



VMAP

Defining Standards for Material Data Transfer in Manufacturing Virtual Simulation

The ITEA VMAP project aims to gain a common understanding of and interoperable definitions for virtual material modelling in Computer Aided Engineering (CAE). Using industrial use cases from major material domains and representative manufacturing processes, new concepts will be created for a universal material exchange interface for use in virtual engineering workflows.

The Challenge

The lack of software standards in virtual engineering workflows and incompatible interfaces for the transfer of virtual material information not only cause additional costs and complex manual adaptations but also lead to inflexible IT solutions, loss of information and significant delays in the overall design process. The standardization of material interfaces in CAE is therefore vital for all industry segments where material behaviour is central to product and process design.

The Proposed Solution

The work within the VMAP project will result in an open software interface standard that will be implemented in a number of CAE software tools.

The advantages of integrated material handling will be demonstrated by a number of industrial user cases from different material categories, manufacturing domains and industry segments using many different workflows and commercial softwares.

Projected Results and Impact

Interoperable virtual material models and a seamless transfer of material data history in a CAE workflow enables industrial users

to develop and produce better products in a shorter timescale using more efficient manufacturing processes. Interface standards will also help CAE software developers and vendors to achieve further virtual material models that can easily be integrated into holistic design, simulation and optimization workflows. It is considered that this can significantly benefit Europe's future manufacturing market where materials technology is a key factor, especially in the rapidly emerging market of additive manufacturing for metal and plastics.

Interface Standard Community

An important part of the project is to establish an open and vendor-neutral 'Material Data Exchange Interface Standard' community that will provide best-practice guidelines for the community and will ensure that standardisation efforts continue into the future.

Complex workflow? Difficult material data transfer?

Please contact us. During the next few months VMAP will be sending out a simple questionnaire to interested parties in order to gather information on as many simulation processes, and the material data transfer, as possible. This will enable the standardization process to be more open and far-reaching and encourage the participation of more software vendors.

CFRP for
Lightweight Vehicles

Moulding Processes
and Impact Behaviour

Extrusion blow
moulding of
packagings and large
containers

Moulding Processes
and Fatigue / Strength



Hybrid Modeling of
Consumer Products

Additive
Manufacturing
in Plastic

Composites in
AeroSpace

Project Partners



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Netherlands

- TU Delft
Delft University of Technology
- DevControl
- In Summa
- KE-works
- MSC Software
- M2I materials innovation institute
- PHILIPS
- reden
research development nederland
- university of groningen

Canada

- CONVERGENT
MANUFACTURING TECHNOLOGIES

Germany

- Audi
- AF-COLOR
- DYNA MORE
- Dr. Reinhold Hagen Stiftung
- EDAG
- esi
get it right®
- Fraunhofer SCAI
- Hagen GmbH Engineering
- KIT
Karlsruhe Institute of Technology
- KAUTEX
MASCHINENBAU
- NAFEMS
- RIKUTEC
GERMANY
RIKUTEC Group
- BOSCH
Invented for life
- simcon
SUPPLYING SOLUTIONS
- intTech

Belgium

- Stream
ENGINEERING

Switzerland

- BETA
SIMULATION SOLUTIONS
- Sintratec

Austria

- 4Q
ENGINEERING
- Wittmann Battenfeld

■ **Project reference:**
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■ **Project term:**
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■ **Project budget:**
16000k€ for almost 123 person-years effort

■ **Project leader:**
Fraunhofer SCAI based in Sankt Augustin, Germany

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■ **Project website:**
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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.

