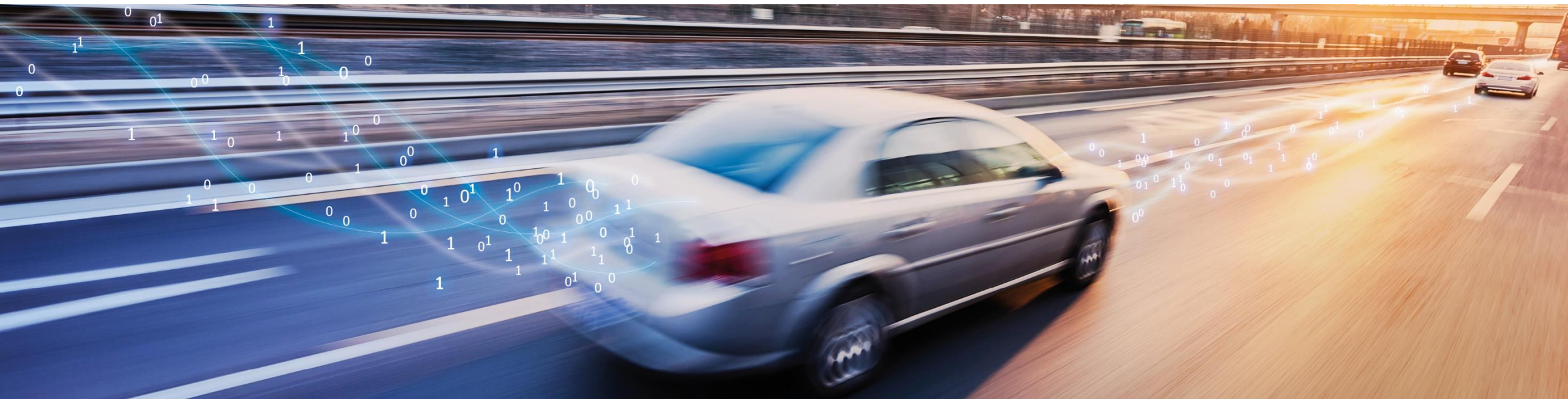


# HEX-File Management

## Release Presentation

Release Date: 08.05.2020

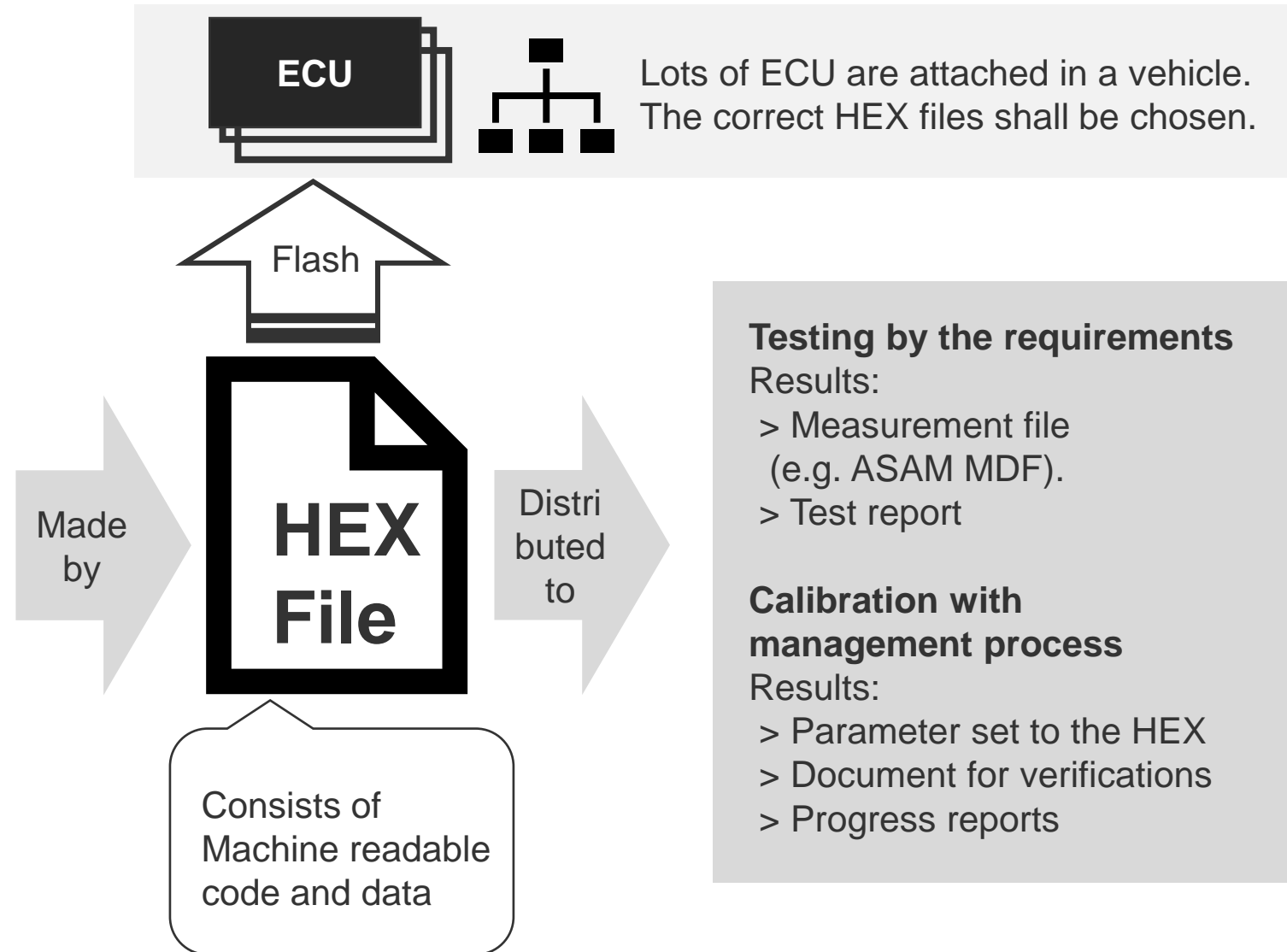


# Introduction

## HEX File and relations

**What HEX file made by**

- ↳ Source files
- ↳ Models
- ↳ Other software tools
- ↳ Architecture design tool
- ↳ Product requirements
- ↳ Product management
- ↳ Business requirements
- ↳ Business management



## Motivation: What is issue?

**The correct HEX files shall be chosen for vehicle development. However,**

- HEX file is never recognized to the right one by itself.
- HEX file is just data stream which consists of machine-readable code and data.
- Sometimes HEX file is just delivered without any source file by ECU supplier.

**Moreover,**

- HEX file depends on each other (e.g. ADAS, minimization of energy consumption).
- In the future, degree of the dependency is more.
- It is mandatory that correct HEX file is absolutely chosen.

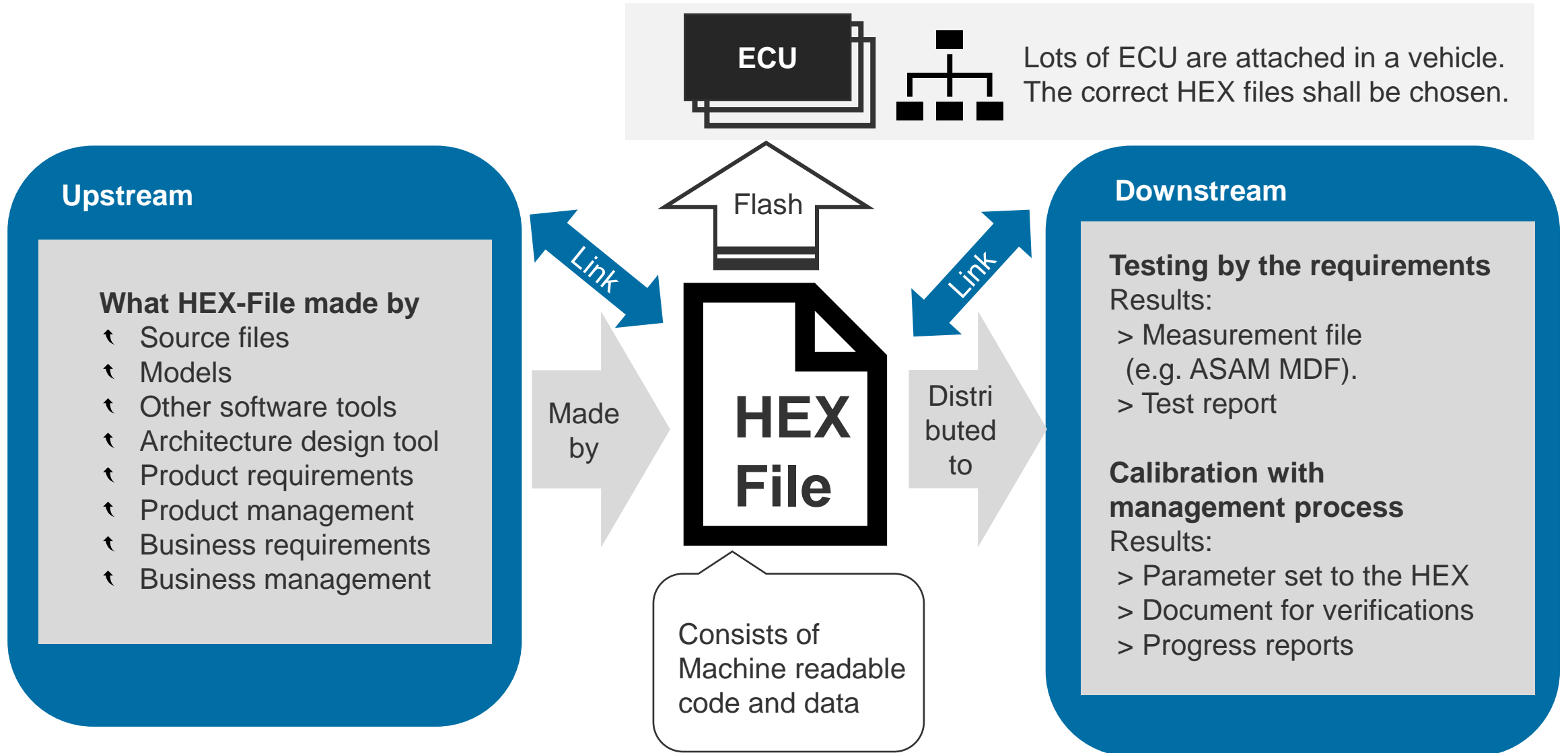
# Overcome the issue: HEX-File Management

## Examples relation of HEX file in the other words

- Location: Where HEX-File is located in all ECU of a vehicle, what kind of component is belonged.
- Results: What kind of result are earned by the HEX-File.
- History: What is the origin of the HEX-File.

→ **To manage relation of HEX file is to overcome the issue**

# HEX-File and link: HEX-File management

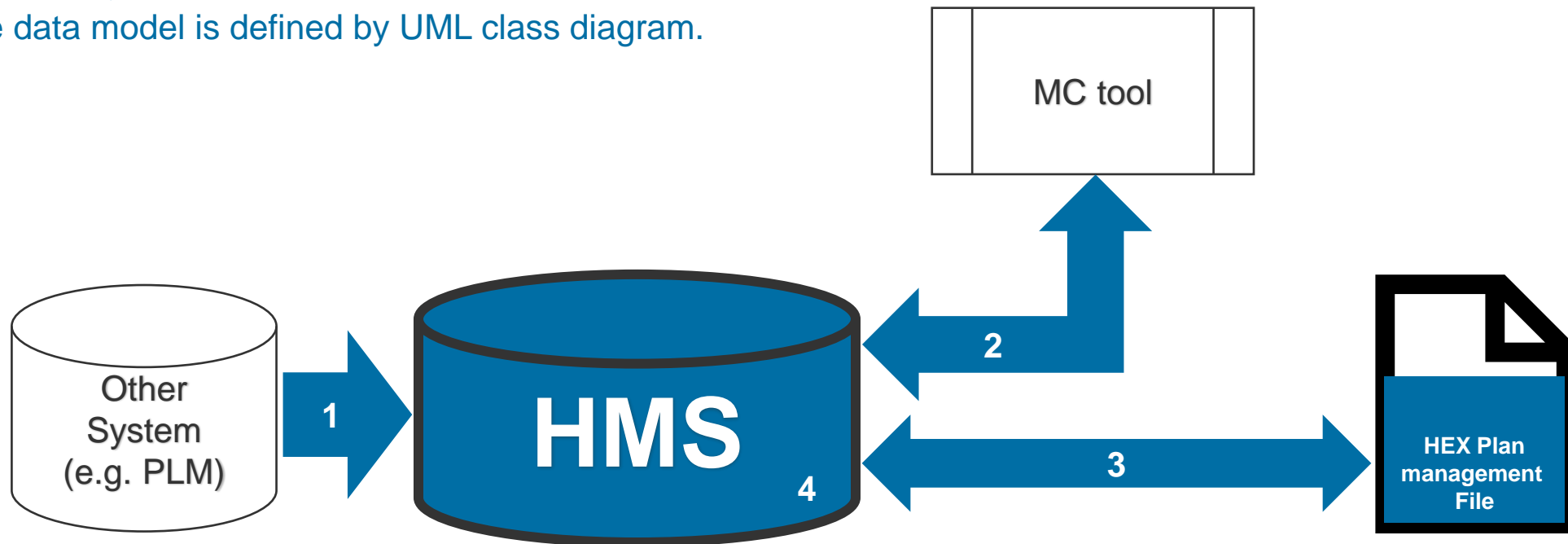


# Standardized domain

1. Interface of other system to skim metadata of HEX file (e.g. product information is skimmed via PLM system)
2. Interface of MC tool: It is successor of eCDM interface.
3. Interface of HEX Plan Management File
4. Data model of HMS interface

## Technology:

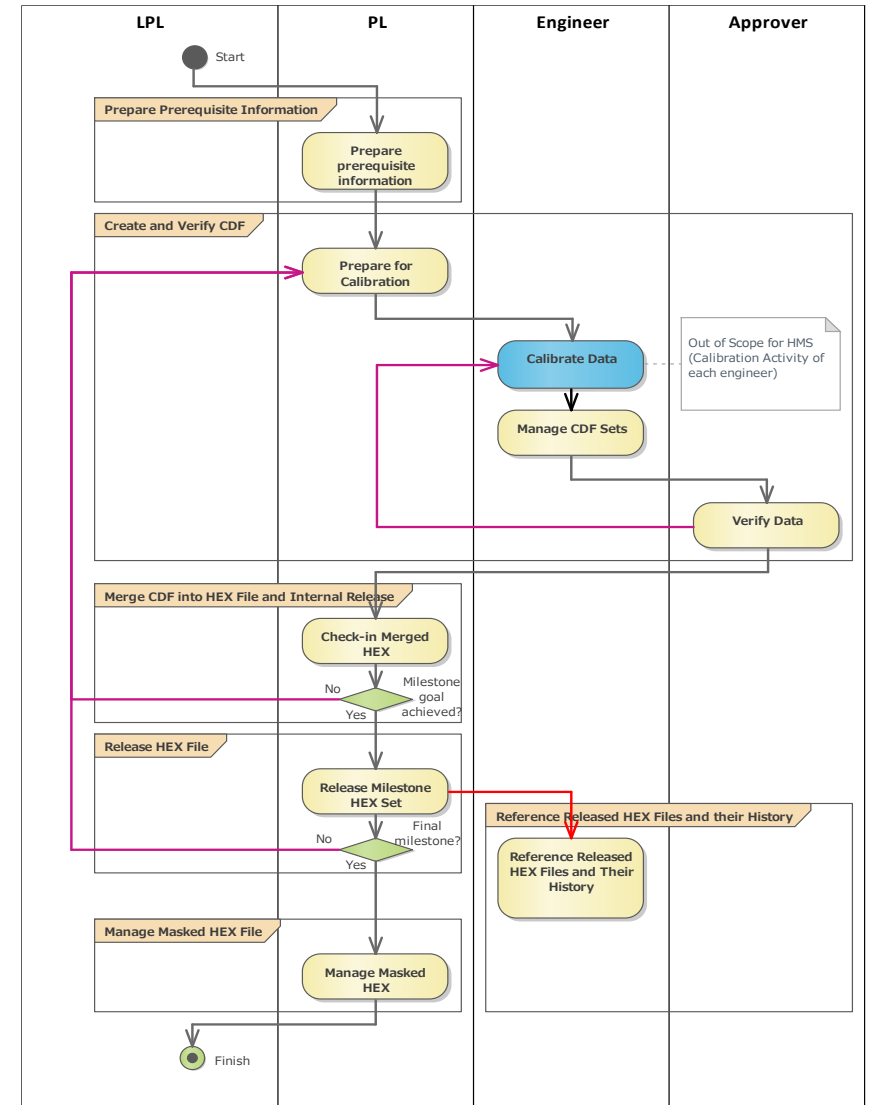
- Web API by REST is used for HMS API of the interfaces.
- The data model is defined by UML class diagram.



# Delivered UML

- UML Class diagrams
  - HMS Interface Data Model
  - Instanted HMS Object is also described.
  - HMS User Data Model
  - Instanted HMS Object User is also described.
- UML Sequence diagrams
  - Overview diagram
  - Subsidiary diagrams of the overview

Diagram and where the standardized interface is located are described.
- Use case diagrams
- HEX File lifecycle process overview (right picture).
- The UML is delivered by PDF and .EAP file.



# Deliverables

## Specification:

- ASAM\_HMS\_Specification\_V1-0-0.pdf

## HMS API by REST

- ASAM\_HMS\_APIDefinition\_V1-0-0.yaml  
.html file set is also delivered for browser.

## UML Models

- ASAM\_HMS\_UMLDiagrams\_V1-0-0.pdf
- ASAM\_HMS-Diagrams\_V1-0-0.EAP



# Related to other standards

## ASAM standards

- HMS manages HEX files defined in ASAM MCD -2 MC (ASAP2) (\*) and CDF. It is assumed that an A2L is also maintained as an attachment to the HEX file.
- The HMS can also maintain interlinks with external systems as information to describe HEX files. One of these systems is expected to be a test data management server that complies with the ODS specification.
- As mentioned above, the HMS manages the files defined by other ASAM standards and works with external systems, but does not read or write the file contents themselves or use the system collaboration API. Therefore, any changes to these specifications do not affect the HMS specifications defined in this document.

## OpenAPI

- In HMS, OpenAPI Specification (<https://github.com/OAI/OpenAPI-Specification>) version 3.0, an industry standard for REST API specification is used to define JSON Object schemas