ITEA Award of Excellence 2021 for VMAP-project

16 September 2021

The VMAP project , an international collaborative ITEA project led by Fraunhofer SCAI, has created a vendor-neutral standard for CAE data storage and transfer to enhance interoperability in virtual engineering workflows, which has already been adopted by a lot of tool providers. The VMAP Standard Community will be established to further disseminate the VMAP Standard and its development. Thanks to these outstanding outcomes, VMAP received the ITEA Award of Excellence for Standardisation on September 15 .

A new Interface Standard for Integrated Virtual Material Modelling in Manufacturing
Currently, the exchange of local material information in a Computer-aided engineering (CAE) software workflow is not standardized and raises a lot of manual and case-by-case implementation efforts and costs. For a holistic design of manufacturing processes and product functionality, the knowledge of the detailed and local material behaviour is required. The project VMAP therefore aimed to gain a common understanding and interoperable definitions for virtual material models in CAE and to establish an open and vendor-neutral 'Material Data Exchange Interface Standard' community which will carry on the standardisation efforts into the future. Within the VMAP project the partners worked on different TRL levels:

- Up to 7 at industry to start a process – solving interoperability in Industry 4.0 – for the Industrial partners on standardization;
- On low TRL 3-4 at the university level to create new knowledge by developing the Virtual Lab.

RUG partners
Professors Jan Post (honorary professor Digital Fabrication at ENTEG, Phillips Drachten) and Antonis Vakis (professor Mechanics and Tribology of Engineering Systems at ENTEG) were partners in the VMAP project. Together with postdoctoral fellow Soheil Solhjoo and in collaboration with industrial partners including Phillips, they created a virtual lab for performing mechanical tests on sheet metals' digital twins. It works in Linux, using MATLAB and DAMASK, a crystal plasticity solver within a finite-strain continuum mechanical framework, and its output files are ready to use in FEM solvers. The framework behind this research was published in Advances in Computer Software .

About ITEA
ITEA is the Eureka R&D&I Cluster for software innovation, enabling a large international community of large industry, SMEs, start-ups, academia and customer organisations, to collaborate in funded projects that turn innovative ideas into new businesses, jobs, economic growth and benefits for society. It is industry-driven and covers a wide range of business opportunities facilitated by digitisation like smart mobility, healthcare, smart cities and energy, manufacturing, engineering and safety & security. ITEA pushes important technology fields like artificial intelligence, big data, simulation and high-performance computing into concrete business applications. ITEA's four most outstanding software innovation projects completed in 2020-2021 have been awarded.

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