
• Have all relevant *legal requirements* (e.g., privacy regulations) for *representation of objects* in the system been considered?
• Have all relevant *requirements sources* been incorporated in the *identification* of the objects, their properties and relationships?
  • Stakeholders, documents and existing systems

**Usage facet**

• Have the *desired interaction* with the environment been captured completely and correctly
  – *stimuli* the system must detect and
  – *responses* the system must produce
• Have the *quality requirements for interaction* with the environment been captured completely and correctly
  – desired performance
  – robustness against faulty operation and correct inputs
  – prevention of misuse
• Have the *specifics of different user groups* been taken into account
  – *e.g.*, specific requirements for different cultures and countries
• Have the *usage goals* of the *relevant stakeholders* and the *relevant systems* been elicited completely and correctly
• Have all *relevant requirements sources* for the usage facet been involved
- e.g., expert for human-machine interfaces for the corresponding type of system

IT facet

- Have the relevant properties of the **hardware and software components** with which the system interacts or that belong to underlying hardware and software platform of the system been captured completely and correctly
- Have all required **system interfaces** and the **relevant protocols** at each interface been documented completely and correctly
- Have all **relevant IT strategies** been considered appropriately
  - e.g., with regard to the use of upcoming or future technology
  - Have all **relevant IT policies** been considered and documented
  - installation, update and backup policies
- Have all **relevant requirement sources** of the IT system facet been involved in the requirements elicitation activities

Development facet

- Have all requirements pertaining to the **languages** and **development tools** to be used been captured completely and correctly
  - Specification languages, programming languages, etc.
  - Have the requirements for the **development process** and **development standards** been captured completely and correctly
  - including the development rules and guidelines with which the project must comply
- Have all **development artefacts** to be provided or exchanged been identified
  - e.g., between the client and the contractor
- Have the **targeted project duration** and **cost** been checked for feasibility after all (essential) requirements been agreed on
- Have all relevant **requirements sources** of the development facet been considered

Execution of activities

- Has the **execution of the activities** been documented in the prescribed way?
- Have all **activities** that are required according to the process definition been performed
- Have all **inputs** defined in each activity description been considered for the respected activity
- Does the **execution of each activity** correspond to the **rules and guidelines** defined in the activity description
- Have all **outputs** defined in each activity description been created
- Have all **stakeholders** who are relevant for performing the respective activity been involved in the execution of the activity