ITEA 3

Project Profile

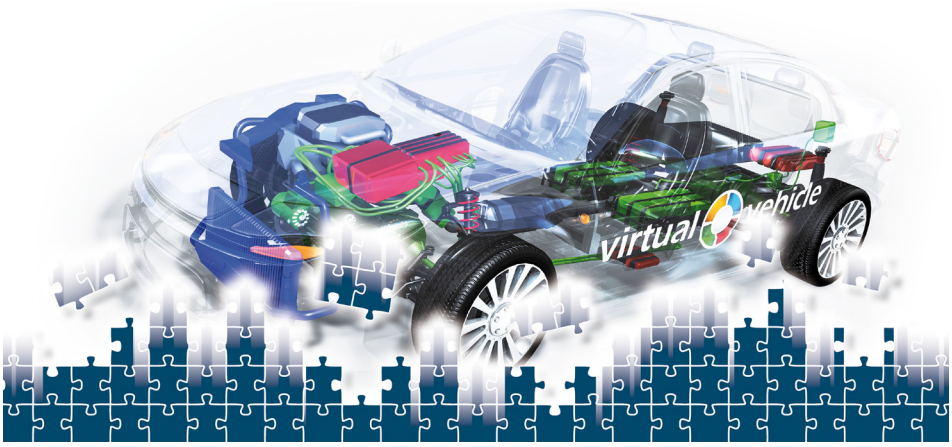
ACOSAR

Advanced Co-Simulation Open System ARchitecture

The ITEA 3 ACOSAR project will enable effective and efficient Real Time (RT)-System integration through a modular co-simulation approach that supports flexible system development to facilitate an efficient system development process and create new business models.

ADDRESSING THE CHALLENGE

With a strong market demand for consistent, seamless (virtual) system development/ system validation, ACOSAR focuses on the specification of a non-proprietary open RT-System interface for sharing relevant information for efficient and safe operation of RT-Systems, e.g. test beds. Creating a communication architecture and comprehensive methodology for the seamless integration of RT-Systems will support existing tool chains, model-based system engineering approaches, methods for the easy adaptation of simulation tools from early development phases to late ones, and the Transfer of Knowledge between Design-, MiL-, SiL- and HiL-phases in system development.



Modular, open system architectures for virtual design to integrated tests with real components

PROPOSED SOLUTIONS

ACOSAR targets the elaboration of a specification for an interoperable Advanced Co-simulation Interface (ACI) for a low-effort, real-time system integration enabling configuration, data exchange and control of RT-Systems in a standardised way. This will allow users to implement key knowledge and enable a consistent development process. The ACI's Functional Framework means that users can implement smart functionalities and efficiently address the crucial problems found in context of cyber-physical systems (CPS). This facilitates the robust, accurate and network-based spatial-temporal development of CPS. In this respect, the development of a topologically distributed system will lead to radically new business models like 'test-bench sharing' or 'real-time simulation cloud' services.

ACOSAR's open system architecture for simulation models and/or real-time systems (e.g. cyber-physical systems), will enable the simultaneous, standardised use of the most appropriate ("best-suited") virtual and/or real subsystems and, therefore, improve product quality and reliability. In turn, complex systems like advanced driver assistance systems (ADAS) can be easily integrated and evaluated in a virtual environment, and give safety a significant boost.

PROJECTED RESULTS AND IMPACT

ACOSAR's main technological result – the Advanced Co-simulation Interface (ACI) – will enable fast interfacing of RT-systems, including an ACI communication layer supporting modular system architectures for application. The main process oriented outcome is the integration of RT-Systems into simulation environments and the systematic reduction of RT-system integration effort. ACOSAR will ensure that the results are standardised – a key goal of the project – and the results made freely available. Not only will this enable SMEs and suppliers from different domains gain access to major industries, on the long run it will also lead to more competition.

14004

ACOSAR

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Project end
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ITEA is the EUREKA Cluster programme supporting innovative, industry-driven, pre-competitive R&D projects in the area of Software-intensive Systems & Services (SiSS). ITEA stimulates projects in an open community of large industry, SMEs, universities, research institutes and user organisations. As ITEA is a EUREKA Cluster, the community is founded in Europe based on the EUREKA principles and is open to participants worldwide.

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