CRYSTAL

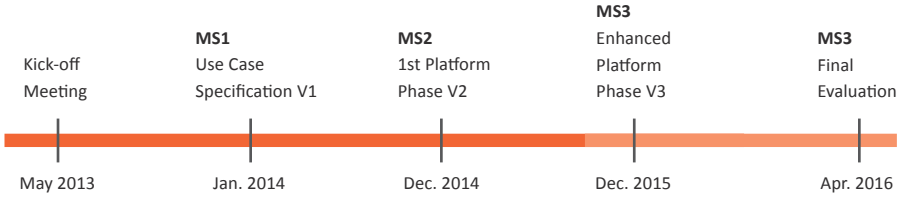
Critical Systems Engineering Acceleration

MOTIVATION AND OBJECTIVES

CRYSTAL fosters Europe's leading edge position in embedded systems engineering, in particular quality and cost effectiveness of safety-critical embedded systems and architecture platforms. Major tool providers and OEMs cooperate to establish and push forward a Reference Technology Platform focused on an Interoperability Specification (IOS) as an open European standard for the development of safety-critical embedded systems. CRYSTAL gathers and connects the main European players regarding embedded systems engineering in the areas of aerospace (onboard and ground systems), automotive (onboard systems and parts of the roadside infrastructure), rail (onboard and interlocking systems), and healthcare (patient and hospital staff safety, new medical procedures and medical apparatus) and thereby establishes a critical mass of European technology providers to achieve both societal impact regarding future safer transport and healthcare as well as technological advances in terms of cross-domain platform-based reusability.

PROJECT PLAN, MILESTONES AND DELIVERABLES

The figure below shows the main deliverables of the project.



TECHNICAL APPROACH

The strategy for CRYSTAL technical innovation is based on four pillars:

1. Apply engineering methods on industrially relevant use cases and increase the maturity of existing concepts developed in previous projects.
2. Provide technical innovations ("technology bricks") with high maturity to fill gaps identified in the use cases.
3. Contribute to the Cooperative Reference Technology Platform and push the Interoperability Specification towards Standardisation.
4. Support SME integration into the embedded systems engineering ecosystem. Within and across the industrial domains Aerospace, Automotive, Healthcare and Rail, CRYSTAL will cover the entire software product life cycle and support product line development towards ready-for-use industrial tool chains.

ACHIEVEMENTS

The aims of CRYSTAL are ambitious and the expected results will have significant economical and societal impacts. OEMs will benefit from better supplier collaboration and reduced system design costs due to the improved and smart integration of system specification and design, safety analysis, and system exploration tools. In addition, the CRYSTAL IOS will increase the flexibility for all stakeholders and has the potential to deeply impact the market on a global level. OEMs can easily combine tools from different vendors, and tool vendors will be able to find new market opportunities in an open and extensible environment.

Results by M24:

- Definition of real-world industrial use cases
- Interoperability specification (IOS) V2
- Definition of engineering methods relying on the IOS
- Prototype implementations of IOS adaptors for a significant set of engineering tools
- First version of the platform builder which assists system integrators to compose integrated system engineering environments
- Prototypes of integrated system engineering environments in the 4 domains (aerospace, automotive, health care & rail)

Budget	82 M€	**Funding**	36 M€
Duration	36 months	**Start**	May 2013
DG	ARTEMIS Joint Undertaking	**Contract n°**	2012-332830
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