ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

openETCS

Economic advantages of openETCS
“**potential levers, strategy and roadmap**”

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openETCS@ITEA2 Project

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Topics

- **Motivation**
- **Potential levers of openETCS**
- **Potential corporate strategy**
- **Roadmap openETCS**

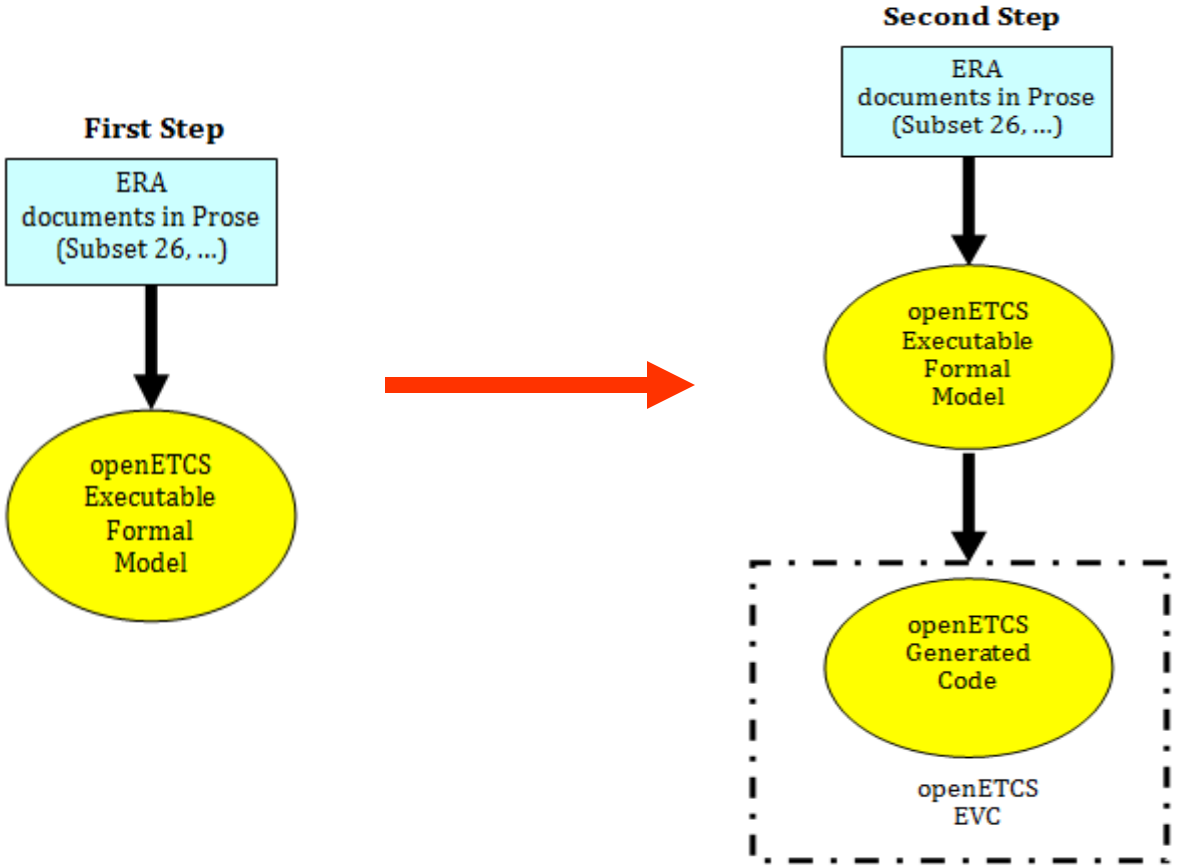
Motivation

Goals of openETCS:

- Creating a formal specification for ETCS onboard units acc. UNISIG subset 026 to avoid ambiguities in the software
- Creation of a software tool chain for ETCS OBU software life cycle to improve the productivity and reduce the cost of long-term software maintenance
- Development and provision of a (non-vital) ETCS OBU reference for laboratory and training

Potential levers of openETCS
- Formalization

As the Subset 26 and other necessary subset documents , as a European Railway Standard, is on the one hand a Prose document (written in a natural language) a formalization of this model is essential and seen as a prior work.

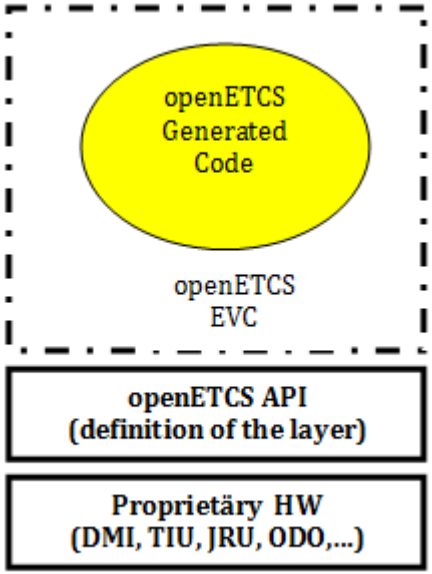


Potential levers of openETCS
- Generic openAPI and Standardization

One essential goal of openETCS is to create a platform- and technologyindependentdent API defined by the different industry-, railway- and safetyexperts in the openETCS consortium. This generic open API should allow to support a standardized interface between the openETCS architecture and proprietary HW of the manufacturer. This approach should support the strategy of a

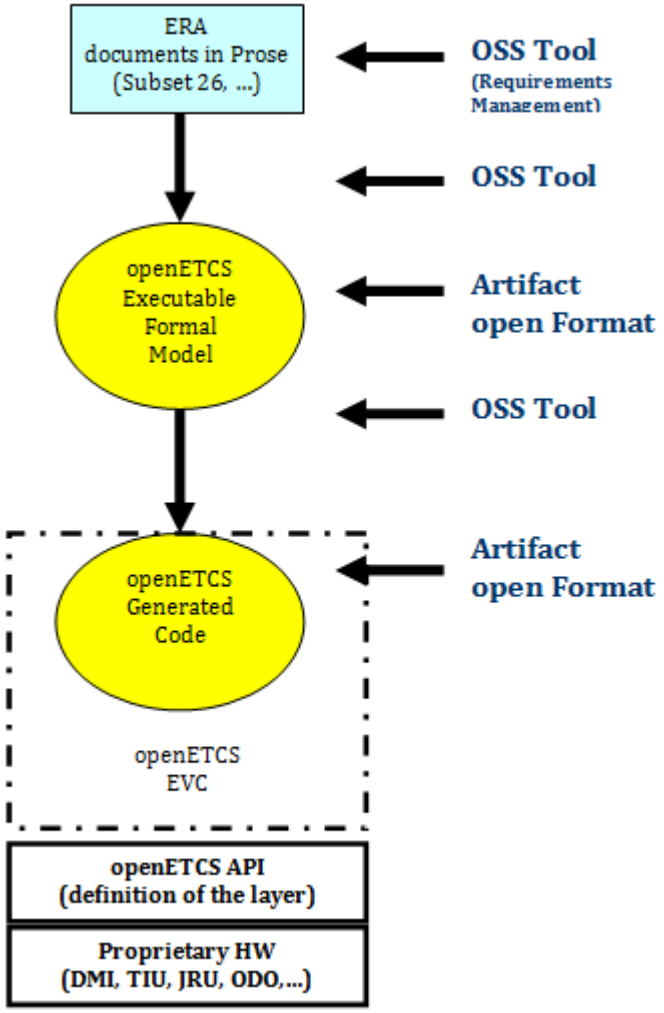
- flexible manufacture

- mass customize



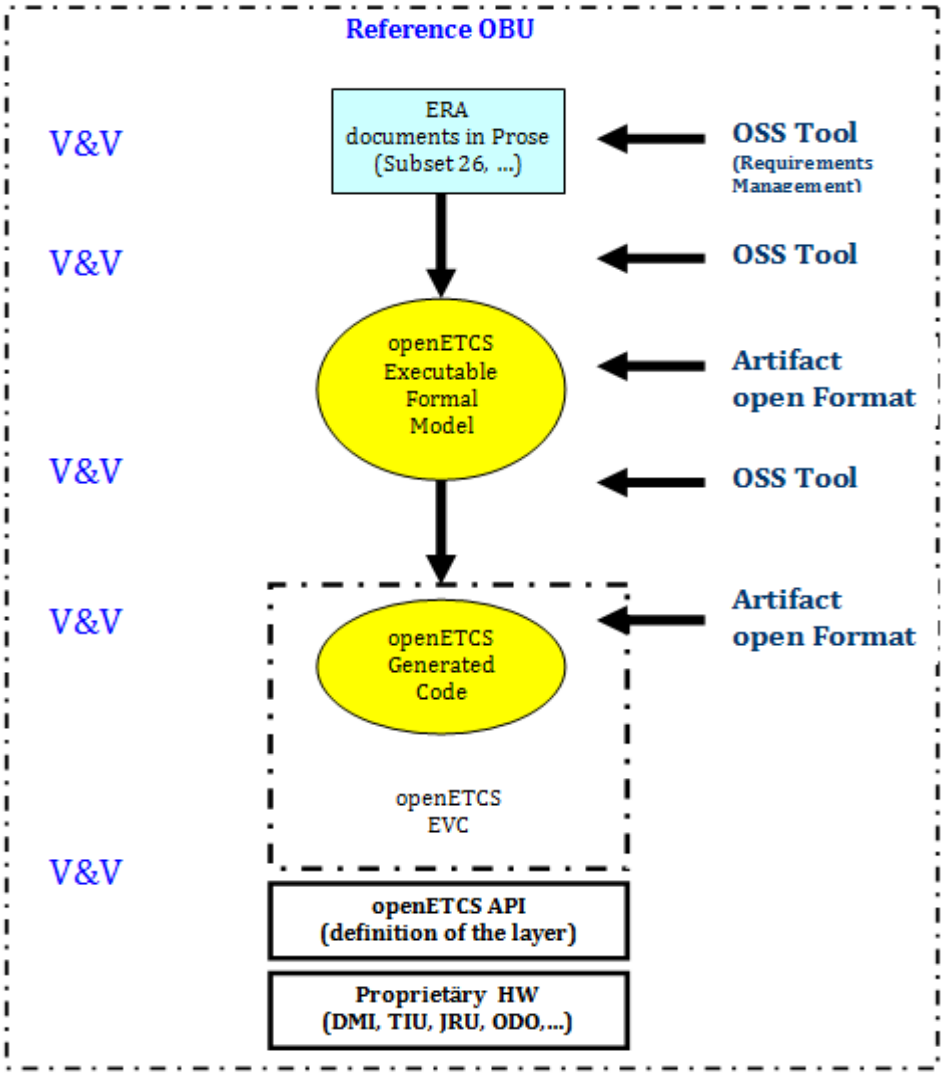
Potential levers of openETCS
- openETCS toolchain

Another goal within the openETCS project is to support a Opensource toolchain to the environment. A opensource toolchain is necessary to create, change, improve and execute the different steps between the prose requirements, the executable formal model and the generated openETCS code.



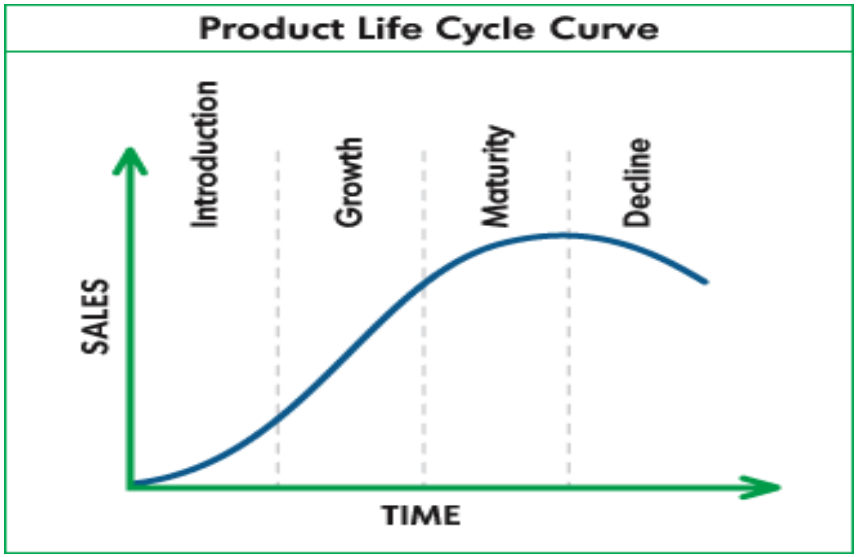
Potential levers of openETCS
- openproof and reference OBU

open proof and a reference OBU are necessary to provide a “comparative reference” to the ERTMS manufacturers

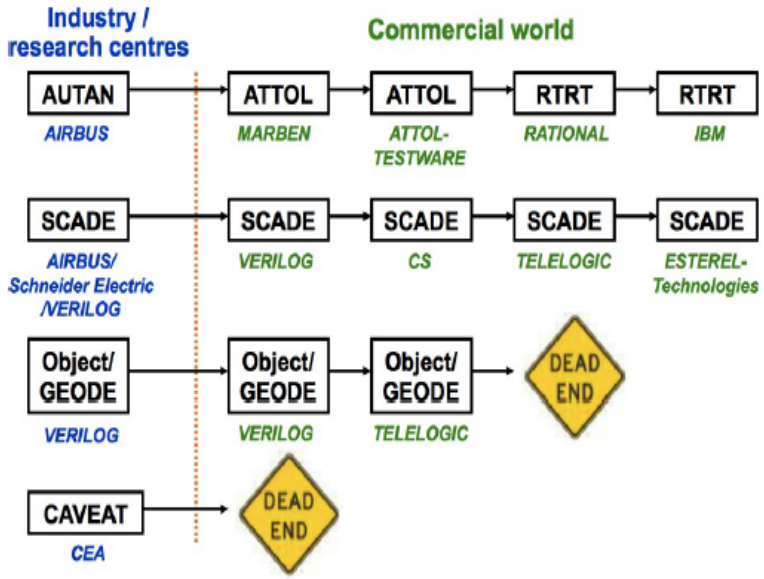


Potential corporate strategy
- Long term support: Product lifecycle → CSS tools vs. OSS tools*

Each product is associated with a life cycle that can be controlled in accordance with the manufacturer. However, each of manufacturer is interested not last forever because of its development to maintain the old product lifecycle to market new product lines. Another reason to stop the product lifecycle prematurely, possibly a sale or takeover by a competitor. Here, however, created a new market for medium-sized companies. The maintenance of tools or products that are needed by the industry for the development and production, to cover a new business model.



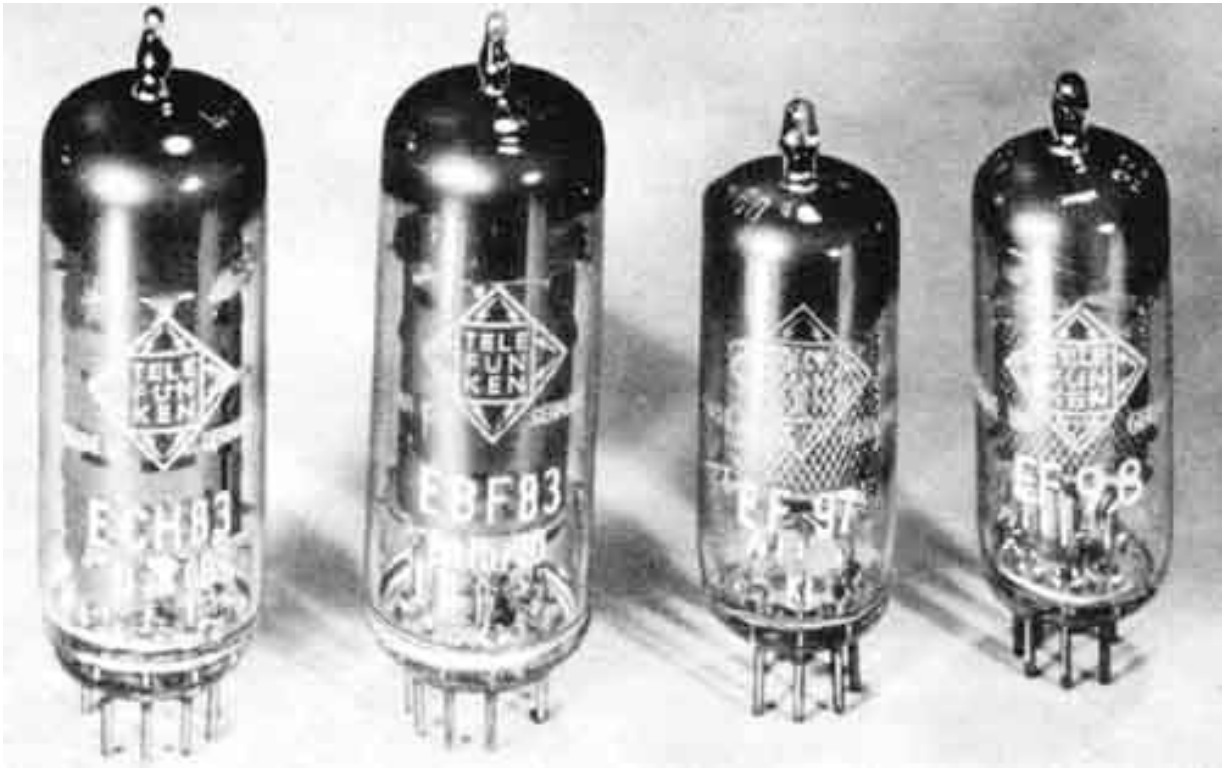
Risk of Dead End with CSS tools



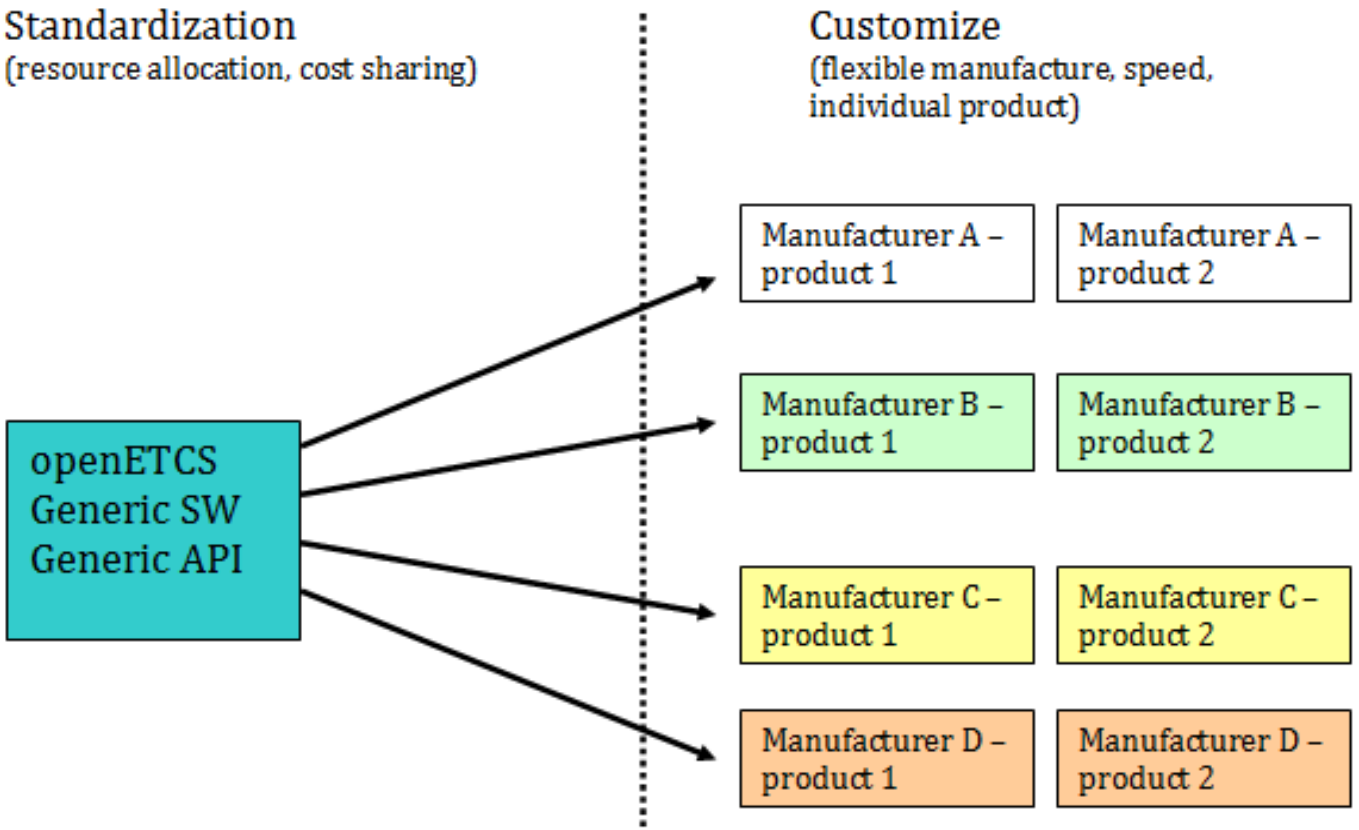
*CSS = Close Source Software tool
*OSS = Open Source Software tool

Potential corporate strategy
- Obselescence Management

By openETCS license model and the openETCS ecosystem, the Obsolescence risic of the user can be reduced significantly. The sale, acquisition or disappearing of the original supplier is no more a risc.



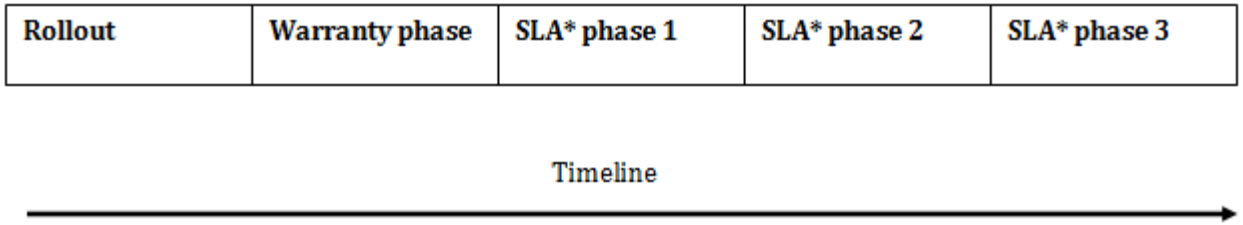
Potential corporate strategy
- Mass customize and flexible manufacture



Potential corporate strategy
- Continuous cash flow

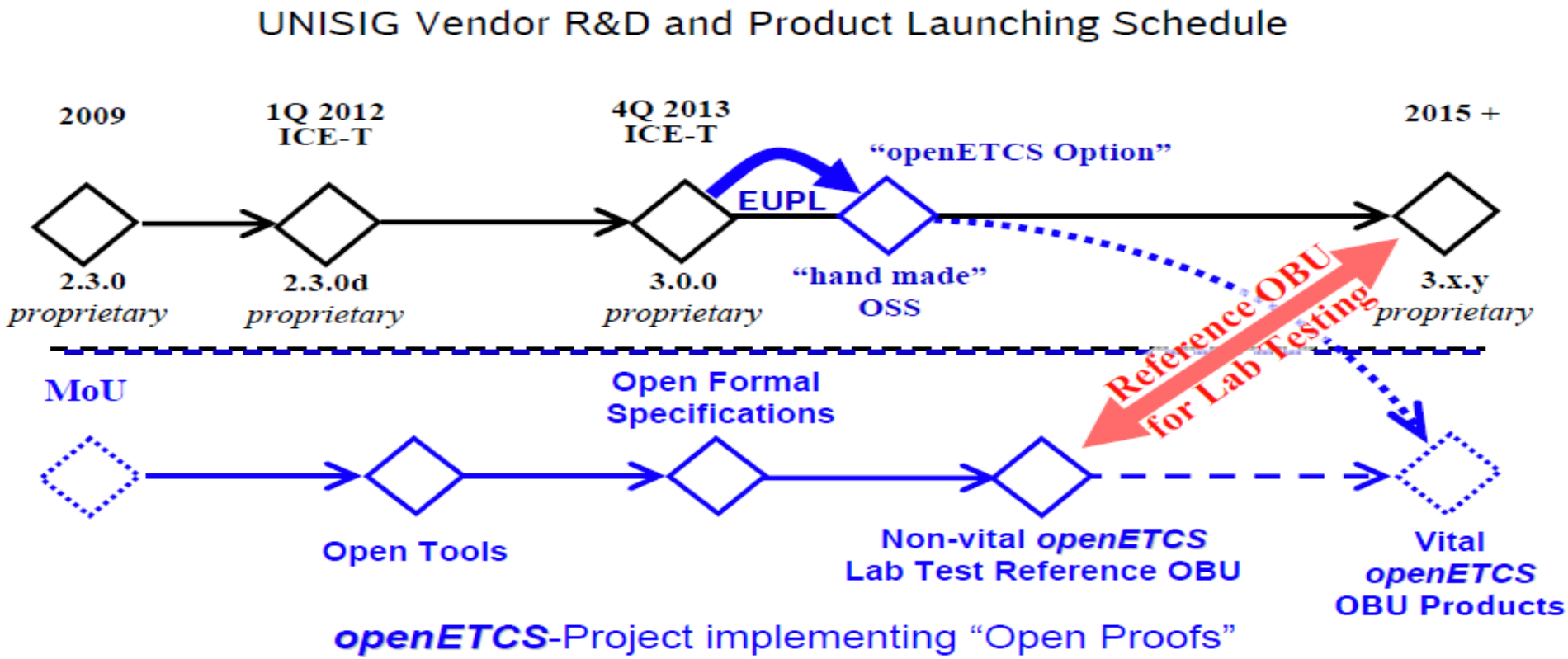
About the continuous cash flow, that through a service level agreements can be achieved, the company has the option to use a part of the continuous cash inflows for further developments. So the manufacturer can reduce significant the riscs, that changes, enhancements, new requirements, ... will become an issue because of lack of resources or knowledge.

ICE Life Cycle

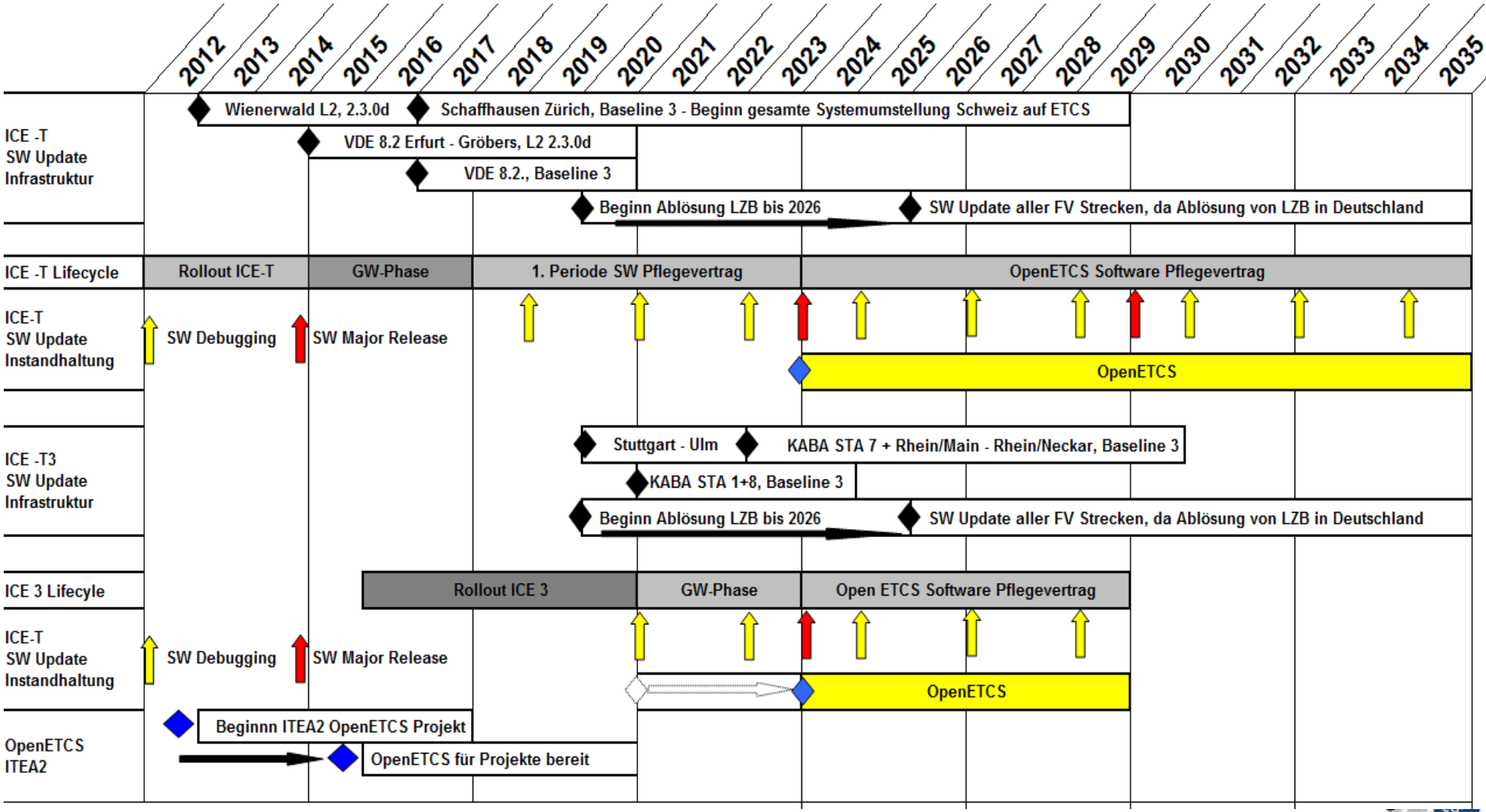


*SLA = Service Level Agreement

openETCS Implementation Plan



Roadmap Software Update ICE-T&3



Q&A