

**AutomationML (AML)** is a data format for exchanging artefacts between various engineering disciplines. The integration of the respective format into the powerful modelling environment of Enterprise Architect (EA) is done by the AML Plugin. This facilitates easy modelling as well as a seamless linking of engineering data among different domains like e.g. Software Engineering, Electrical Engineering or Mechanical Engineering.

## Goal

When engineering automation systems, various tools are used according to the respective engineering domain. Each tool has its specific data representation, while AML is a dedicated format for data exchange. AML is a standard for exchanging heterogeneous engineering data like for example a production system's topology or data from electrical engineering as well as mechanical engineering. Thus, data describing a system's geometry, kinematics as well as behaviour and control can be exchanged seamlessly.

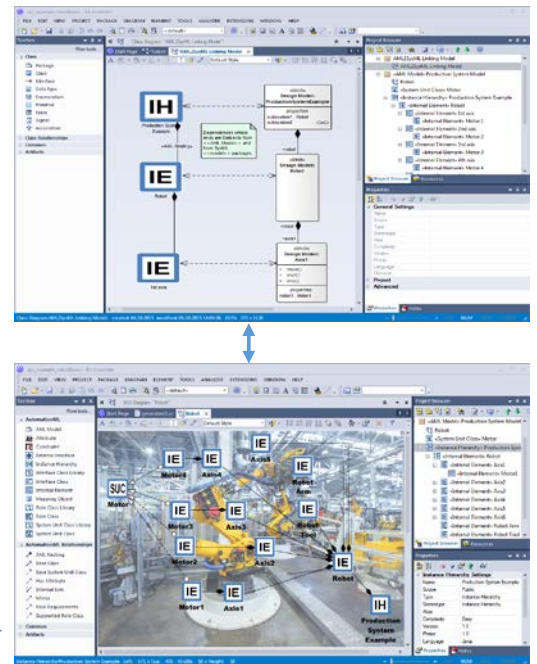
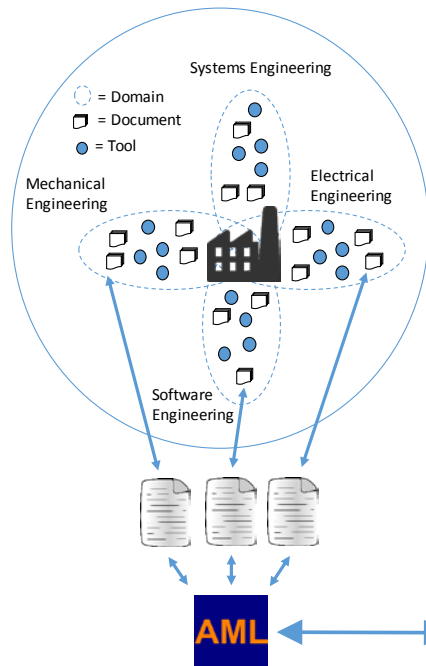
By integrating AML in EA it is possible to import data of various domain specific tools in EA for processing, enrichment, alignment and export. In doing so, interdisciplinary modelling techniques can be connected, like UML or SysML models with the system-engineering data exchanged by AML.

## Implementation

The AML extension for EA is a plugin, which is easily installed into EA. It enables importing and exporting of AML models. Any kind of engineering data can be exchanged between tools supporting AML.

A graphic editor facilitates the intuitive editing of models. Additionally it is possible to validate the AML-conformity of the models.

Via their integration in EA, AML-models can be linked with any other models. This ensures traceability and enables different views on models like AML-diagrams or SysML-diagrams.



The already existing EA modelling capabilities are applicable on AML-models, which includes:

- Code generation.
- Model versioning.
- Model comparison.
- Model validation on different levels (e.g. company- or project level).
- Model simulation.
- Collaborative modelling.
- Multi-Viewpoint modelling.
- Diagram customization.
- Report generation.
- Model audit.
- Web-based model representation.

## Example

The figure below shows a robot of a manufacturing cell. The robot's elements (Internal Elements in AML) are aggregated under the Instance Hierarchy.

An Instance Hierarchy Diagram of this aggregation is depicted in the upper right of the figure.

The lower right sections shows how such AML elements can be linked for example with SysML Blocks.

## Benefits for Customers

- Simple and intuitive usability.
- Direct integration of various modelling techniques.
- Simple extension and configurability.



## Contact:

Priv.Do. Dr. Manuel Wimmer  
Head of Christian Doppler Module, TU Wien  
wimmer@big.tuwien.ac.at  
www.big.tuwien.ac.at/staff/mwimmer

www.sysml4industry.org

Peter Lieber, LieberLieber  
peter.lieber@lieberlieber.com  
www.lieberlieber.com

Prof. Dr. Arndt Lüder  
AutomationML e. V. c/o IAF  
office@automationml.org  
www.automationml.org