

Arrowhead Tools

Professor Jerker Delsing

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Dissemination and exploitation

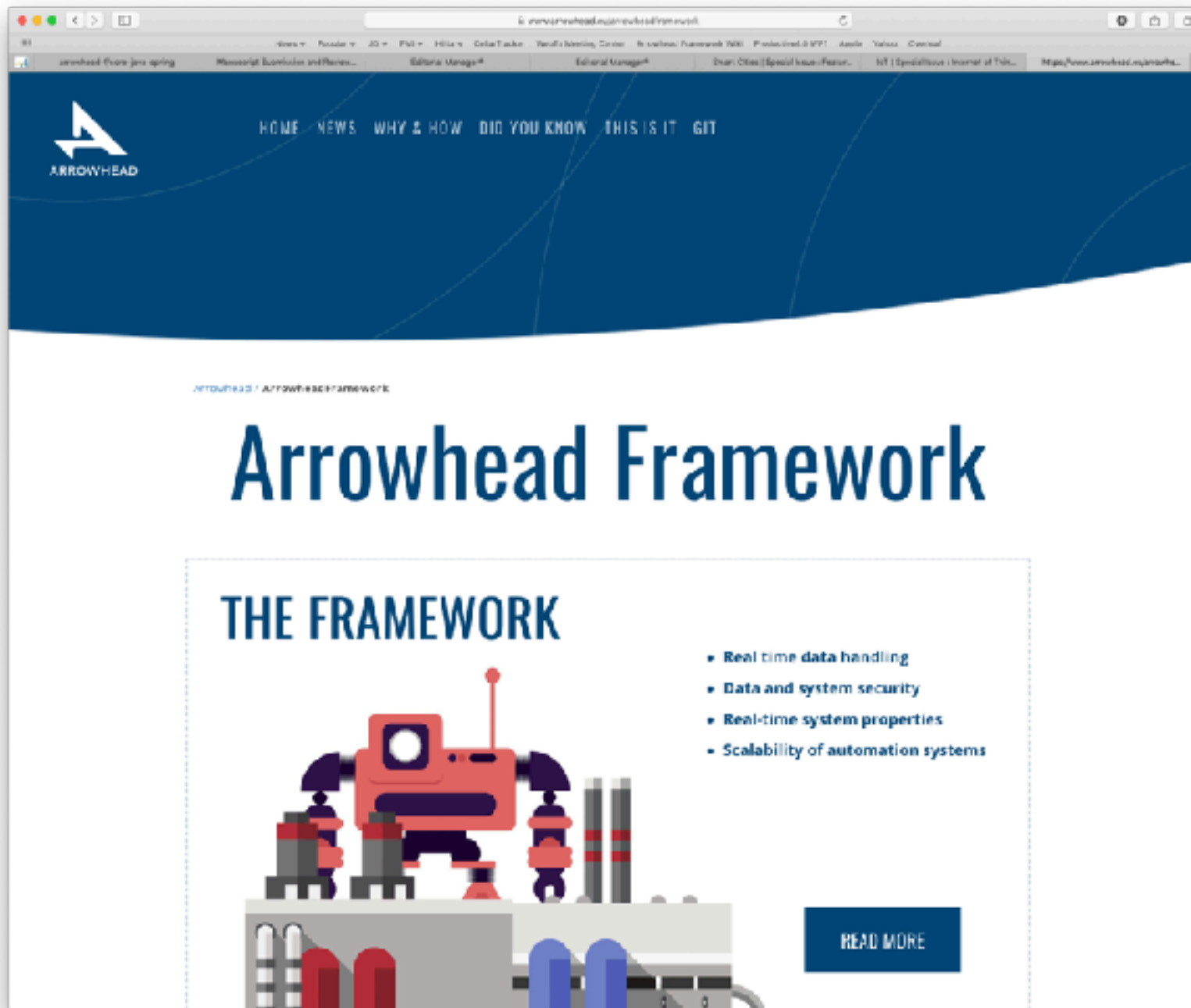
- Major objective
 - Creating exploitable IoT/SoS engineering technology for automation and digitalisation solutions
- Strategy
 - Technology
 - Engineering process
 - Integration platform
 - Engineering tool and tool chains
 - Training
 - Validation and verification of technology
 - 23 commercially based use cases

Exploitation - Technology

- Integration platform
 - Open source via Github [www.github.com/arrowhead-f](https://github.com/arrowhead-f)
 - Open source as Eclipse Arrowhead <https://projects.eclipse.org/projects/iot.arrowhead>
- Engineering process
 - Will generated standardisation proposal
- Engineering tool and tool chains
 - Open source within Eclipse Arrowhead
 - Eclipse Arrowhead the SOA based use case for SysML 2 standard by OMG.
 - SysML 2 library for Eclipse Arrowhead
 - SysML 1.6 profile for Eclipse Arrowhead
- Training
 - Library of training HW, SW, documentation for different level of training

Integration platform

Arrowhead Framework -> Eclipse Arrowhead



Integration platform

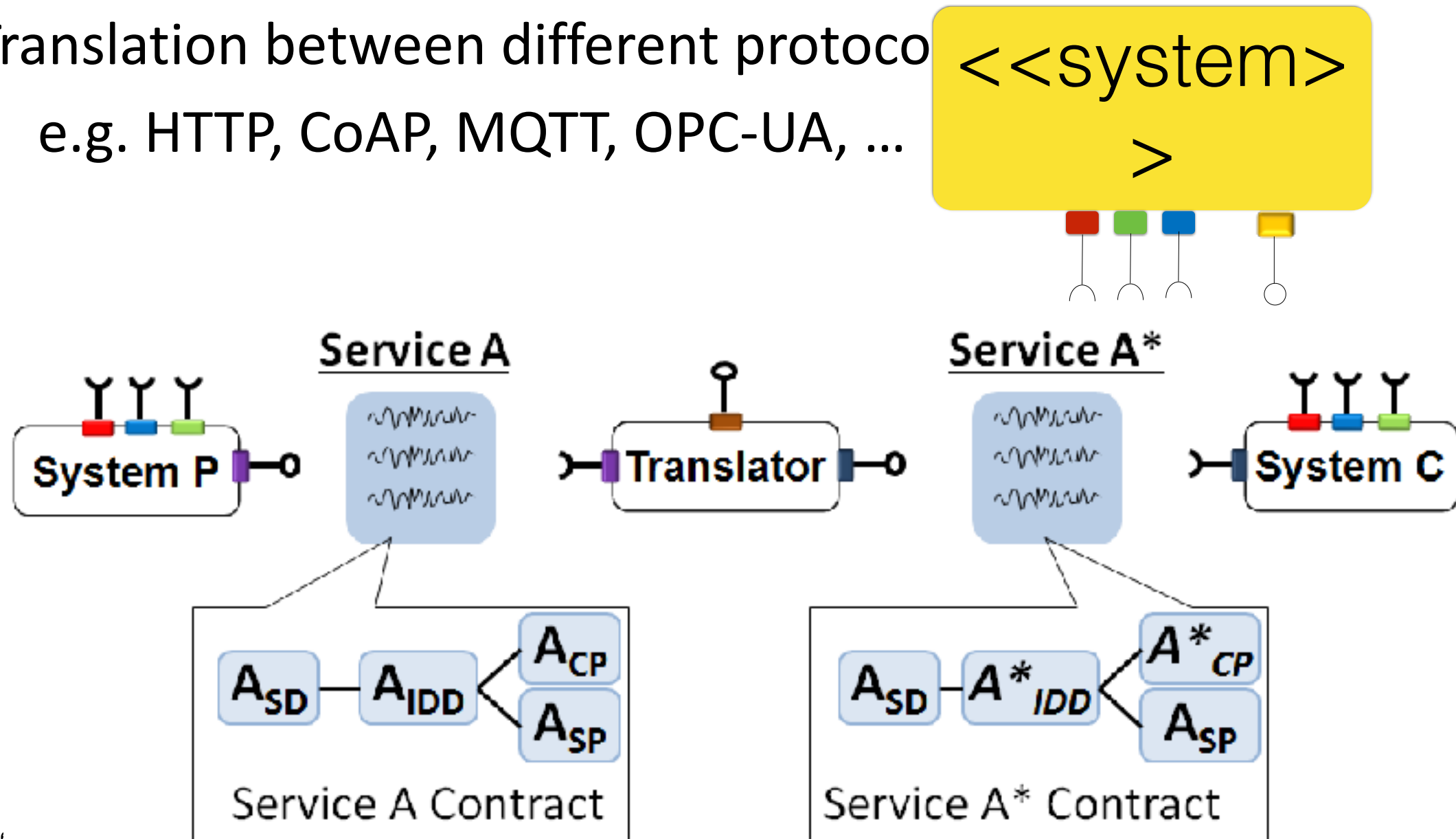
Arrowhead Framework -> Eclipse Arrowhead

Enabling the use of the power of the Eclipse platform

The screenshot shows the Eclipse Arrowhead project page. The browser address bar is `projects.eclipse.org/projects/iot.arrowhead`. The page features the Eclipse Foundation logo and navigation links: Members, Working Groups, Projects, More+, and a Download button. The breadcrumb trail is `Home / PROJECTS / Eclipse IoT / Eclipse Arrowhead`. The main heading is `Eclipse Arrowhead`. Below it are tabs for Overview, Downloads, Who is Involved, Developer Resources, Governance, and Contact Us. The Overview tab is active, displaying text about the project's goals and a list of features: Real-time data handling, Data and system security, Automation system engineering, and Scalability of automation systems. A diagram illustrates a 'Global Cloud' connected to various IoT devices and systems. On the right, there is an 'Eclipse Incubation' logo and a 'RELATED PROJECTS' section showing a project hierarchy with 'Eclipse IoT' and 'Eclipse Arrowhead' listed.

Tool interoperability based on SOA

Translation between different protocols
e.g. HTTP, CoAP, MQTT, OPC-UA, ...



Industry consortia - ISO 15926

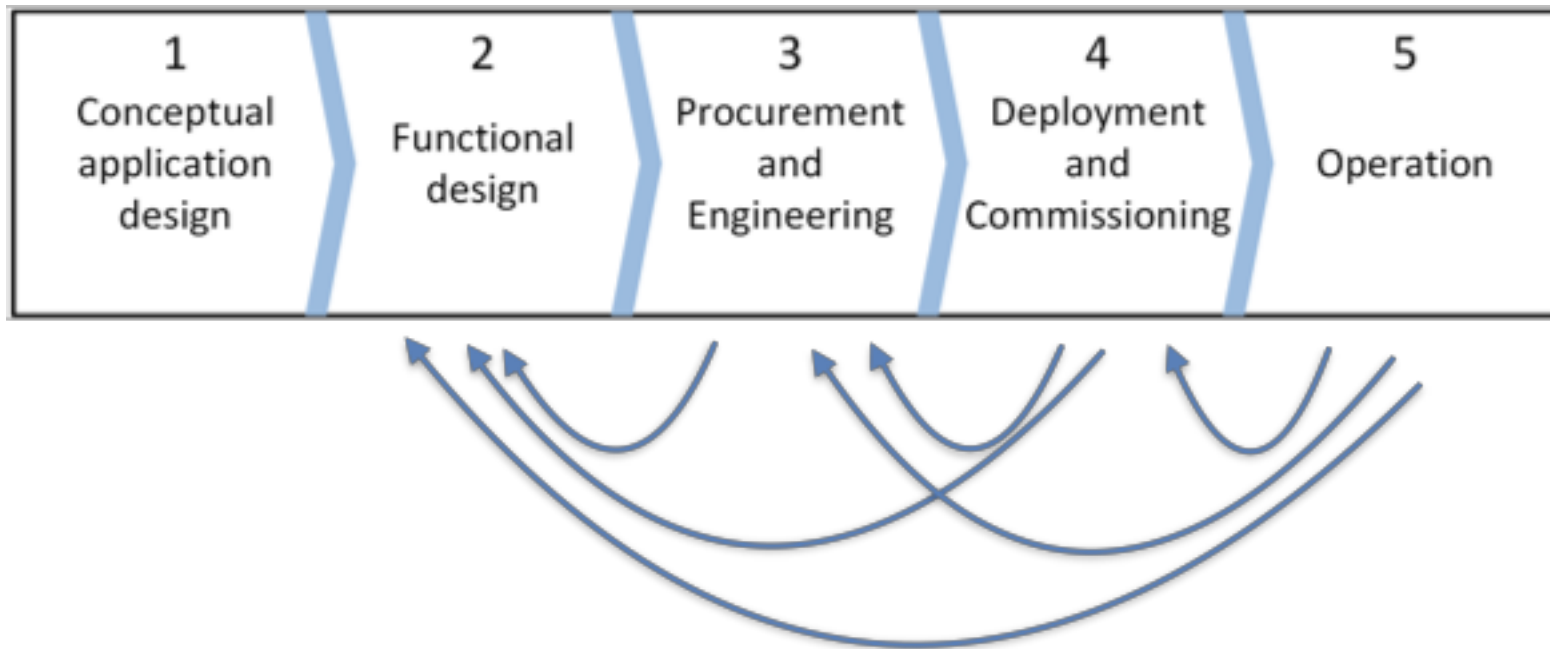
Translation between standards and generation of standards

ISO 15926

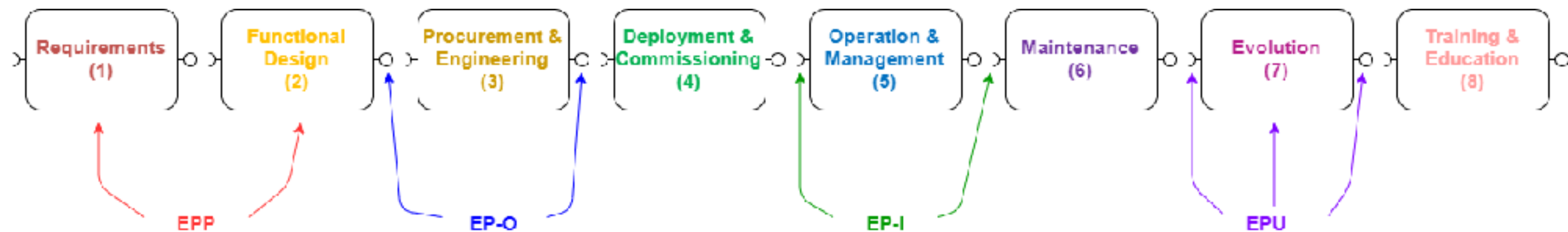


Engineering process - Will be moved to IEC

Starting point IEC 81346

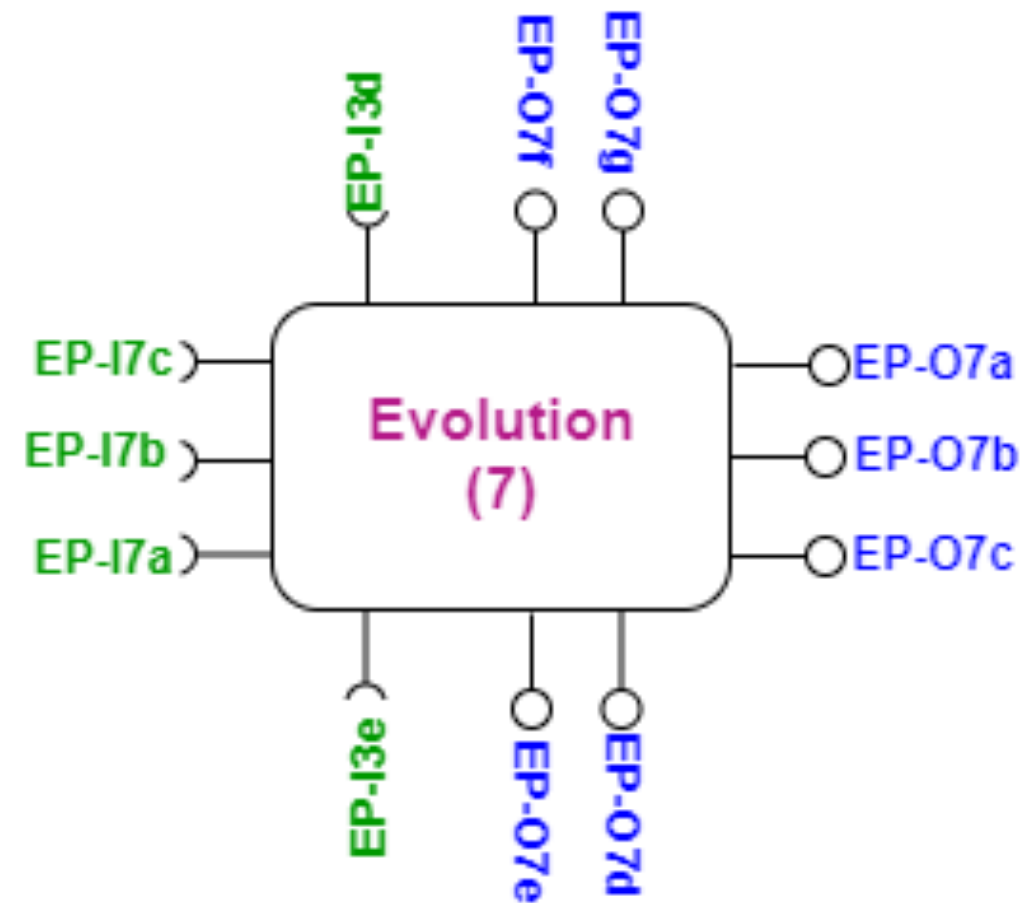
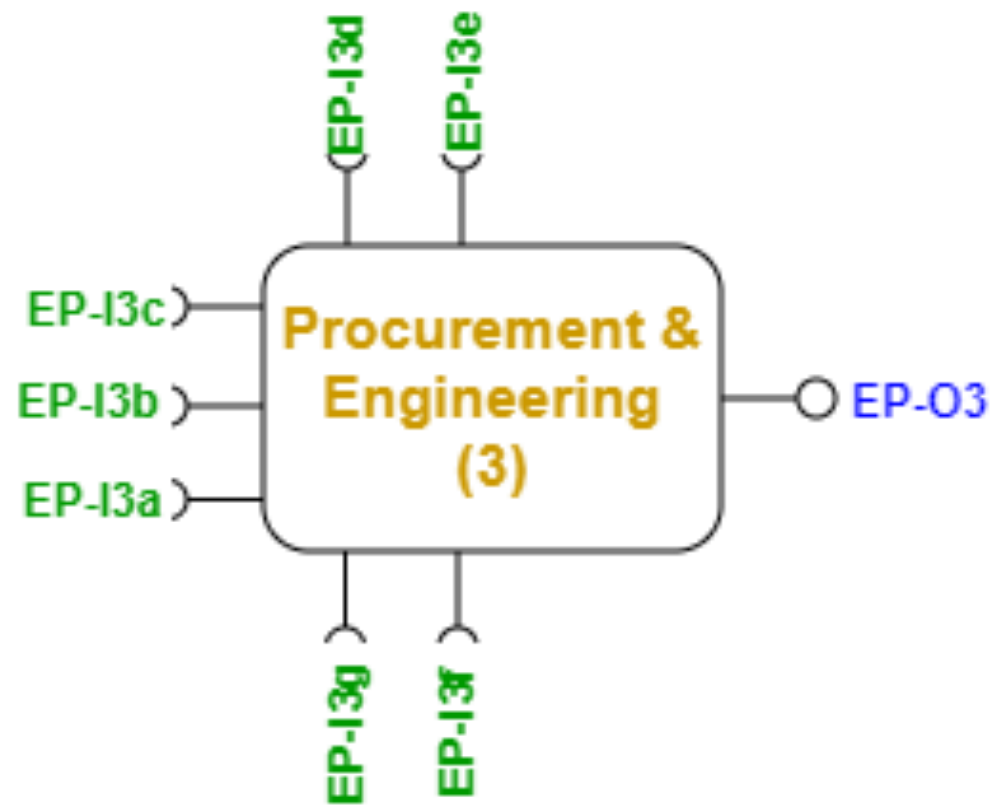


Engineering process extension



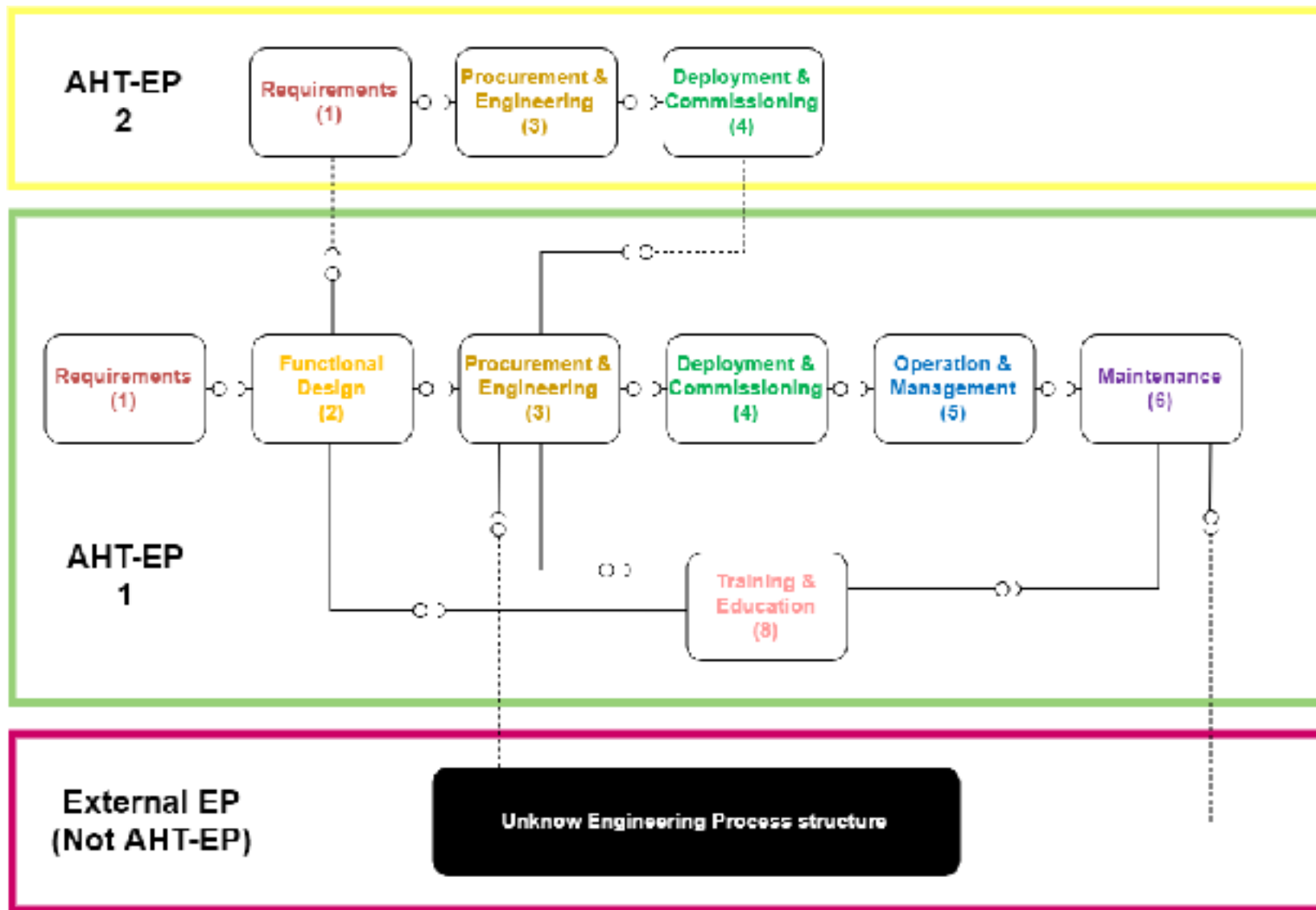
Engineering process

Tools chains



Engineering process

Integrating the engineering process and it's stakeholders through engineering tool interoperability



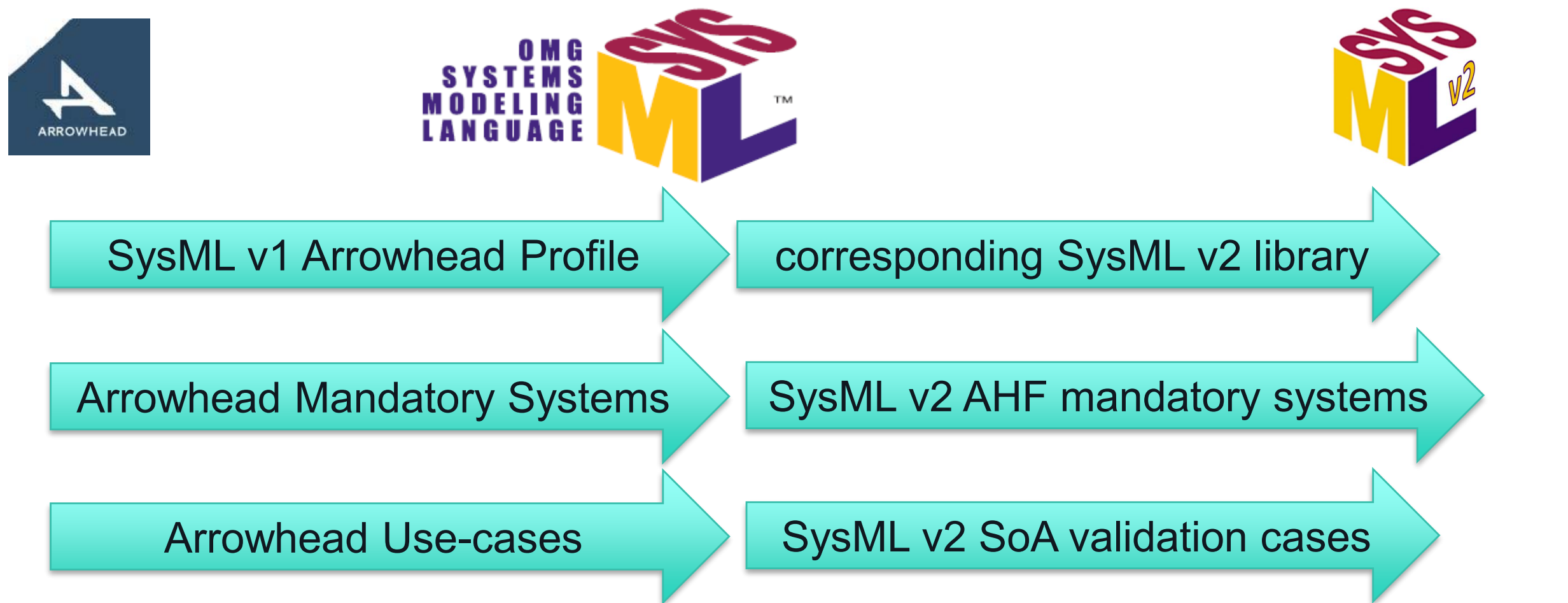
Engineering tools and tool chains

- Tools goes open source within Eclipse Arrowhead

Engineering tools and tool chains

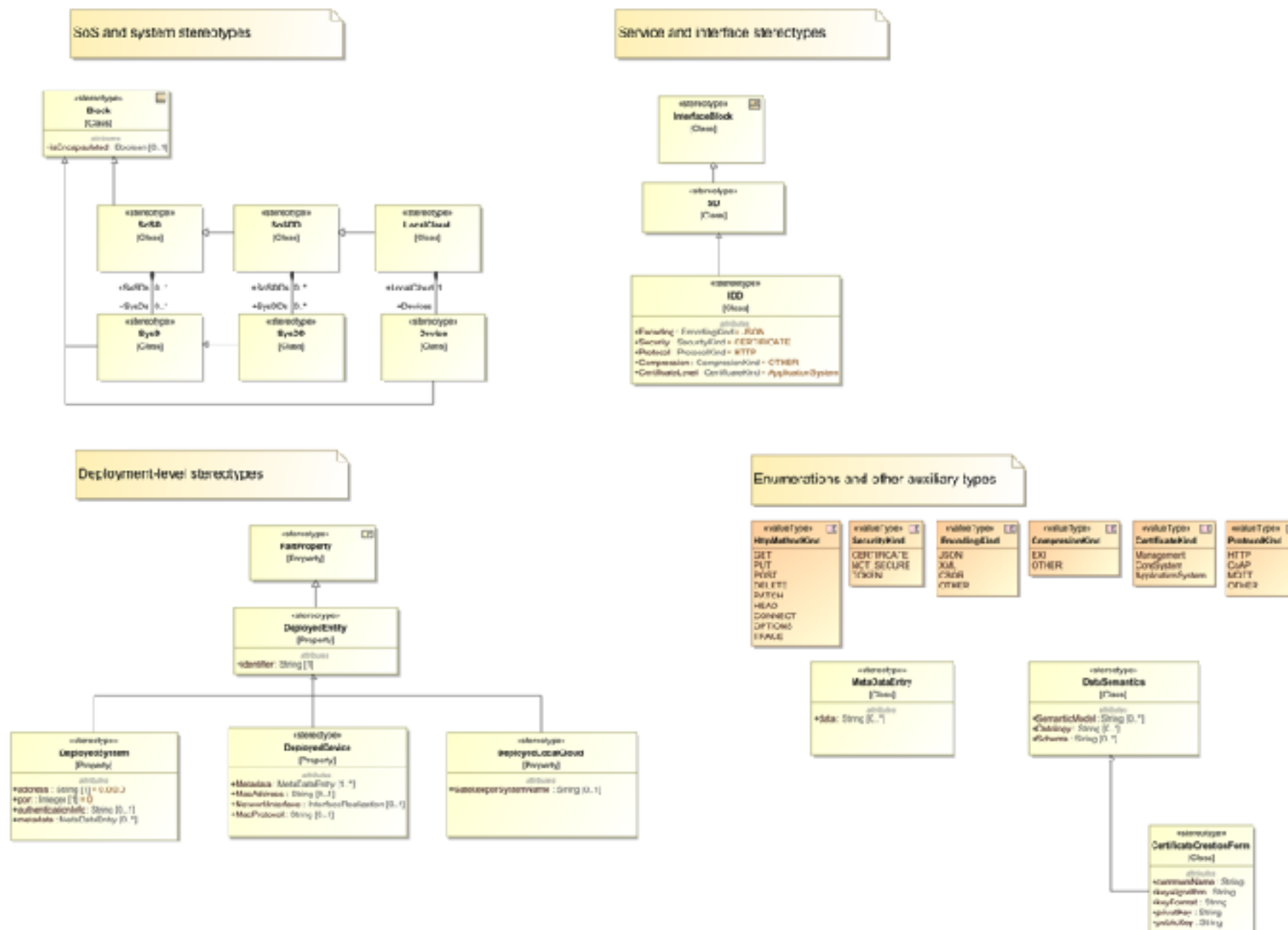
- Eclipse Arrowhead the SOA based use case for SysML 2 standard by OMG.

The making of a validation case for Arrowhead SoA



Engineering tools and tool chains

- SysML 1.6 profile for Eclipse Arrowhead SysML

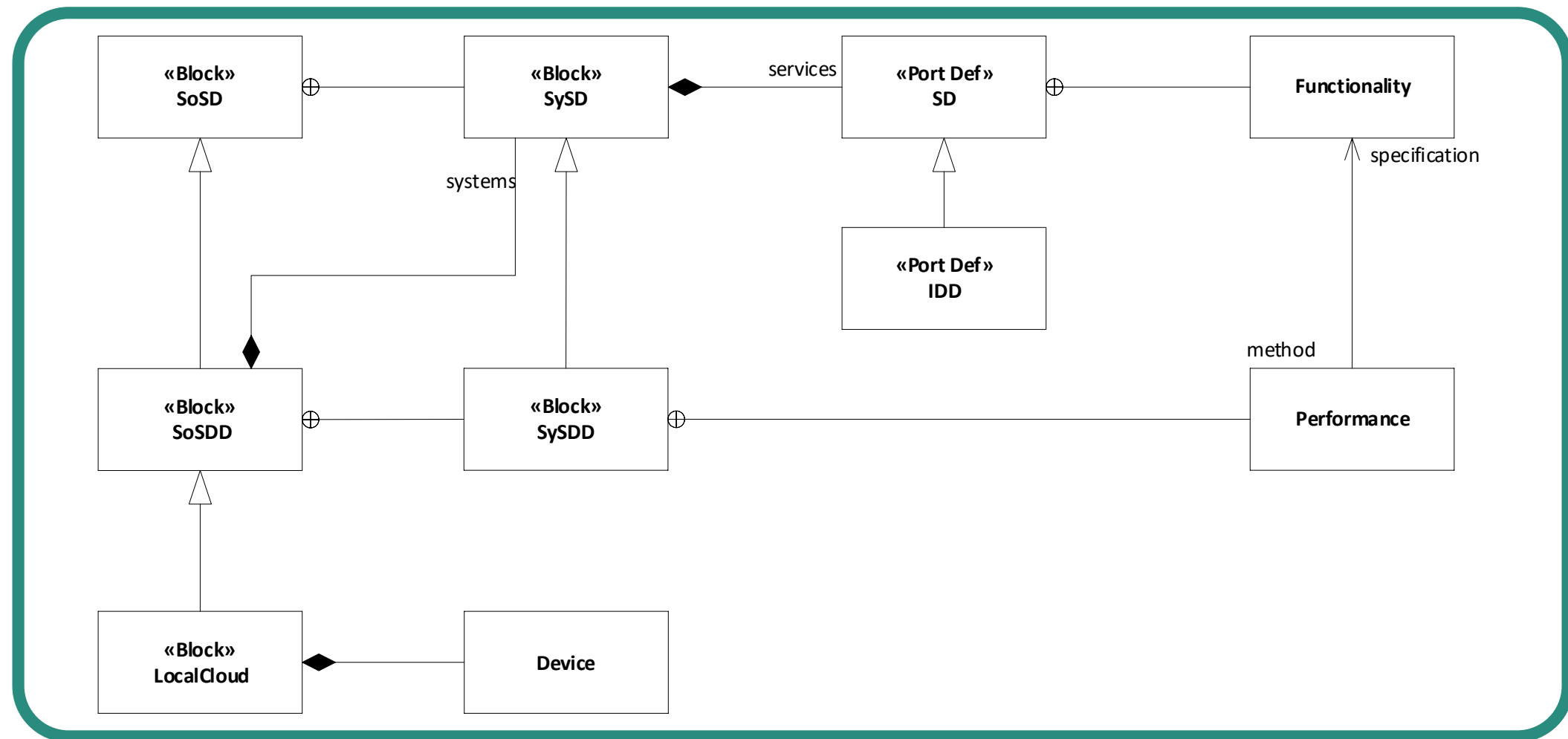


Engineering tools and tool chains

- SysML 2 library for Eclipse Arrowhead

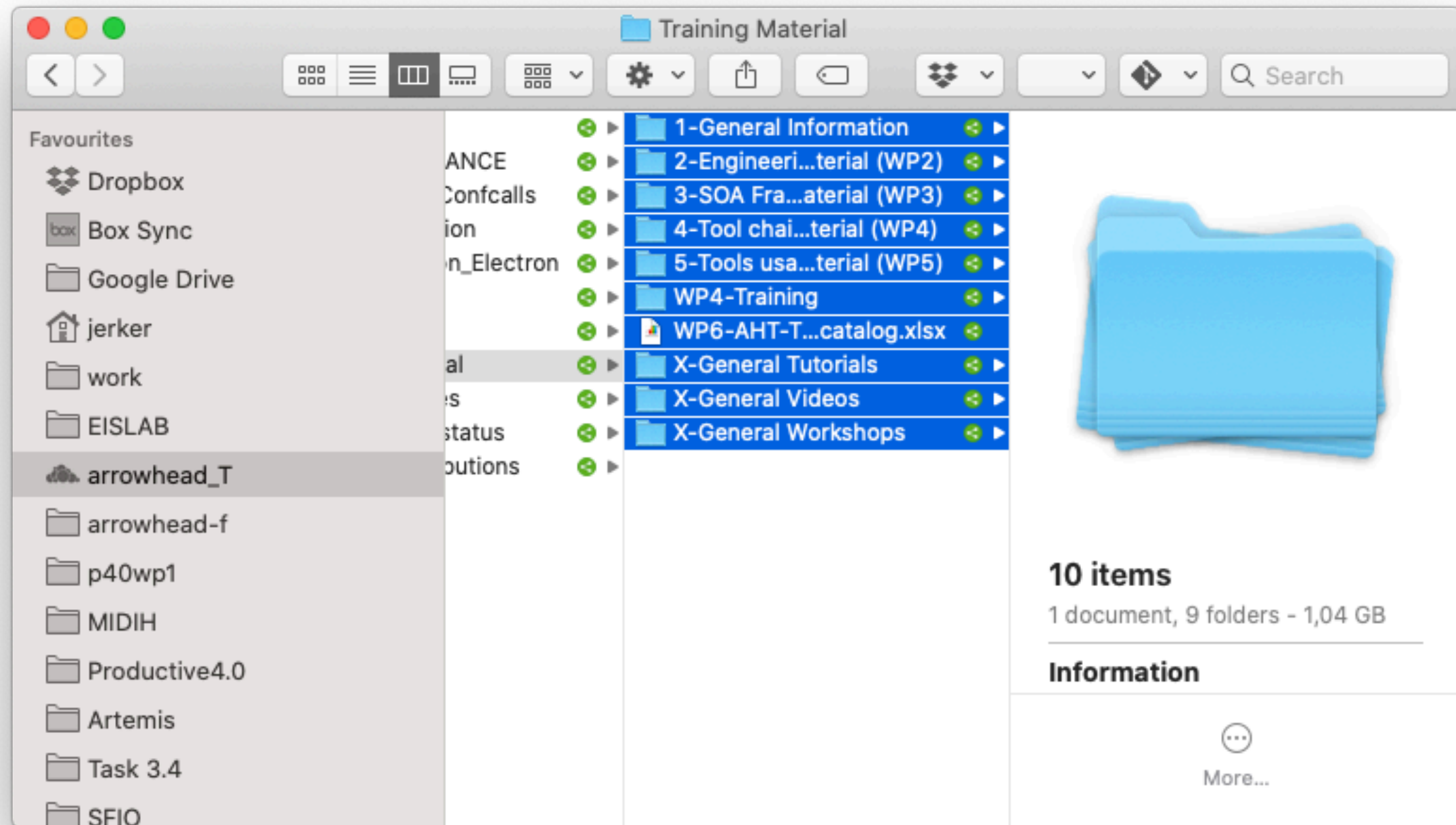
The Arrowhead Framework Reference model

The Library



Training

Structuring and Gathering training material



Exploitation - use cases

- Validation and verification of technology
 - 23 commercially based use cases
 - Commercial exploitation by use case owners and partners

Thanks for listening

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