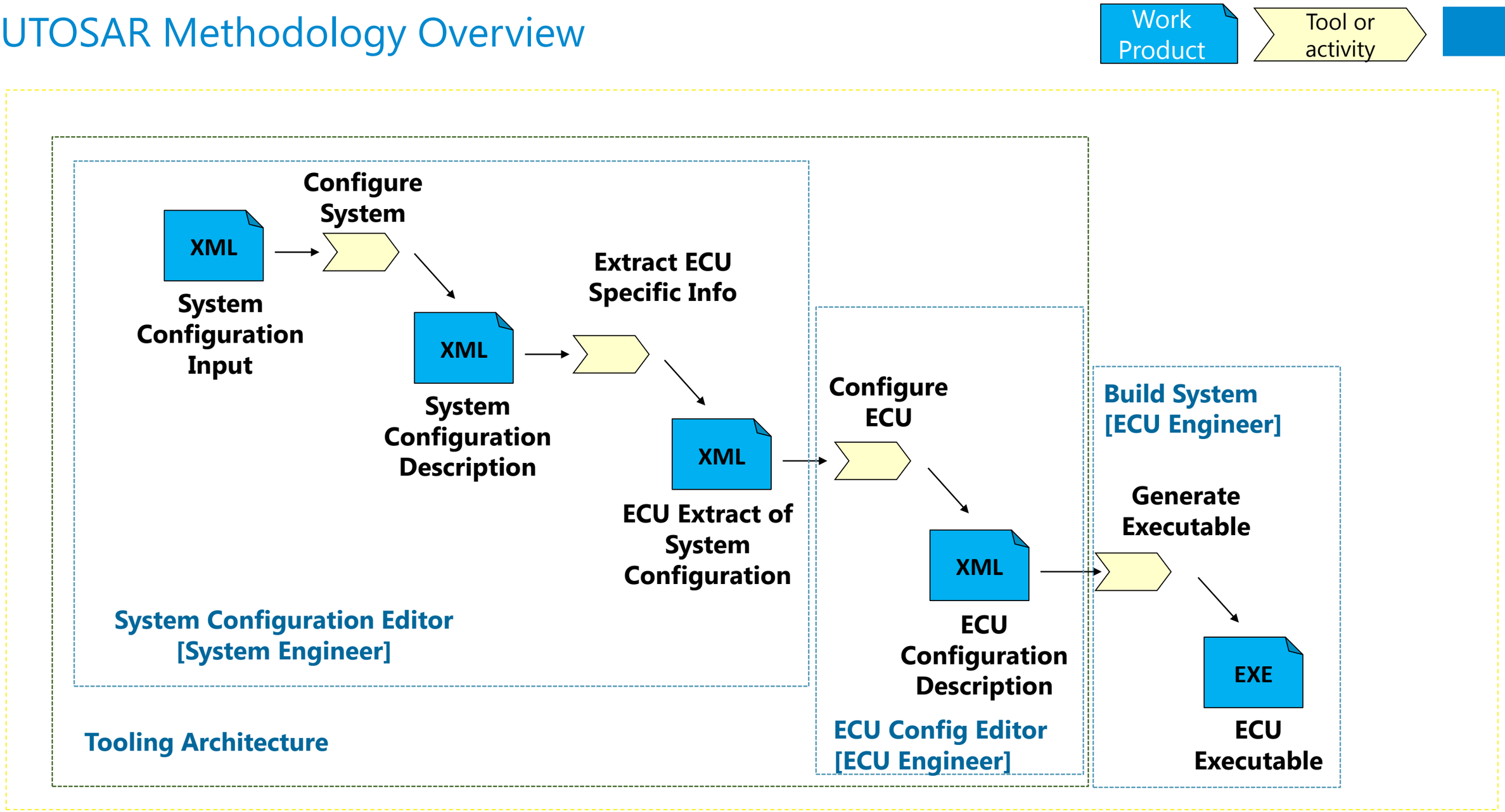
AUTOSAR Methodology Overview

KPIT

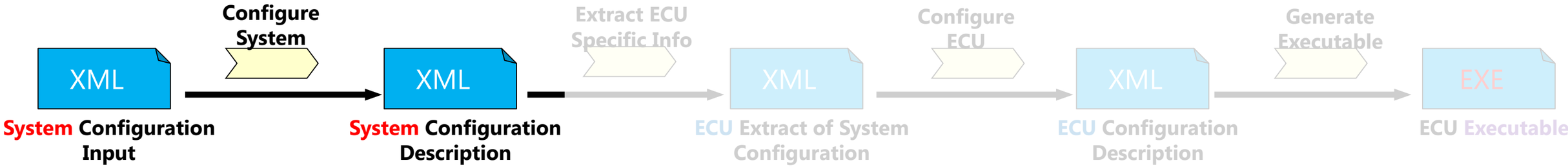
Agenda

1. System Configuration
2. Extraction of the ECU specific information
3. ECU Configuration
4. Generation of the module configuration
5. AUTOSAR Methodology Summary
6. K-SAR Editor Demo

AUTOSAR Methodology Overview



1. System Configuration

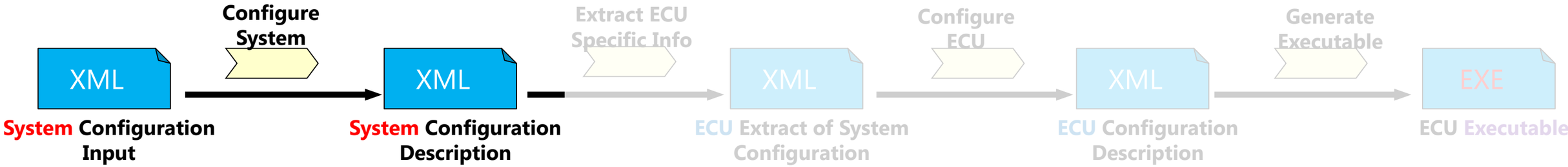


The configuration of the system has the goal to **unify** the description of the software components and the description of the **system inputs and hardware resources**

I. The input of this activity is an instance of the **System Template**, which is named System Configuration Input. System Configuration Input holds **constraints**, which concern the communication matrix and the mapping of hardware and software
II. The second input for the activity Configure System is a collection of all available **Software component** implementations
III. Activity **Configure System** involves **mapping** System elements to Software elements
IV. The output is **The System Configuration Description** references the communication matrix, the topology and the top level composition

Work Product | Tool or activity

1. System Configuration

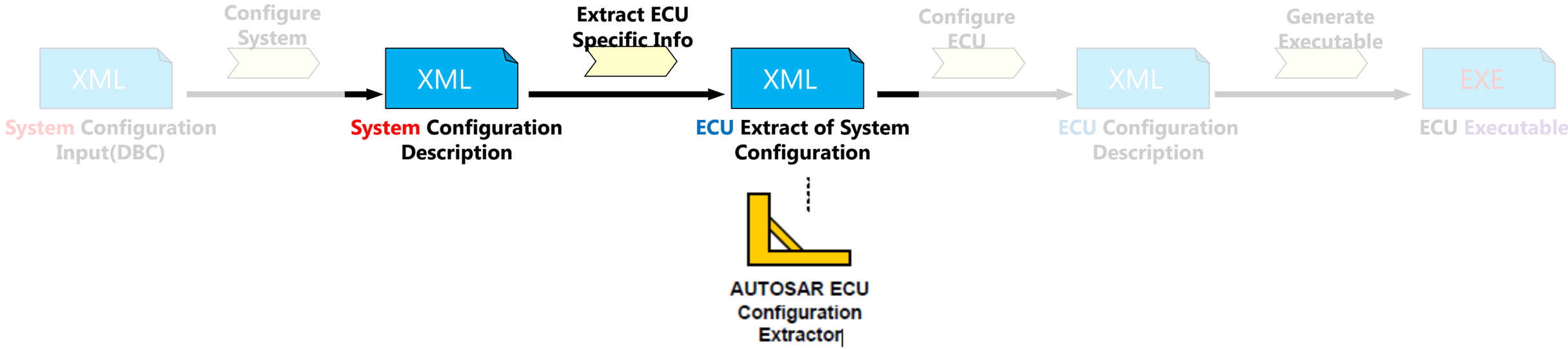


The **System Configuration Description** contains all relevant system-wide configuration, such as

I. **ECU**s present in the system
II. **Communication systems** interconnecting those ECUs and their configuration
III. **Communication matrices** (frames sent and received) for those communication systems
IV. Definition of Software Components with their **ports and interfaces and connections** (defined in the SWC Description and referenced in the System Configuration Description)
V. **Mapping** of SWCs to ECUs
The ECU Extract of the System Configuration is a description in the same format as the System Configuration Description, but with only those elements included that are relevant for the configuration of one specific ECU.

Work Product | Tool or activity

2. Extraction of the ECU specific information

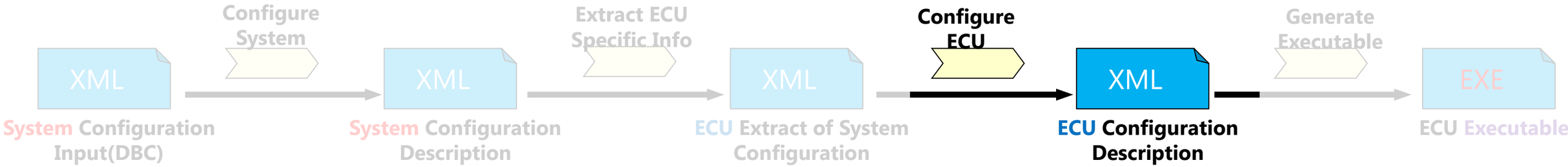


I. **Extract ECU-Specific Information** activity of the methodology demands on supporting tool under the conceptual tool name **AUTOSAR ECU Configuration Extractor(e.g. K-SAR)**

II. Output is similar to the System Configuration Description, but it holds only the information that is relevant for a **Single ECU**

Work Product | Tool or activity

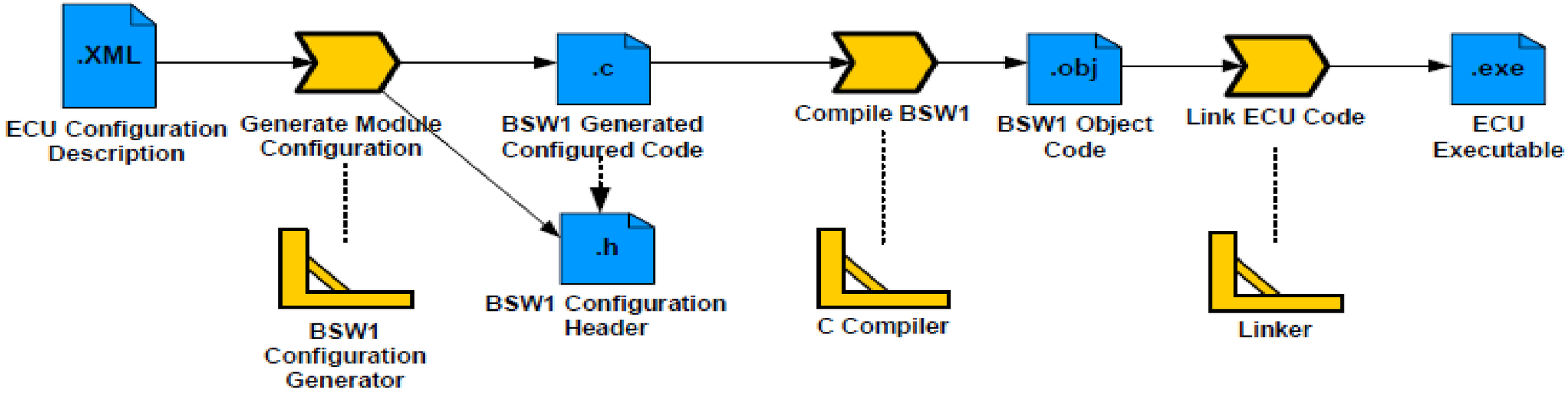
3. ECU Configuration



I. After the extraction of the ECU specific parts, the basic software modules have to be configured for the ECU
II. The configuration information for the whole ECU is described in the **ECU Configuration Description**
III. The **Basic Software Module Description** holds the information about the used implementation for a basic software module
IV. Link between ECU configuration description and Basic Software Module Description of every Basic Software module that will run of the ECU and the RTE

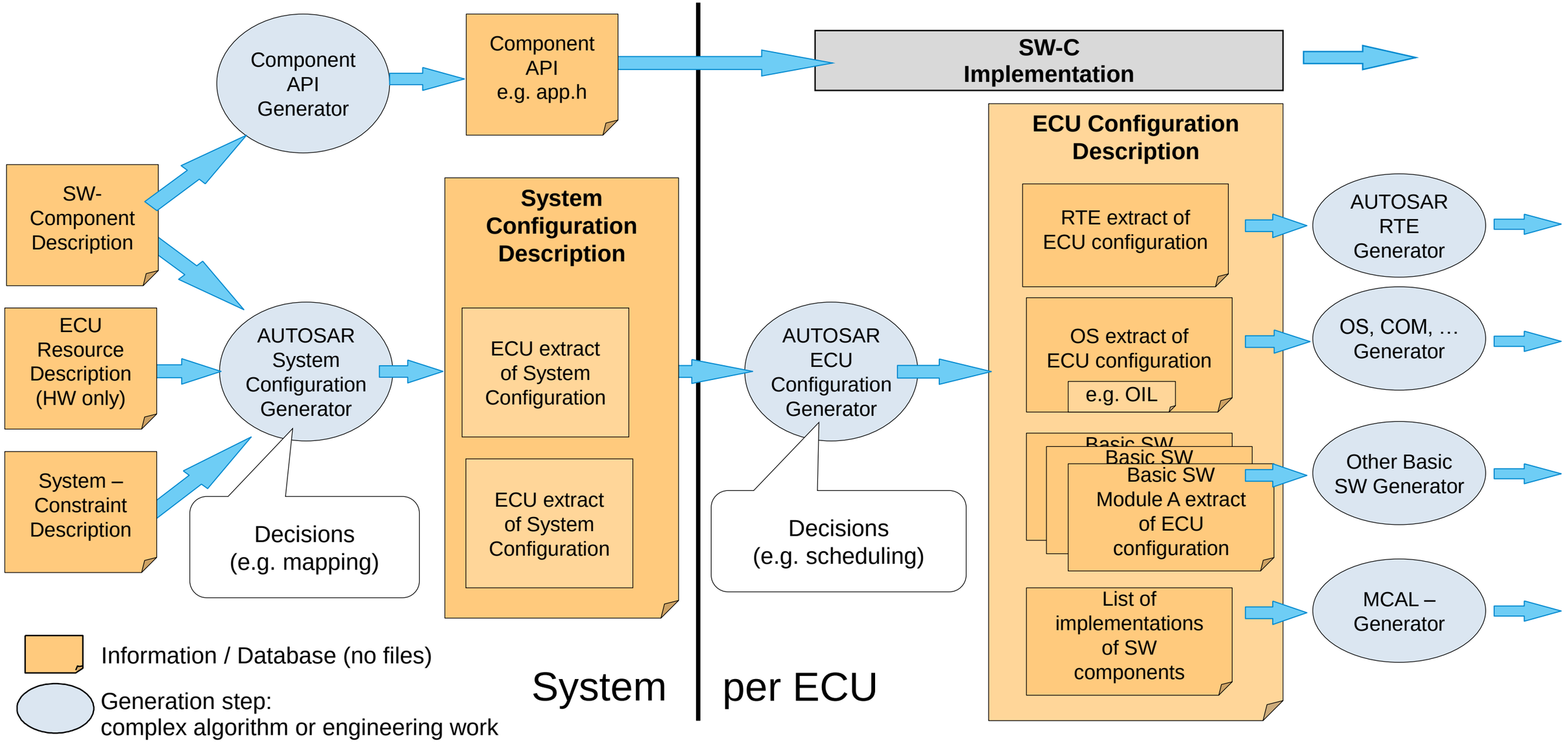
Work Product | Tool or activity

4. Generation of the module configuration



I. The last step after the configuration of the ECU is the generation of the executable
II. This activity is done for each **Basic Software module and configuration class**
III. The activity Generate Module Configuration produces different outputs, dependent on the configuration classes
IV. Different configuration classes are **pre-compile time, link time and post-build time**

5. AUTOSAR Methodology Summary



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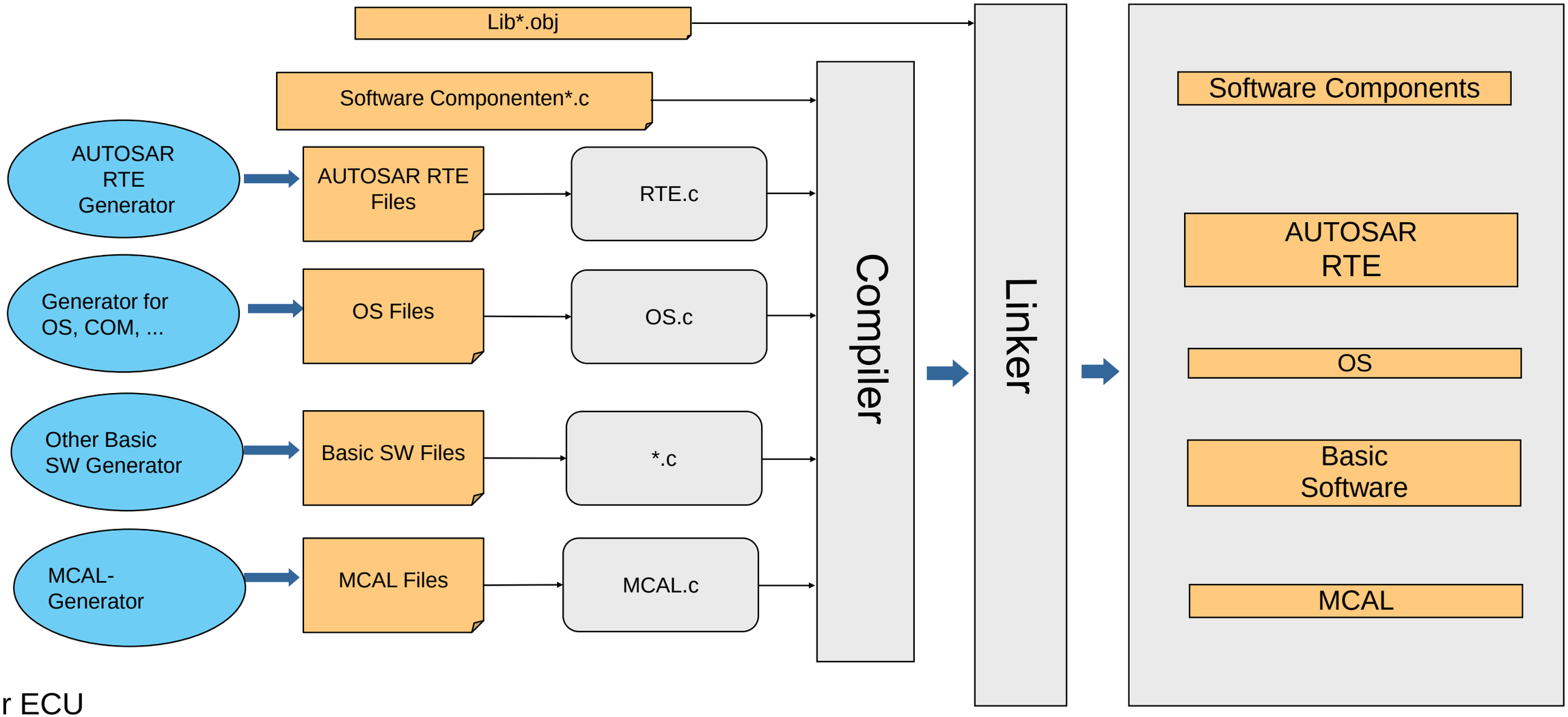

per ECU

Note: these steps resembles today's development praxis

Thank You

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