

[General](#) [Details](#) [Positioning in V-Model](#) [Relevance and Benefit for MBSE](#) [Risks and Impediments](#)

Additional Resources

Editor	Dirk Denger
Additional experts	
Short Description/ Transmitted Information	<ul style="list-style-type: none"> • Standard for model-based Enterprise Architecture • Provides a graphical, descriptive, semi-formal modeling language and an architecture framework • Implemented as an extension of SysML
Application Scope	<ul style="list-style-type: none"> • Focus on Enterprise Architecture (i.e. Systems of Systems) rather than on specific systems • Based on existing standards from military, but generic and applicable to other industries
Maturity	<ul style="list-style-type: none"> • Assessment of Potential
Goals	<ul style="list-style-type: none"> • Bring the benefits of the model-based approach (traceability etc.) to Enterprise Architecture • Provide a model-based Enterprise Architecture standard for industries other than military as well <ul style="list-style-type: none"> • Support the analysis and development of complex Systems of Systems • Describe strategies, goals, missions and the required resources • No focus on specific systems (technical implementation etc.)
Penetration	<ul style="list-style-type: none"> • Individual expert teams
Visibility	<ul style="list-style-type: none"> • Approx. 10%
Promoting Bodies	<ul style="list-style-type: none"> • OMG • INCOSE
Type	<ul style="list-style-type: none"> • OMG Standard
IT Standard Classification	<ul style="list-style-type: none"> • Modeling Standard
Data Format	<ul style="list-style-type: none"> • Graphical modeling language

Relations to other standards	<ul style="list-style-type: none"> • Extension of SysML
Overlap with other standards	<ul style="list-style-type: none"> • UAF is based on existing Enterprise Architecture frameworks from military, e.g. DoDAF (US Department of Defense Architecture Framework), MODAF (UK Ministry of Defense), NAF (NATO) • UAF wants to unify these frameworks
Available accompanying documentation (Software vendors)	<ul style="list-style-type: none"> • Slides sets (and some Youtube videos) from OMG and different software vendors freely available online • These slide sets / videos try to introduce UAF and explain what it is, rather than talking about how to use it • Documentation shipped with authoring tools
Available accompanying documentation (Industry Users)	<ul style="list-style-type: none"> • None so far
Available accompanying documentation (Management)	<ul style="list-style-type: none"> • None so far

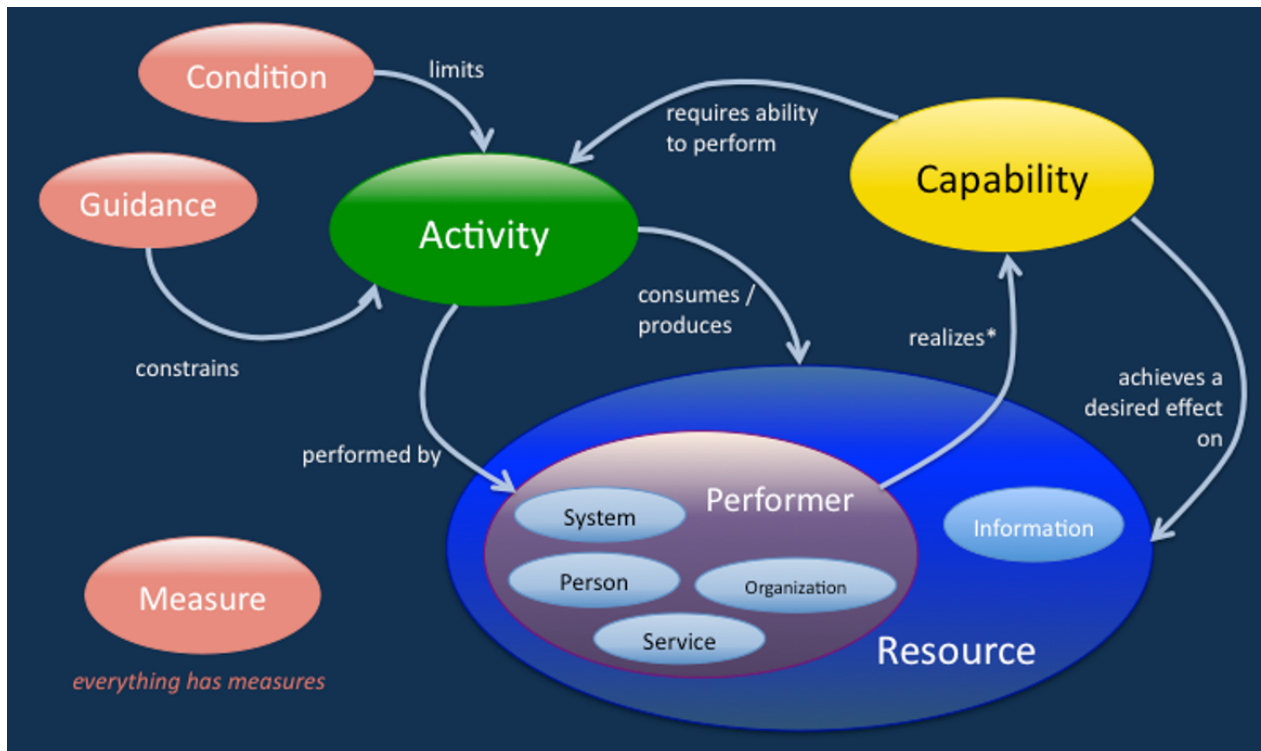
General [Details](#) Positioning in V-Model Relevance and Benefit for MBSE Risks and Impediments

Additional Resources

UAF provides a modeling language and an architecture framework

Modeling language:

- Defines entities (Capabilities, Activities, Resources, Measures etc.) and relations that make up an Enterprise architecture
- UAF is implemented as a SysML extension
 - Looks and feels very much like SysML
 - Integration of UAF (SoS model) and SysML (system model) possible
 - UAF is integrated in current releases of all major SysML authoring tools



Architecture framework:

- UAF provides a structure (the UAF Grid) to organize the Enterprise Architecture model into views
- The UAF Grid breaks down an Enterprise Architecture into different domains / layers (rows, e.g. Strategy, Services, Security)
- Each domain / layer can be described by different model kinds (columns, e.g. Structure, Behavior, Parametrics)

Standard means of expression – Representational Formats (Model Kinds)

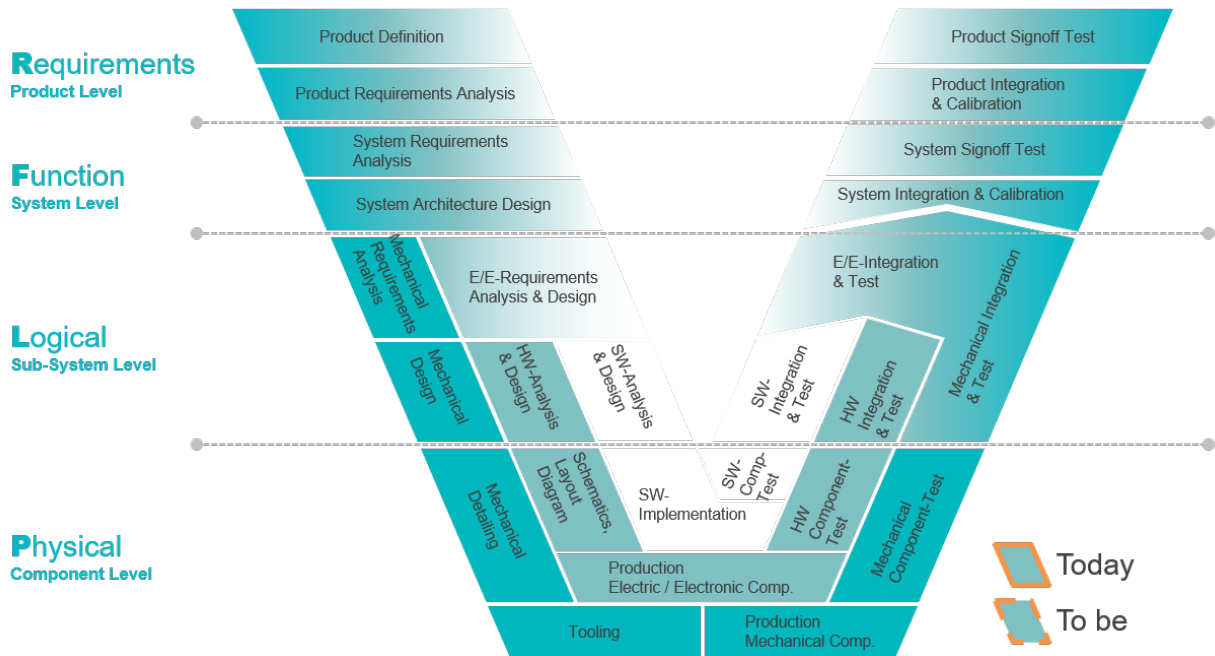
	Taxonomy	Structure & Connectivity	Behavior	Information	Parameters	Constraints	Roadmap	Traceability	
Different Domains (Aspects)	Strategic	Understand enterprise objectives, defining and deploying capabilities							Traceability across all levels
	Operational	Understand the SoS from Operational/ Logical Perspectives							
	Services	Identify Services to abstract behaviour and capabilities							
	Personnel & Resources	Understand constituent Systems of Systems and relationships personnel/organizations							
	Security	Cyber Security Analysis							
	Projects	Understand project development milestones							
	Standards	Standards compliance							
	Requirements								

[General](#)
[Details](#)
[Positioning in V-Model](#)
[Relevance and Benefit for MBSE](#)
[Risks and Impediments](#)

Additional Resources

- UAF does not focus on the development of specific systems, e.g. mechanical or E/E design or integration are not part of UAF
- Positioning in the SSB V model needs to be discussed

Positioning of UAF in V-Model



General Details Positioning in V-Model [Relevance and Benefit for MBSE](#) Risks and Impediments

Additional Resources

Little adoption of UAF yet → currently there's simply a vision for the relevance and benefits of UAF in Collaborative Systems Engineering:

- Vision based on analogy between military and automotive
- UAF's origins: military domain
 - Military needs to ensure that Systems of Systems (consisting of personnel, aircraft, marine etc.) collaboratively accomplish a mission
 - Enterprise Architecture models provide a specification and communication platform to manage information and complexity
 - This platform supports military in creating and managing Systems of Systems (procurement, development, maintenance etc.)
- Automotive domain has the same challenge: Develop and manage Systems of Systems
 - How to ensure different systems (manufacturer, maintenance, infrastructure etc.) collaboratively accomplish the mission Personal Mobility?
 - Enterprise Architecture / UAF can support development & execution of new strategies / business models
- Model-based & Standardized from head to toe:
 - UAF could provide the highest-level building block for an integrated chain of standards
 - System of System architecture (UAF) ↔ Processes (BPMN) ↔ System architecture (SysML) ↔ Implementation (DSL, e.g. UML)





General Details Positioning in V-Model Relevance and Benefit for MBSE [Risks and Impediments](#)

Additional Resources

- UAF is a new standard (version 1.0 released in 11/2017) with low maturity, little penetration and low visibility especially in non-military domains
- UAF itself is complex
 - Statement from INCOSE: UAF has a long and shallow learning curve → expect slow adoption
- Little real-world experience / best practices / documentation available that could help with adoption
- Risk and impediments of SysML also apply to UAF

[General](#)
 [Details](#)
 [Positioning in V-Model](#)
 [Relevance and Benefit for MBSE](#)
 [Risks and Impediments](#)

Additional Resources

Datei	Geändert
 DoDAF_DataModel.PNG ¹	Nov. 24, 2020 by Peter Tabbert ²
 OMG_UAF_Grid.PNG ³	Nov. 24, 2020 by Peter Tabbert ⁴
 Positioning of UAF in V-Model.png ⁵	gestern um 9:40 vorm. by Peter Tabbert ⁶
 Fact Sheet_ Unified Architecture Framework (UAF).pdf ⁷	vor weniger als einer Minute by Peter Tabbert ⁸

1 https://intranet.prostep.org/download/attachments/22806744/DoDAF_DataModel.PNG?api=v2

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

3 https://intranet.prostep.org/download/attachments/22806744/OMG_UAF_Grid.PNG?api=v2

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

5 <https://intranet.prostep.org/download/attachments/22806744/Positioning%20of%20UAF%20in%20V-Model.png?api=v2>

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

7 <https://intranet.prostep.org/download/attachments/22806744/>

Fact%20Sheet_%20Unified%20Architecture%20Framework%20%28UAF%29.pdf?api=v2

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