prostep IVIP

Recommendation

prostep ivip SmartSE Recommendation 2022 PSI 11

Smart Systems Engineering

Collaborative Simulation-Based Engineering

Version 3.0

Abstract

Driven by the increasing complexity of products, collaborative development networks, new technologies and legal requirements, Systems Engineering is nowadays one of the standard methodologies for product development. Reduced hardware testing and shortening of development times require a significant boost in digital product development. With the advancing digital transformation, verification and validation with simulations are getting more and more important. For exchange and co-simulation of simulation models, a tool independent standard, the Functional Mock-up Interface (FMI) was developed. FMI is the unique technical, standardized interface definition for the exchange of simulation models and the basis for model-based, collaborative Systems Engineering. The Smart Systems Engineering (SmartSE) project within the prostep ivip Association claims to foster the industrial use of FMI by definition of use cases and a process description to ensure a smooth process integration between the engineering disciplines and the collaborating partners. This version of the prostep ivip PSI 11 Recommendation substitutes version 2 and extends the documentation with results of the project years 2019 – 2021. New topics and results included in version 3 of this PSI 11 Recommendation are (1) enablers for simulation-based decision making, (2) usage experiences and promotion of FMI 3.0 standard, (3) industrial requirements for the SSP format, (4) modelling and simulation standards for V-ECUS, and (5) new requirements from the perspective of autonomous systems.

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