

Public SSB Fact Sheet: Automation Modeling Language (AutomationML)

Projects

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Table of Contents

1 Reasons from Industry (example):	6
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[General](#) [Details](#) [Positioning in V-Model](#) [Relevance and Benefit for MBSE](#) [Risks and Impediments](#)

Additional Resources

Short description/ Transmitted information	<ul style="list-style-type: none"> AutomationML is a XML based exchange format to represent engineering information of production systems. It incorporates the three named data formats CAEX (top level format), COLLADA (geometry and kinematics), and PLCopen XML (Logic)
Normative document	<ul style="list-style-type: none"> IEC 62714-1:2018 - IEC-Normen - VDE VERLAG (vde-verlag.de)¹
Version/ Release state	<ul style="list-style-type: none"> 2018
Release date	<ul style="list-style-type: none"> 2018
Application scope	<ul style="list-style-type: none"> Data Exchange for design of production systems covering component and technology development, production systems engineering and commissioning.
Goals	<ul style="list-style-type: none"> lossless data exchange along the production engineering tool chain.
Promoting bodies	<ul style="list-style-type: none"> AutomationML e.V.²
Type	<ul style="list-style-type: none"> IEC 62714
IT Standard classification	<ul style="list-style-type: none"> Interoperability Standard, Integration Standard
Data format	<ul style="list-style-type: none"> XML based
Additional available resources	<ul style="list-style-type: none"> Multiple - see Specifications – AutomationML³
Relevant prostep ivip project groups	<ul style="list-style-type: none"> -

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

Additional Resources

¹ <https://www.vde-verlag.de/iec-normen/225580/iec-62714-1-2018.html#:~:text=IEC%2062714-1%3A2018%20is%20a%20solution%20for%20data%20exchange,data%20exchange%20in%20a%20heterogeneous%20engineering%20tools%20landscape.>

² <https://www.automationml.org/>

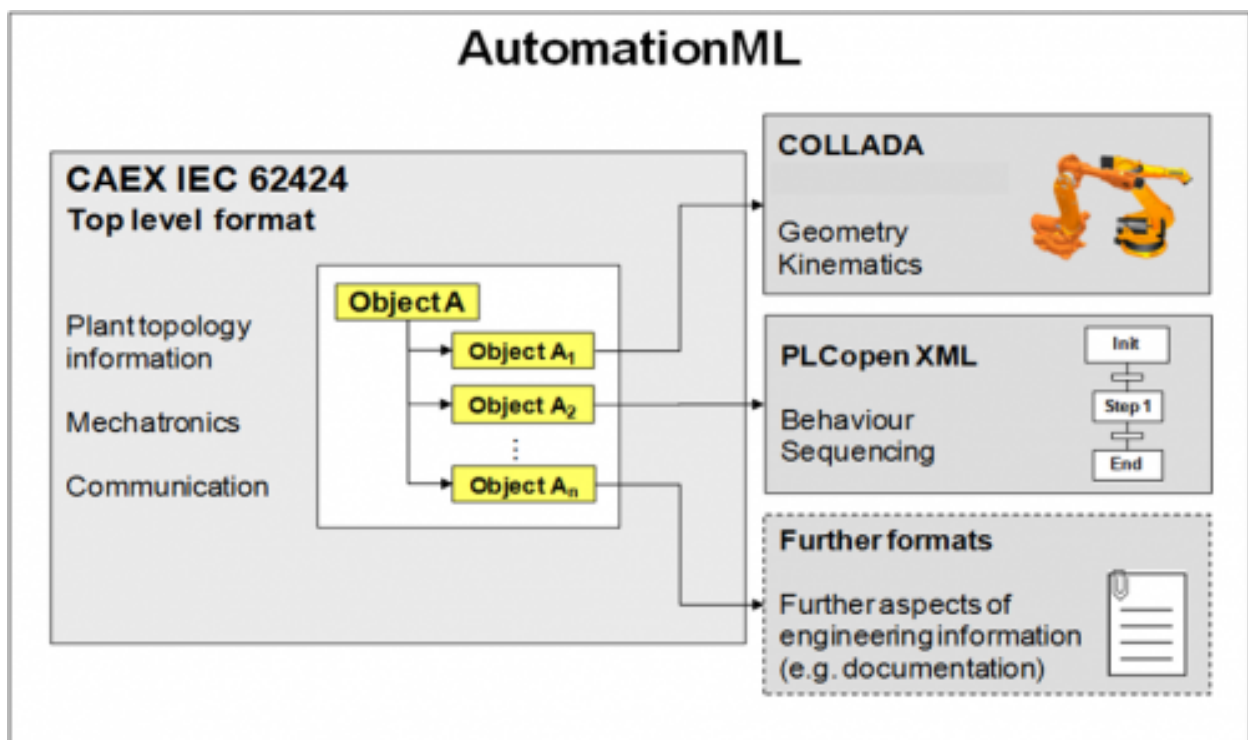
³ <https://www.automationml.org/about-automationml/specifications/>

AutomationML has been developed as a data exchange format applicable for all production system engineering data relevant within the whole life cycle of production systems. Therefore, AutomationML provides concepts for system modelling following object oriented paradigms enabling lossless bilateral data exchange and furthermore the development of systems for centralized data management and engineering artifact libraries.

AutomationML: vendor-independent and industrial area neutral

The data format can be applied for lossless data exchange along various chains of data processing systems (including engineering tools) of all industrial areas and beyond without any limits related to licensing and application costs.

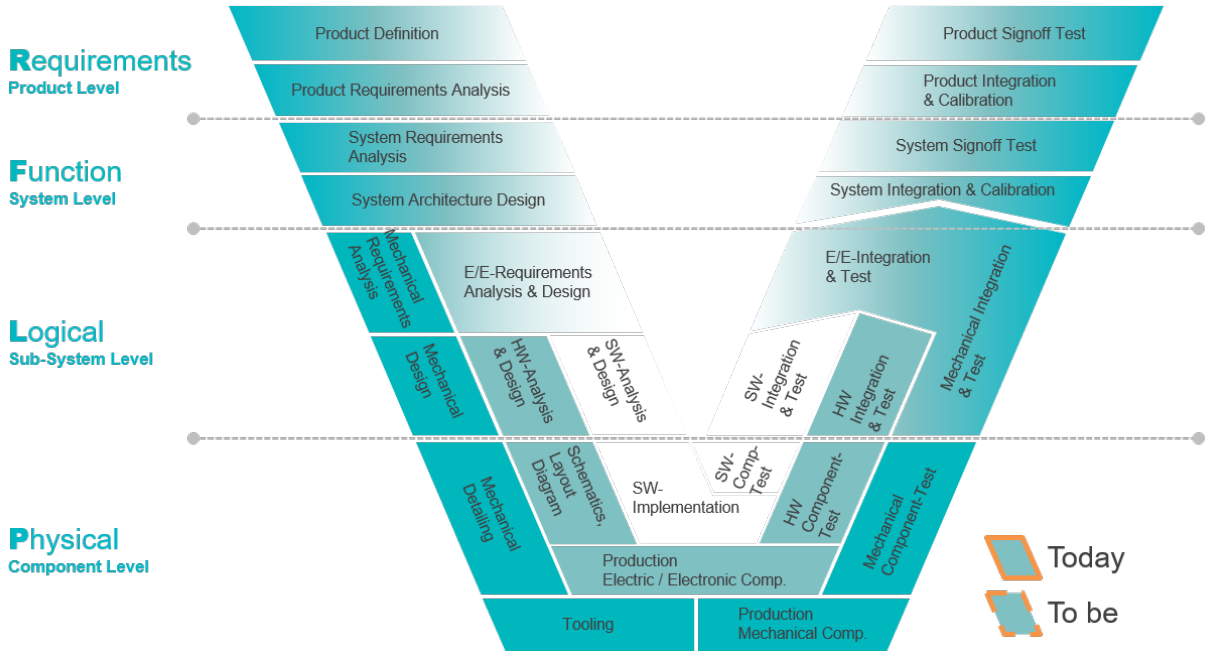
With AutomationML as an open, neutral, XML based, standardised, and free data format the data can be exported and imported by tools correctly and without any loss. Hence, the data quality is improved - also because of the possibility to simulate/test the engineering data earlier within the engineering process - which leads to a time and cost reduction. Another fact is that AutomationML can be used within the entire engineering process because of its structure. All plant engineering specific data can be stored within this format: plant structure, geometry and kinematics, logic descriptions, relations between objects, and network related data (communication, electric ...). The data is kept consistently, semantically unambiguous, and can also be kept in a mechatronically oriented way. Figure 2 shows the base structure of AutomationML. The top level format references externally stored data, e.g. the geometry of a plant module in a COLLADA file. The developed structure enables the extension of the data format as well as its adaption of different applications cases without losing significant and semantical correctness and clearness.



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

Additional Resources

Positioning of AutomationML in V-Model



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

[Additional Resources](#)

1 Reasons from Industry (example):

- The AutomationML data format, developed by AutomationML e.V., standardised in IEC 62714, is an open, neutral, XML-based, and free data exchange format which enables a domain and company spanning transfer of engineering data of production systems in a heterogeneous engineering tool landscape. The goal of AutomationML is to interconnect engineering tools in their different disciplines, e.g. plant planning, mechanical engineering, electrical engineering, process engineering, process control engineering, HMI development, PLC programming, robot programming.

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

[Additional Resources](#)

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

[Additional Resources](#)

Datei	Geändert
Fact Sheet_ Automation Modeling Language (AutomationML).pdf ⁴	März 21, 2023 by Peter Tabbert ⁵
Positioning of AutomationML in V-Model.png ⁶	März 21, 2023 by Peter Tabbert ⁷
1389775771-AML_structure.png ⁸	März 21, 2023 by Peter Tabbert ⁹

4 https://intranet.prostep.org/download/attachments/108855322/Fact%20Sheet_%20Automation%20Modeling%20Language%20%28AutomationML%29.pdf?api=v2

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

6 <https://intranet.prostep.org/download/attachments/108855322/Positioning%20of%20AutomationML%20in%20V-Model.png?api=v2>

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

8 https://intranet.prostep.org/download/attachments/108855322/1389775771-AML_structure.png?api=v2

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