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Additional Resources

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Short Description/ Transmitted Information	<ul style="list-style-type: none"> • VMAP is a vendor neutral standard for CAE data-storage to enhance interoperability in virtual engineering workflows • VMAP specification is freely (open & cost-free) available, • VMAP development kit will be available under a Creative Commons Attribution-Share-Alike license (details currently under preparation, release planned early May 2020) • VMAP Standardization Community will be organized by NAFEMS association, details to be defined
Application Scope	<ul style="list-style-type: none"> • Describe models and results from 3D simulation tools (FEA, FVM, mesh-less models, etc.) • Initial use for detailed manufacturing and product/component simulations
Maturity	<ul style="list-style-type: none"> • Industrialization (potentially standardization)
Goals	<ul style="list-style-type: none"> • Flexibilization of integrated simulation tool-chains, by: • Standardized exchange format for models and result properties • Geometry and discretization • Coordinate and unit systems • Result and state variables • Parameters for (material) models • Meta and user data • Supplied IO routines for easy implementation

Penetration	<ul style="list-style-type: none"> Industrial use-cases within VMAP project (https://www.vmap.eu.com/use-cases-2/) Further use-cases from industrial partners in preparation Growing tools support (https://www.vmap.eu.com/tools/), such as MSC, ESI, Dynamore and many more Ongoing technical discussions with further software vendors (Autodesk, Ansys, 3DS, Transvalor, MagmaSoft, SigmaSoft,, etc) The overall assesment is: <ul style="list-style-type: none"> Individual domains
Visibility	<ul style="list-style-type: none"> Approx 50%
Promoting Bodies	<ul style="list-style-type: none"> NAFEMS, ITEA, VMAP Community (> 50 partner, member fee planned, similar to FMI)
Type	<ul style="list-style-type: none"> Own VMAP Standard rules, based on Modelica (FMI)
IT Standard Classification	<ul style="list-style-type: none"> Interoperability Standard Integration Standard
Data Format	<ul style="list-style-type: none"> HDF5 (https://www.hdfgroup.org/solutions/hdf5/) Binary Format
Relations to other standards	<ul style="list-style-type: none"> STEP AP209 & 242
Overlap with other standards	<ul style="list-style-type: none"> None or minimal
Available accompanying documentation (Software vendors)	<ul style="list-style-type: none"> https://www.vmap.eu.com/ Software vendors will prepare own documentation
Available accompanying documentation (Industry Users)	<ul style="list-style-type: none"> Under preparation <ul style="list-style-type: none"> Few test Cases, Guidelines
Available accompanying documentation (Management)	<ul style="list-style-type: none"> “Modelling & Simulation A vision of the state of play” https://itea3.org/magazine/35/march-2020/modelling-simulation.html

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- The only standard for exchange data in 3D CAE workflows

1 Remark:

- VMAP is based on the ITEA VMAP project –
- See also
 - “Modelling & Simulation A vision of the state of play”
 - <https://itea3.org/magazine/35/march-2020/modelling-simulation.html>

2 Reached goals:

- Standard released and in use within a growing user and implementor community

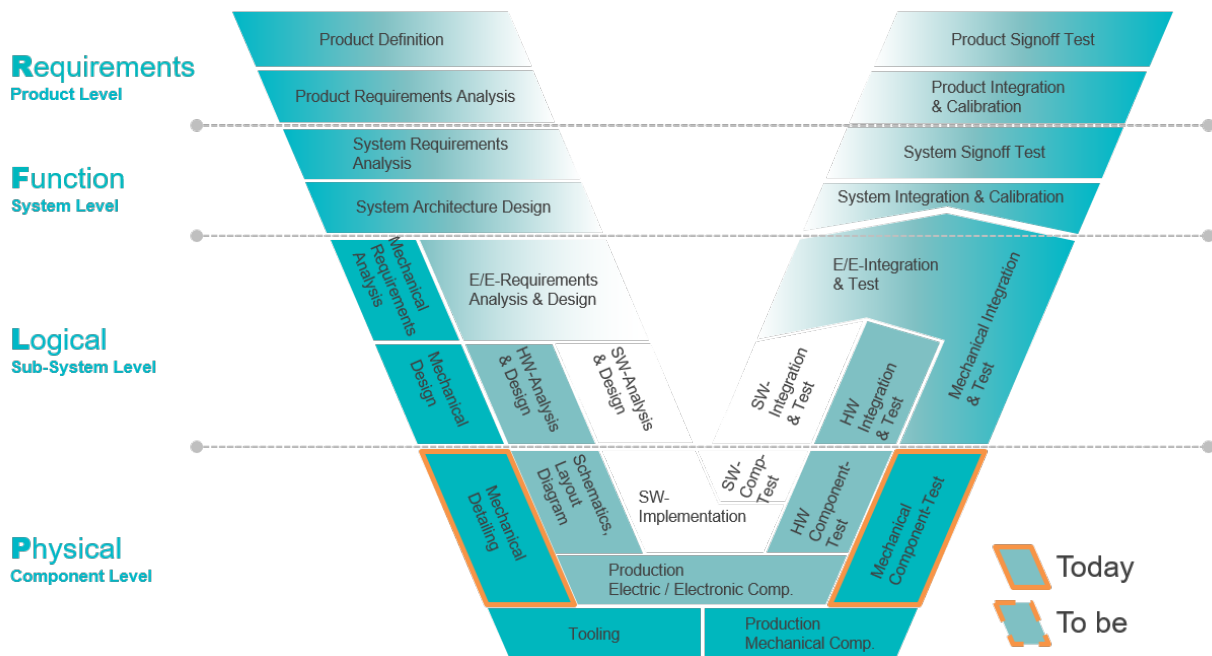
3 Further goals

- Addressing new use-cases within Multi-Scale Material simulation and Manufacturing Modelling
 - A follow-up project called “VMAP analytics - Smart Analytics for Multi-Scale Material and Manufacturing Modelling” has received ITEA label and will probably start in November 2020 (<https://itea3.org/project/vmap-analytics.html>)
- Setting a global de-facto standard

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Positioning of VMAP in V-Model



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- The standard allows the community to utilize multi-disciplinary simulation processes based on standard data exchange between the dedicated simulation domains;
- This capability simplifies the usage and by this widens the availability of multi-disciplinary simulation to the MBSE.

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- Extend the usage within more simulation tools;
- Expand the usage over more simulation disciplines;
- Simplify the usage by providing libraries for a more simple migration from specific and individual interfaces to VMAP.

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Datei	Geändert
 image2020-7-6_16-40-10.png ¹	Nov. 25, 2020 by Peter Tabbert ²
 Positioning of VMAP in V-Model.png ³	gestern um 9:50 vorm. by Peter Tabbert ⁴
 Fact Sheet_ Interface Standard for Integrated Virtual Material Modelling in Manufacturing Industry (VMAP).pdf ⁵	vor weniger als einer Minute by Peter Tabbert ⁶

1 https://intranet.prostep.org/download/attachments/22806894/image2020-7-6_16-40-10.png?api=v2

2 <https://intranet.prostep.org/display/~petertabbert>

3 <https://intranet.prostep.org/download/attachments/22806894/Positioning%20of%20VMAP%20in%20V-Model.png?api=v2>

4 <https://intranet.prostep.org/display/~petertabbert>

5 <https://intranet.prostep.org/download/attachments/22806894/>

Fact%20Sheet_%20Interface%20Standard%20for%20Integrated%20Virtual%20Material%20Modelling%20in%20Manufacturing%20Industry%20%28VMAP%29.pdf?api=v2

6 <https://intranet.prostep.org/display/~petertabbert>