Automotive Proposal to contribute to CRYSTAL

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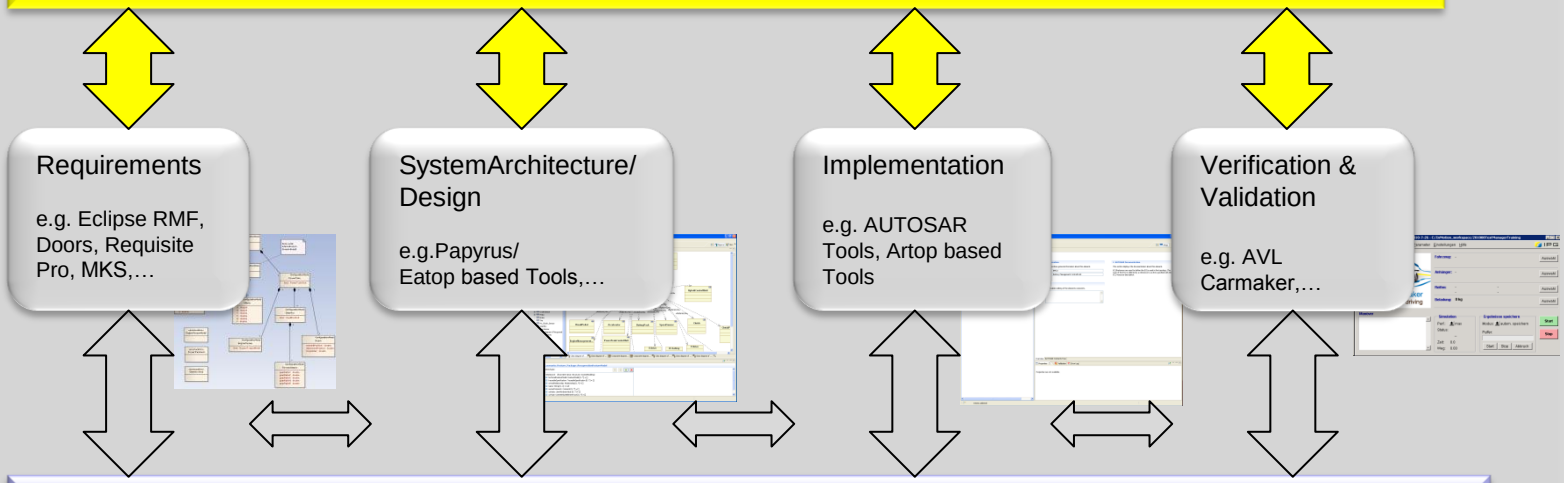
to be aligned with partner1, partner2, and partner3 objectives

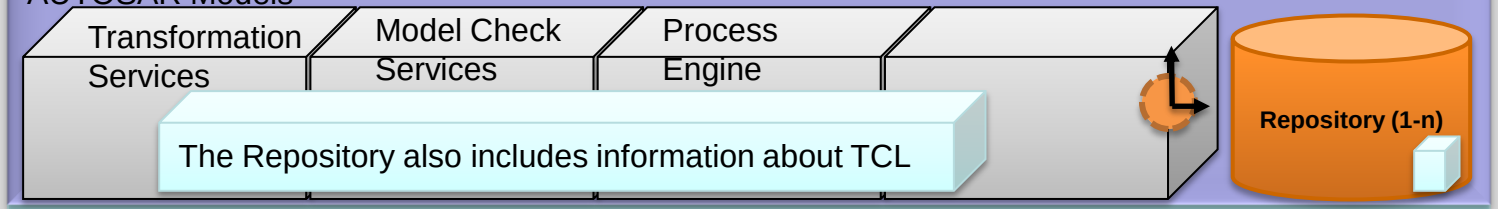
Integrated tool chain (ISO26262, EAST-ADL, AUTOSAR aligned) with traceability and interoperability support

RTP (Seamless Tool chain)

"Tool Classification Method" to determine the Tool Confidence Need (Level) for each used tool.
"Tool Qualification Process" to develop qualifiable Eclipse-based (or other) tools.



Interoperability Standard (OSLC) and traceability required between; CMM, RegIF, EAST-ADL, AUTOSAR Models



Each Tool/Plug-in/Service/Engine needs to be classified / qualified, required by ISO26262 (Tool Classification/Qualification methods and process needed)

UC01 Use Case Name:	Tool Classification Method and Tool Qualification Process
Use Case Description:	

As part of safety critical software development for embedded systems iso26262 requires a tool confidence.
To determine the tool confidence level (TCL) it is necessary to have several information about the tool. This includes the usage of the tool, documentations, known issues, and so on. This Use Case deals with the topic to implement a tool classification method and a tool qualification process for Eclipse-based tools.
Two kinds of tools are used in a safety critical development process. Open source based tools (e.g. Eclipse) and COTS (e.g. Matlab/Simulink) tools. Both of them need to be classified and eventually qualified. The classification/qualification has to be done in each new project (process / tool version). That means that the user/validator of the tool needs Use Cases which allow to do this. The challenge of the classification process is to collect all the required information about the tool. The tool classification and qualification approach supports convenience methods to do this. A validation document accompanies the user/validator during the classification process. Furthermore the classification information for each tool should be tangible and available via an interface to the data-backbone (Seamless Tool Chain). That means the generated information about the tool should be integrated into the RTP. The qualification information is collected model-based way in Eclipse. And should satisfy the tool requirements from a safety standard.

Use case 1:

1. Infrastructure setup
2. Implementation of the qualifiable tool development Process (e.g. MKS, Eclipse Process Composer) based on the ISO26262, DO-330
3. Combination of the TCQK Model with the CMM (references)
4. Model based capturing of requirements (Tool Operational Requirements, Tool Requirements, Low Level Requirements, ...) based on the DO330
5. Linking of the requirements with the Tool Classification
6. Validation of the requirements
7. Model based architecture for the Tool Classification and Qualification Kit (TCQK)
8. Model based design of the TCQK
9. Implementation of the reference TCQK prototype (model-editor)
10. Validation with several Tools from the Seamless Tool Chain by classifying
11. Development of a reference plug-in based on the Tool Qualification Process
12. Automatic Determination of the Tool Confidence Level with the reference TCQK prototype