

# Eclipse Arrowhead™

## The framework

Eclipse Arrowhead consists of what is needed for anyone to design, implement and deploy Automation System of Systems according to the concepts of [Industry 4.0](#) and [RAMI 4.0](#). The framework of Eclipse Arrowhead aims at enabling all of its users to work in a common and unified approach – leading towards high levels of interoperability.



## Eclipse Arrowhead - What is it?

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[High level description](#)

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## Architecture

[Micro-service SOA based](#)

[Capabilities](#)

## Implementation platform

[Eclipse Arrowhead core systems](#)

## Engineering process and tools

[Engineering process](#)

[Engineering tools](#)

[Engineering tool chains](#)

## Commercial ecosystem

[Partners](#)

[Arrowhead compliant tools and application systems](#)

## Solution examples

[Success stories](#)

## HowTos

# Implementation platform

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Engineering tools <b>SysML 1.6 profile</b>	Engineering tools <span style="background-color: black; color: white; padding: 2px;">New</span> <b>SysML 1.6 library</b>	Engineering tools <b>Legacy Integration</b>	Engineering tools <b>TestTool</b>	Engineering tools <b>SandboxingTool</b>
Engineering tools <b>Consumer CodeGen</b>	Engineering tools <b>Eclipse-Vorto</b>	Engineering tools <b>SysML 2 profile</b>	Engineering tools <b>Installation</b>	Engineering tools <b>CI/CD pipeline</b>
Engineering tools <b>Python lib</b>	Engineering tools <b>Kalix lib (Java)</b>	Engineering tools <b>C++, C#, .net lib</b>	Engineering tools <b>Eng process</b>	Engineering tools <b>Tool chain interoperability</b>
Management support <b>ManagementTool</b>	Management support <b>SafetyManager</b>	Management support <b>SecurityManager</b>	Management support <b>Eclipse-Ditto</b>	Management support <b>Training material</b>
Supply chain/ product life cycle <b>Contract Proxy</b>	Execution support <b>Choreography</b>	Execution support <b>Workflow Manager</b>	Execution support <b>Workflow Executor</b>	Execution support <b>WSO2+CPN</b>
Execution support <b>Orchestration Mitigation</b>	Control support <b>ControlStrategy</b>	System of Systems support <b>PlantDescription</b>	System of Systems support <b>Configuration</b>	System of Systems support <b>TimeManager</b>
System of Systems support <b>QoS</b>	System of Systems support <b>Eclipse-Hono</b>	System of Systems support <b>EventHandler</b>	System of Systems support <b>DataManger</b>	System of Systems support <b>Eclipse-hawkBit</b>
System of Systems support <b>Eclipse-Kura</b>	System of Systems support <b>Eclipse-Kapua</b>	Inter cloud service exchange <b>Gatekeeper</b>	Supply chain/ product life cycle <b>Gateway</b>	Interoperability <b>Translation</b>
Interoperability <b>FIWare</b>	Interoperability <b>61499</b>	Interoperability <b>ModbusTCP</b>	Interoperability <b>OPC-UA</b>	Interoperability <b>Z-wave</b>
Interoperability <b>BaSyx</b>	Interoperability <b>ROS</b>	Interoperability <b>Semantics</b>	Security infrastructure <b>Security Compliance</b>	Security infrastructure <b>DeviceRegistry</b>
Security infrastructure <b>On-boarding</b>	Security infrastructure <b>Security Compliance</b>	Security infrastructure <b>Security Mitigation</b>	Security infrastructure <b>Keycloak</b>	Local cloud basic properties <b>ServiceRegistry</b>
Local cloud basic properties <b>Authorisation</b>	Local cloud basic properties <b>Orchestration</b>	Local cloud basic properties <b>Certificate Authority</b>		



# Implementation platform

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  Prototypes
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# Implementation platform

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## Tool chain interoperability

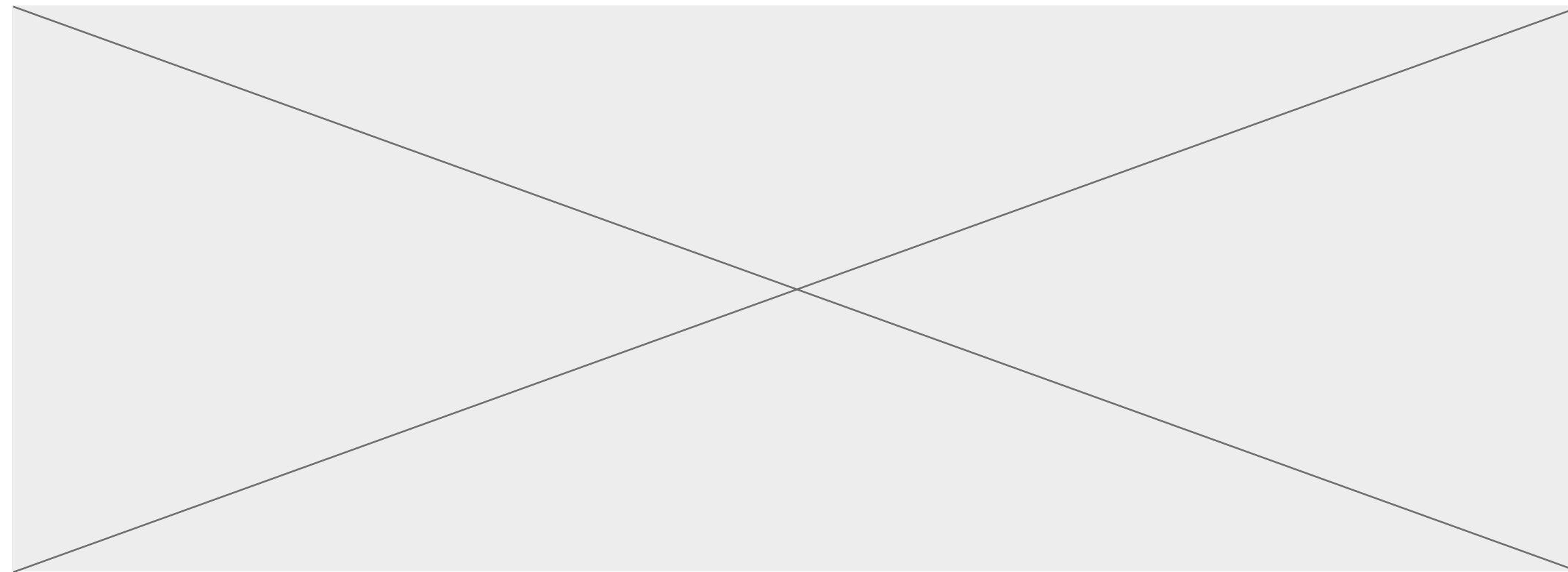
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### SYSTEM FUNCTIONALITY AND ROLE IN THE ARCHITECTURE

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