ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

openETCS

# WP4 Workshop - Test Training on Functional Test

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openETCS@ITEA2 Project

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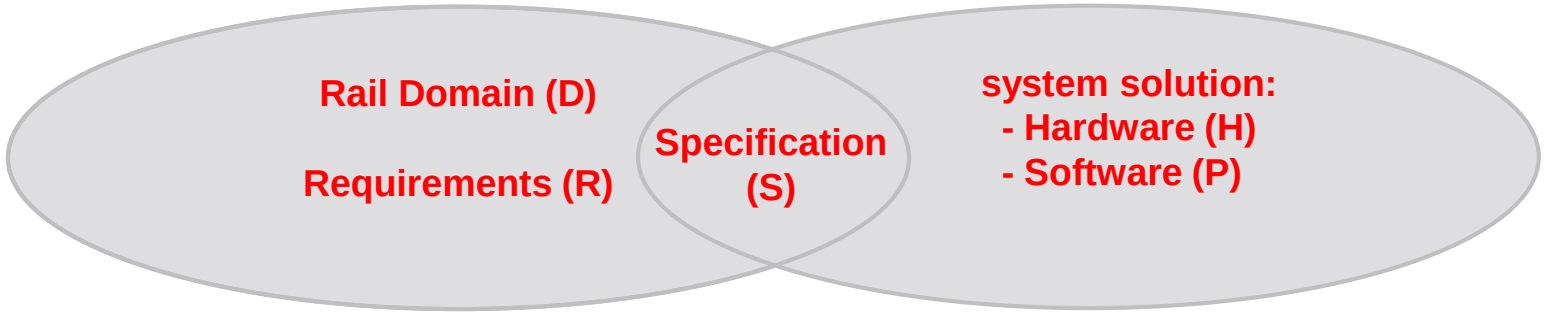
Braunschweig, 08.10.2013

# The World and the Machine[1]




- **Validation question:**

  **Do we build the right system? :**

  **If the domain (excluding the system) has the properties D, and the system-to-be has the properties S, then the requirements R will be satisfied.**

  **D and S ⇒ R**

- **Verification question**

  **Do we build the system right?**

  **If the hardware has the properties H, and the software has the properties P, then the system requirements S will be satisfied.**

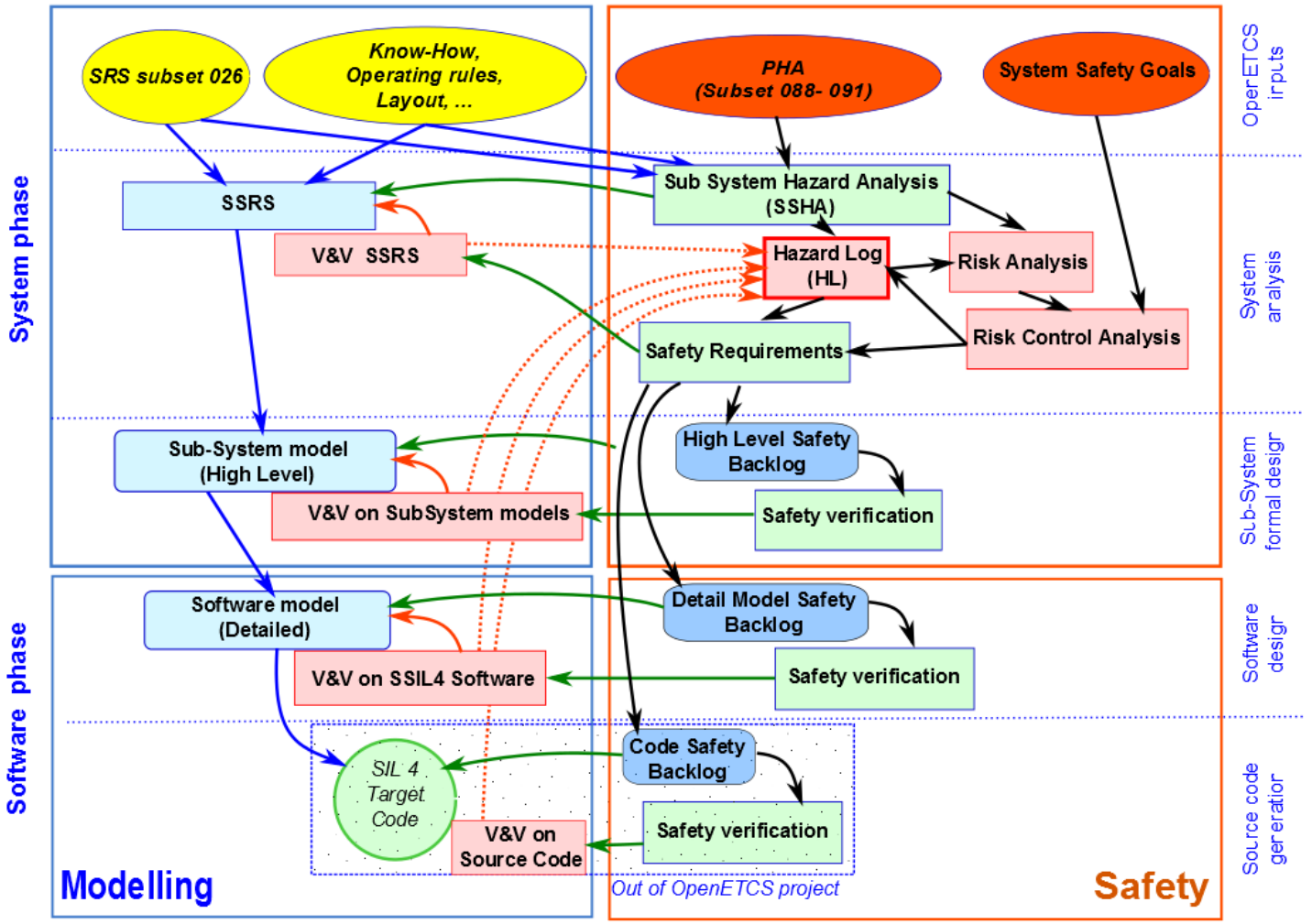
  **H and P ⇒ S**

  **Conclusion:**

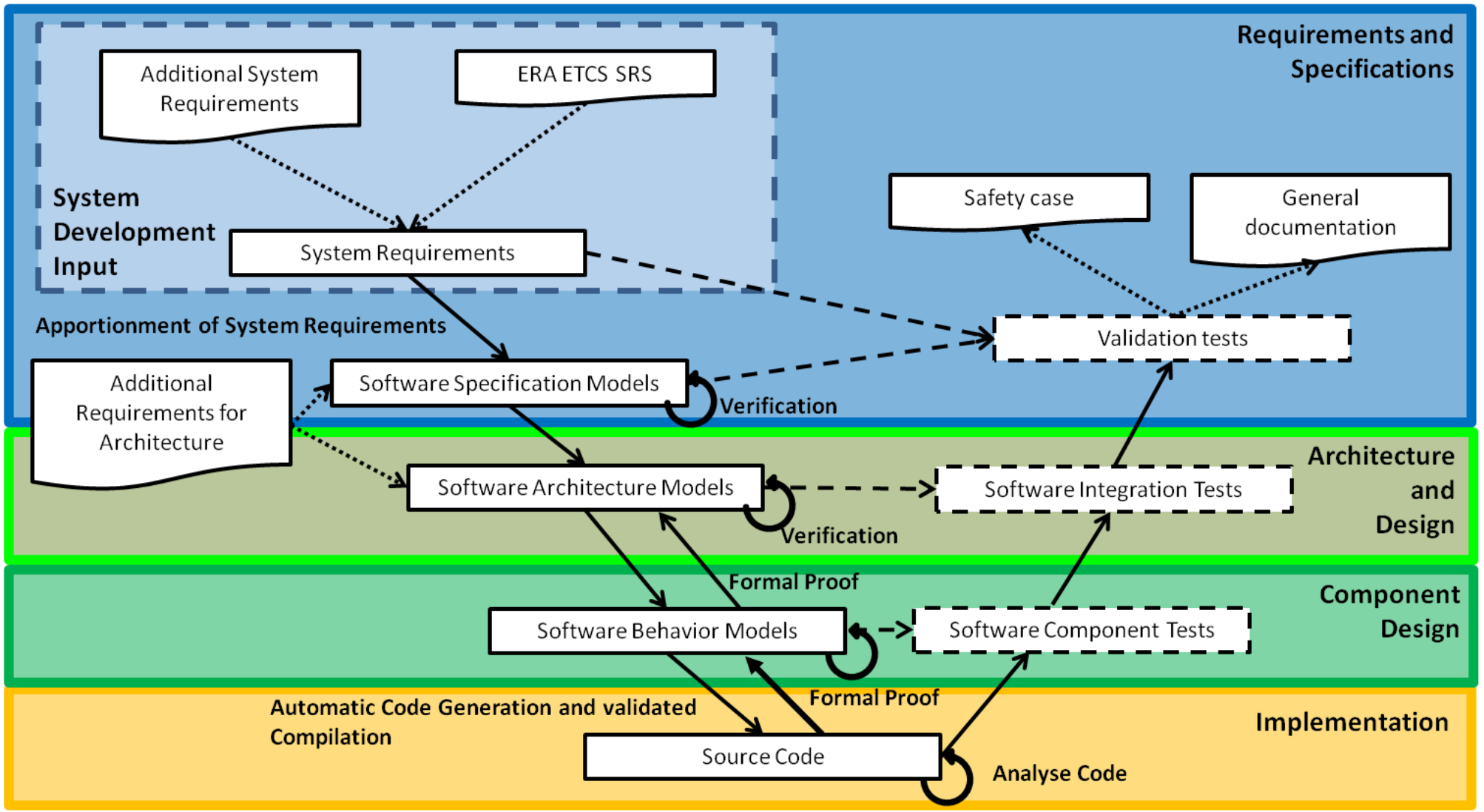
  **D and H and P ⇒ R**

[1] M. Jackson, 1995

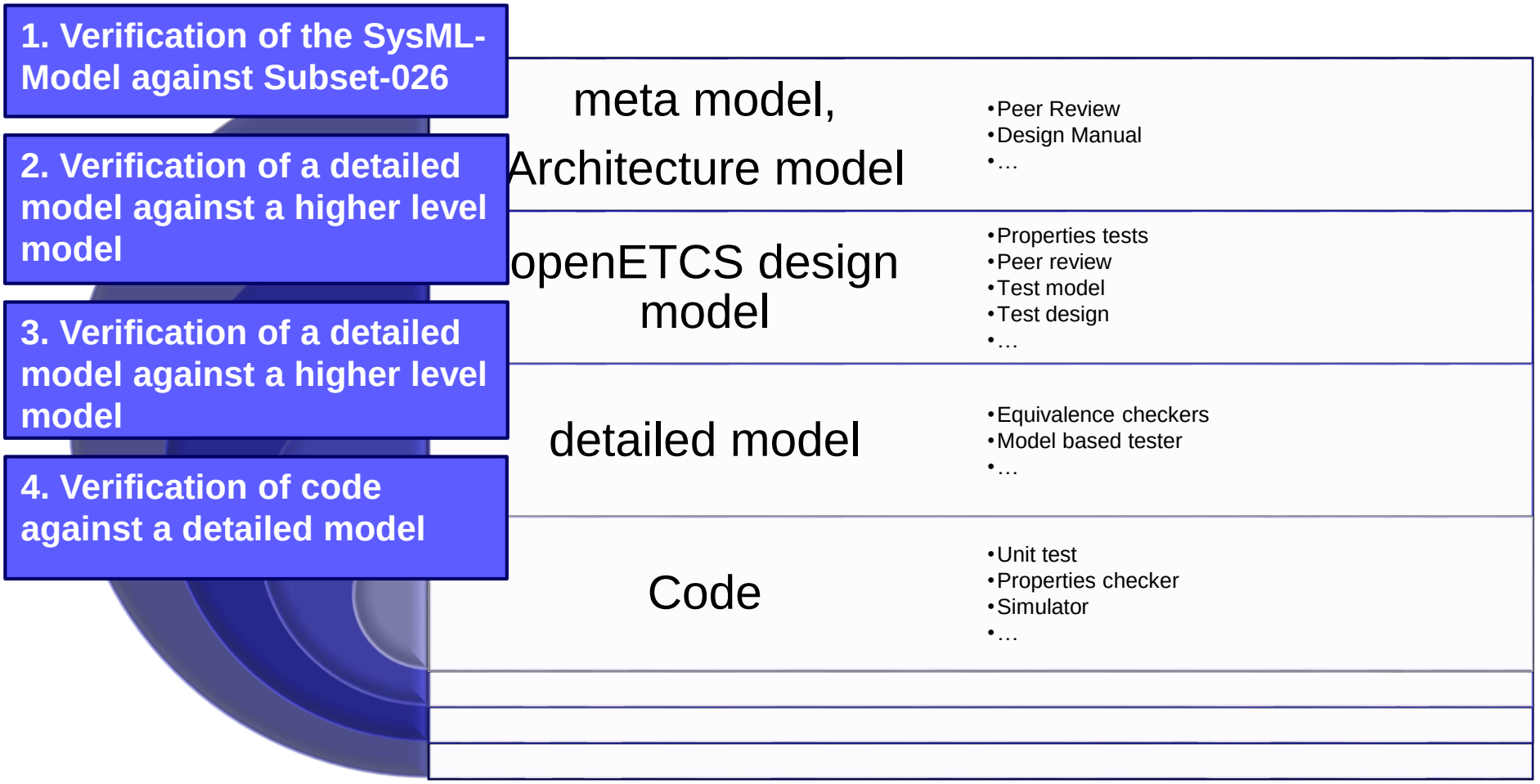
# Verification and Validation Inside openETCS



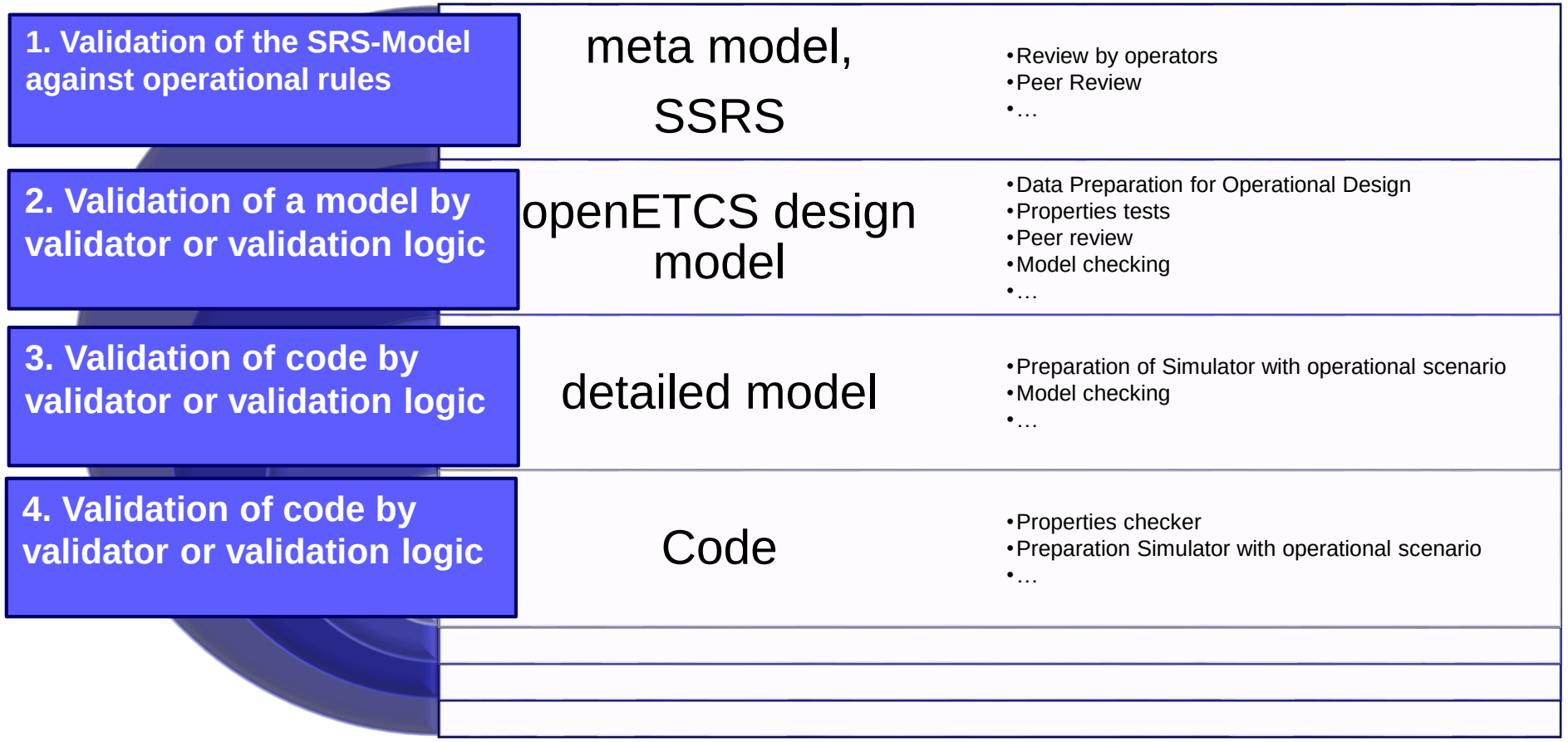
# Verification and Validation Inside openETCS



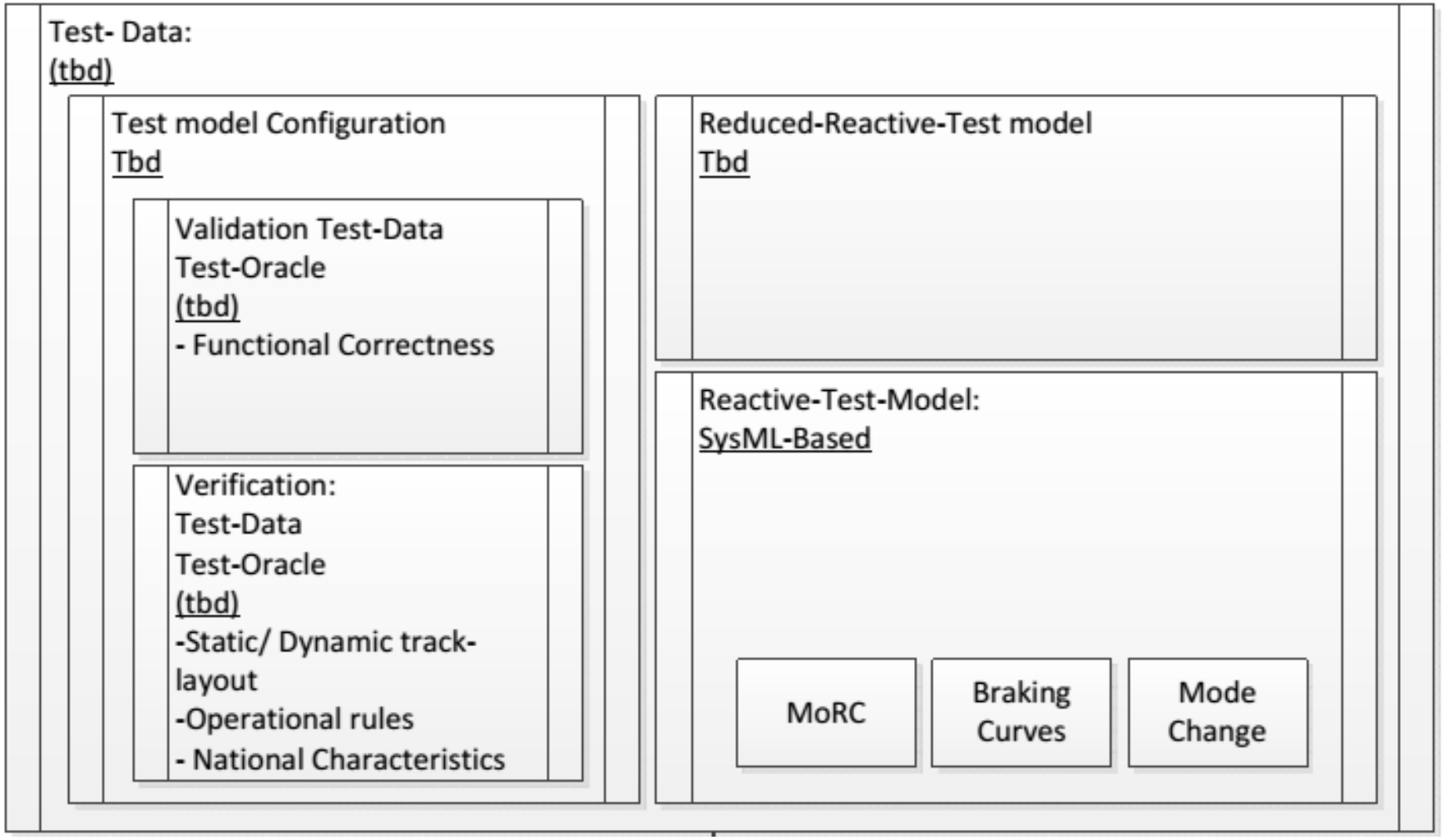
# Verification Activities



# Validation Activities



# Test Model Configuration



# Where to contribute inside validation

## How verification will be triggered

- Design artifact owner shall trigger needed verification
- Check if artifact confirms to **Artifacts Acceptance Criteria**
- Check if there is already a verification activity enlisted in the **WP4 Issue Tracker** (If there is already an issue documenting the verificatoin activities, please add your verification request to the existing issue. In the case no issue exists on this topic, go ahead and create a new issue.)

# Confirnity from Verification Object

The request should contain the following information:

1. *Verification Object*: Exactly which file(s) should be verified. Here a link with a hash should be provided.
2. *Verification Goal*: Please describe the goal of the verification. One classic example could be **Conformity** or **Coverage**.
3. *Design Phase*: Please enter a reference of the design phase your artifact complies to. This yould be a reference to the Verificatoin and Validation Plan or to the Development Process documented within the requirements od openETCS.
4. *Specificatoin reference*: Please give the chapter(s) of the specification your object complies to. One possibility could be: **Subset-026-3.6.1.4** referring to chapter 3.6.1.4 of TSI-CCS Subset-026.

# Indicate Requirements build in test models

## Testmodel Traceability Matrix

On github at https://github.com/openETCS/validation/blob/master/DescriptionOfWork/openETCS_testmodel_scrum_workdistribution.ods

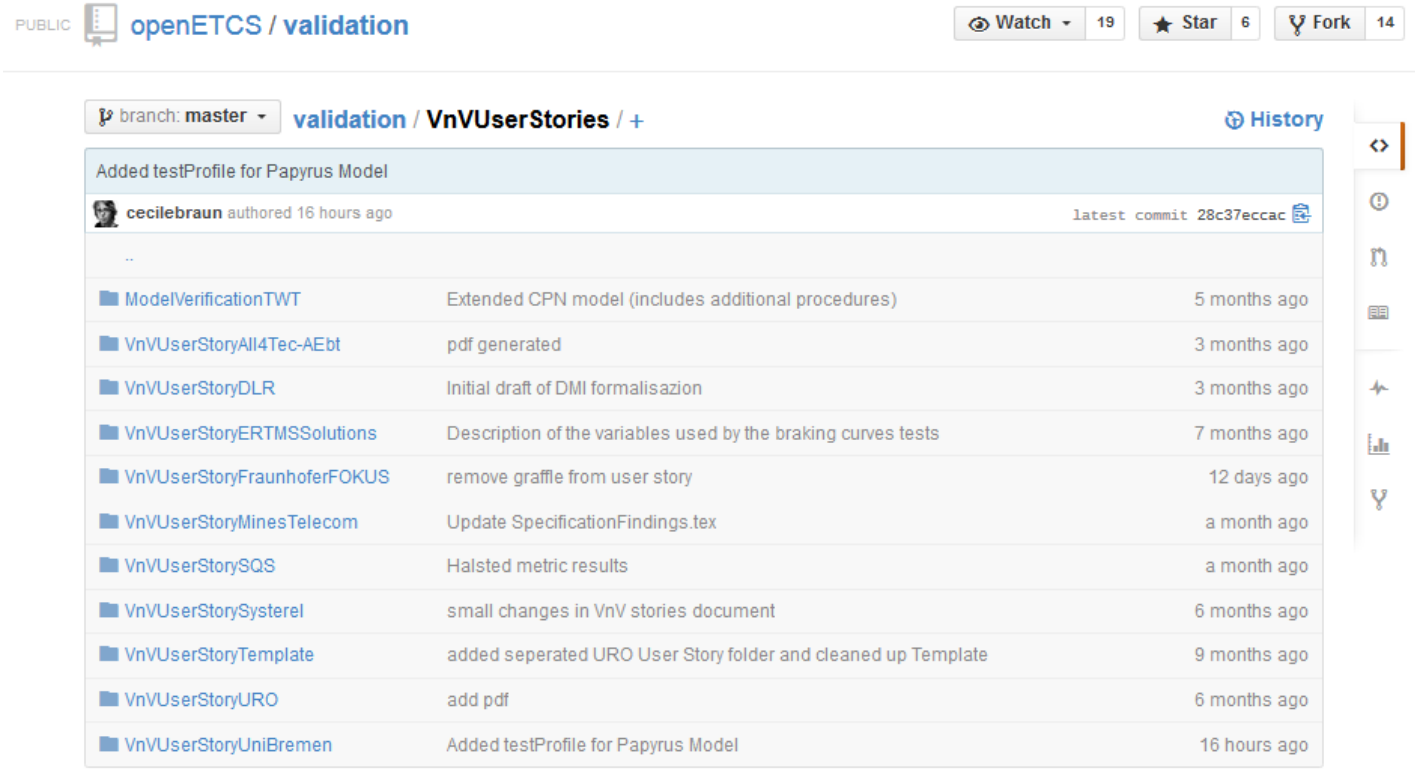
A1 | SRS Parag. 3.3.0

| | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | Informative | | Requirement | | | | openETCS Test model | | | |
| 2 | SRS Parag. 3.3.0 | Definition | Others | ONB | TRK | Optional | testable with openETCS testmod | self-assigned to Parnter | formalization language | transferred to SysML | assessed by partner |
| 3 | 3.1 | | x | | | | | | | | |
| 4 | 3.2 | | x | | | | | | | | |
| 5 | 3.3 | | x | | | | | | | | |
| 6 | 3.3.1 | | x | | | | | | | | |
| 7 | 3.3.1.1 | | x | | | | | | | | |
| 8 | 3.3.1.2 | | x | | | | | | | | |
| 9 | 3.3.1.3 | | x | | | | | | | | |
| 10 | 3.3.1.4 | | x | | | | | | | | |
| 11 | 3.4 | | x | | | | | | | | |
| 12 | 3.4.1 | | x | | | | | | | | |
| 13 | 3.4.1.1 | | | | x | | | | | | |
| 14 | 3.4.1.2 | | x | | | | | | | | |
| 15 | 3.4.1.2 a) | | x | | | | | | | | |
| 16 | 3.4.1.2 b) | | x | | | | | | | | |
| 17 | 3.4.1.2 c) | | x | | | | | | | | |
| 18 | 3.4.1.3 | x | | | | | | | | | |
| 19 | 3.4.2 | | x | | | | | | | | |
| 20 | 3.4.2.1.1 | x | | | | | | | | | |
| 21 | 3.4.2.1.2 | x | | | | | | | | | |
| 22 | 3.4.2.2 | | x | | | | | | | | |
| 23 | 3.4.2.2.1 | x | | | | | | | | | |
| 24 | 3.4.2.2.2 | x | | | | | | | | | |
| 25 | 3.4.2.2.2 Figure 1 | | x | | | | | | | | |
| 26 | 3.4.2.3 | | x | | | | | | | | |
| 27 | 3.4.2.3.1 | x | | | | | | | | | |
| 28 | 3.4.2.3.1 Figure 1a | | x | | | | | | | | |
| 29 | 3.4.2.3.2 | | x | | | | | | | | |

... | Chapter2_SRS330 | Chapter3_SRS330 | Chapter4_SRS330 | Chapter5_SRS330 | Chapter6_SRS330 | Chapter7_SRS330

# Where to contribute inside validation

- Inside this workstream the contributions are collected inside user stories. You can find the path to individual user stories here.



- **Thank you for your attention!**