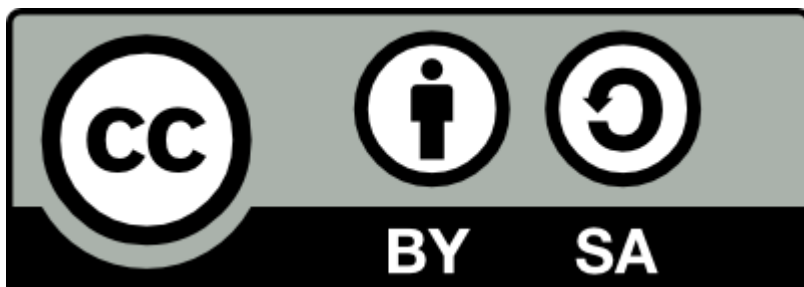




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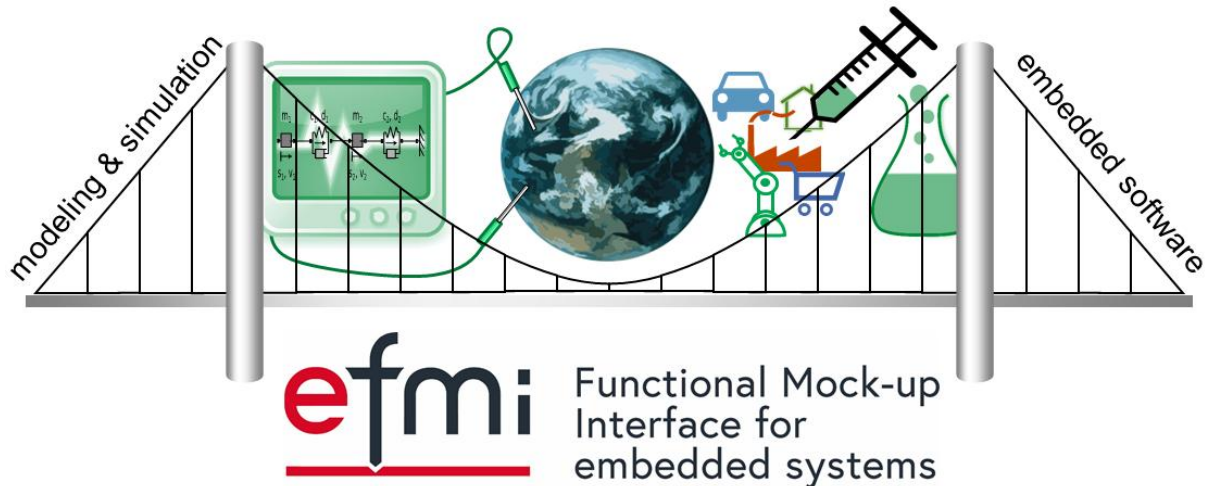
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# Modelica Association Project Functional Mock-up Interface for embedded systems (MAP eFMI)

## Annual report

*Fiscal year 2025*



## Preamble

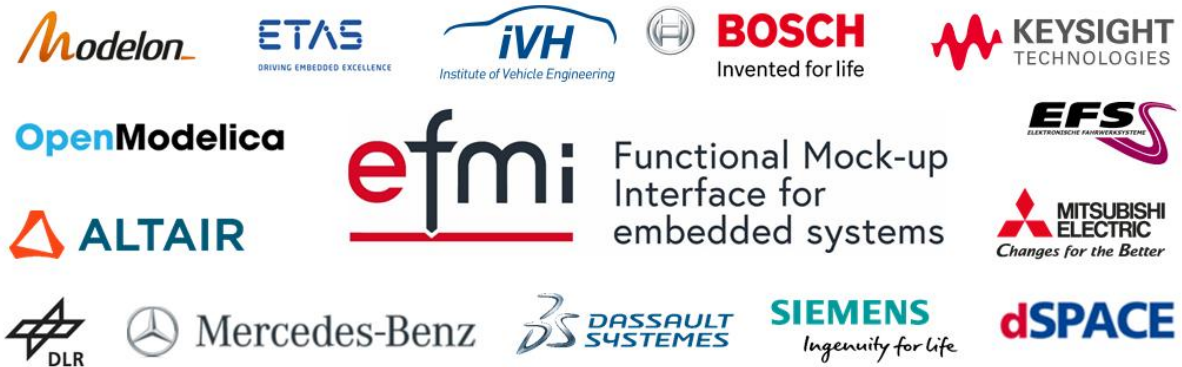
The main purpose of the “Modelica Association Project Functional Mock-up Interface for embedded systems” (MAP eFMI) is the development, standardization and promotion of the *eFMI Standard*. The *eFMI Standard* is an open standard for step-wise development and validation of advanced control functions suited for safety-critical and real time targets. It enables the application of high-level abstraction and simulation models – like acausal physics models – in embedded software by providing a container architecture for the step-wise refinement of a first high-level algorithmic solution to an embedded implementation on a dedicated target environment. The eFMI container architecture and respective eFMI tooling capture all activities of such a credible model transformation process:

- behavior / reference results for testing (Behavioral Model containers)
- target-independent bounded algorithmic solution (Algorithm Code container) based on eFMI GALEC (guarded algorithmic language for embedded control)
- C implementations, tailored and optimized for the requirements of specific target environments (Production Code containers)
- binary distributions and their „build-recipes“, ready for embedded system integration (Binary Code containers)

This report outlines the activities of MAP eFMI between June 2025 (including) and April 2026 (including).

## Current members of the MAP

The project has 5 Steering Committee members and 9 Advisory Board members:



Project Leader	Christoff Bürger (Dassault Systèmes)
Deputy Project Leader	Daeoh Kang (ivH Co., Ltd.)
Steering Committee	Dassault Systèmes German Aerospace Center DLR ivH Co., Ltd. Mercedes-Benz AG Robert Bosch GmbH
Advisory Board	Altair Engineering Inc. (part of Siemens AG) dSPACE GmbH e:fs TechHub GmbH (former: Elektronische Fahrwerksysteme GmbH) ETAS GmbH (part of Robert BOSCH GmbH) Keysight Technologies, Inc. (former ESI Group) Mitsubishi Electric Research Laboratories Modelon AB Open Source Modelica Consortium Siemens Digital Industries Software

Note, that Modelon AB moved from Steering Committee membership to Advisory Board and did not dedicate a new liaison member yet.

All members are also Modelica Association (MA) members; this is required by the project bylaws.

32 projectmen (individuals of member organizations) have access to the IT infrastructure and contribute to the MAP.

## Meetings

10 Steering Committee meetings since June 2025.

Regular Steering Committee meetings every first Tuesday each month at 14:00 CET.

Biweekly standard release meetings since March 2026.

Time-limited, dedicated workgroup meetings (design and specification of *eFMI Standard*, *eFMI\_TestCases* library and *eFMU* crosschecks etc.).

## IT infrastructure and resources

All members signed the Modelica Association Contributor License Agreement (MA CLA); this is required by the project bylaws. All public repositories are protected by CLA assistant.

The IT infrastructure provided by MAP eFMI is (new marked in red):

<a href="mailto:efmi-info@googlegroups.com">efmi-info@googlegroups.com</a>	Public e-mail list.
<a href="mailto:efmi-standard@googlegroups.com">efmi-standard@googlegroups.com</a>	Private e-mail list for members of the MAP.
<a href="https://efmi-standard.org/">https://efmi-standard.org/</a>	Public website with introduction, officially released tools listing, standard releases (Beta 1 draft of eFMI Standard 1.0.0), and many resources like teaser videos and papers, example eFMUs, project organization documents like bylaws, membership application guidelines and forms etc.
<a href="https://github.com/EMPHYSIS/efmi-specification">https://github.com/EMPHYSIS/efmi-specification</a>	Private GitHub repository with specification sources.
<a href="https://github.com/modelica/efmi-organization">https://github.com/modelica/efmi-organization</a>	Private repository with MAP eFMI organization-internal resources, e.g., organization documentation, meeting minutes and sources of bylaws and promotion material.
<a href="https://github.com/modelica/efmi-testcases">https://github.com/modelica/efmi-testcases</a>	Public GitHub repository with official eFMI test cases (eFMI_TestCases Modelica library) for demonstrating and evaluating eFMI tooling (used by eFMI crosschecks).
<a href="https://github.com/modelica/efmi-containermanager">https://github.com/modelica/efmi-containermanager</a>	Public repository of the <i>eFMI Container Manager</i> , a tool for creating, checking, reading and modifying eFMUs and their individual containers.
<a href="https://github.com/modelica/efmi-compliancechecker">https://github.com/modelica/efmi-compliancechecker</a>	Public repository of the <i>eFMI Compliance Checker</i> , a tool for analyzing eFMUs for violations against the eFMI Standard.
<a href="https://github.com/EMPHYSIS/efmi-crosschecks">https://github.com/EMPHYSIS/efmi-crosschecks</a>	Private, NDA protected repository with crosscheck eFMUs generated from the official test cases.

## Main activities from June 2025 – April 2026

- Work on Beta 2 version of the eFMI Standard 1.0.0.
  - Intensified work with dedicated biweekly meetings since March 2026.
- eFMI Tutorial and User Meeting at the 16<sup>th</sup> International Modelica & FMI Conference.
- New releases of eFMI and eFMI\_TestCases libraries, version 1.0.2 for MSL 4.1.0
  - New, equation-based neural network modeling support in eFMI.NeuralNetworks. Suited for optimized embedded deployment via eFMI tooling.
- Participation in the OpenSCALING research project, work packages 4 & 3, embedded PeN-ODE support with neural network tensor flows as multi-dimensional GALEC expressions well integrated with physics algorithms.
- Maintenance of eFMI website and promotional material at <https://efmi-standard.org/resources/>.
- First published commercial “in production” applications (e.g., thermal management of fuel cell electric vehicle)

## Planned activities for 2026

- Beta 2 release of eFMI Standard 1.0.0 (finalized GALEC specification).
- Release candidate for Modelica Association approval.
- Promotion of released commercial tools; support for industrial users.
- Promotion of eFMI technology to potential users and tool vendors.
- Support and collaboration with OpenSCALING research project.

## Budget 2025

- 0 EUR: eFMI trademark and website-template are financed separately by the Modelica Association.

## Budget proposal 2026+

- 5000 EUR: Discretionary Fund.

Date: 2026-05-19

Christoff Bürger (project leader)  
Daeoh Kang (deputy project leader)