

## T7.2: Secondary toolchain

WP7 Review meeting Task 7.2

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# Outline

- 1 T7.2 Presentation
- 2 T7.2 Items and artifacts management
- 3 T7.2 Means and tools for VnV
- 4 T7.2 Support of safety activities
- 5 T7.2 Model transformation and code generation
- 6 T7.2 Conclusion

# Aim

Identify the means and tools to complete the primary toolchain to provide SIL4 software

- to support VnV
- to support safety analysis
- to support management of items and artifacts
- to support model transformation or code generation

⇒ **Proposal** : Benchmark of means and tools as for T7.1

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# Main steps

- Inputs: WP2 deliverables
  - States of art: D2.1 and D2.2 (and partly D2.4)
  - OpenETCS requirements: D2.6-9
  - Primary toolchain: D7.1
  - End users requirements (WP3, WP4, SSRS,..)
- Outputs :
  - Set of models: O7.1.1, O7.1.5
  - Criteria template: O7.2.1
  - Selection: O7.2.2, O7.2.3, O7.2.4, O7.2.5, O7.2.6, O7.2.7, O7.2.8
  - **Decision : D7.2**
- Key dates for T7.2
  - April 2013: Start with benchmark candidates
  - September 2013: First Criteria templates and Telco meetings
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- Common key criteria
  - Open Source approaches
  - Complementarity with primary toolchain
  - Integration to the primary toolchain
  - Qualification according EN50128 criteria
  - ...
- Criteria for each categories
- Heterogeneous tools for heterogeneous activities

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Means and tools to support the management of:

- Artifacts (version, multi-users,...)
- Data: common dictionary
- Function: common dictionnary and architecture
- Requirements: definition, traceability and allocation

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# Candidates

## Heterogeneous propositions:

- Directly linked to primary toolchain proposals: SCADE
- Linked to Eclipse: ProR, EMF client platform, EMF Store, Rodin
- Others: Matelo, GSN
- Challengers: Ecore model, UML library, ReqCycle

# Selection

**How to proceed for the selection ?**

# Aim

Means and tools to support VnV activities:

- Step and Phases (SSRS, model, code,...)
- Kind of properties (functional, performance, safety,...)
- Methods and tools (static verification, testing, formal verification,...)

Heterogeneous list of activities and solutions

⇒ **Difficulties to settle the criteria**

Active collaboration with WP4 partners:

- Active discussions on issue tracker (#157, #174)
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## Heterogeneous propositions:

- Directly linked to primary toolchain proposals: SCADE, Classical B
- Model-based testing: System C, Matelo, RT-Tester, CPN Tools
- Model-Checking: UPPAAL, Fiacre, Tina, Spin
- Simulation: Diversity
- Formal Proof: Frama-C, Rodin

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Means and tools to support Safety activities:

- PHA, SHA,...
- Safety Requirement Specification and Allocation
- Safety Requirement VnV
- Safety Case

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⇒ **Criteria based on WP4 T4 early document**

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# Candidates

Heterogeneous propositions:

- Safety analysis: Safety Architect
- Requirement specification and safety Case: Goal Structuring Notation
- Formal Proof and Requirement allocation: CPN tools, Event-B and Rodin



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Means and tools to support model transformation and code generation:

- Depends on D7.1 decision
- Depends on how to use SysML
- Depends on model representation (EMF, textual, graphical,...)
- Traceability is a major items
- Reverse transformation ?

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- Linked to EMF: Acceleo, ATL, QVTO, Xtend

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## T7.2 Proposition

- Six months for the evaluation
- Needs appear "on the fly"
- Few participation to the activities
- Few resources available

Final version of D7.2 for the 30th of January, 2014 with conclusion of today meeting

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