



## From System Design to the ECU

Vector AUTOSAR Roadshow 2008

# Agenda

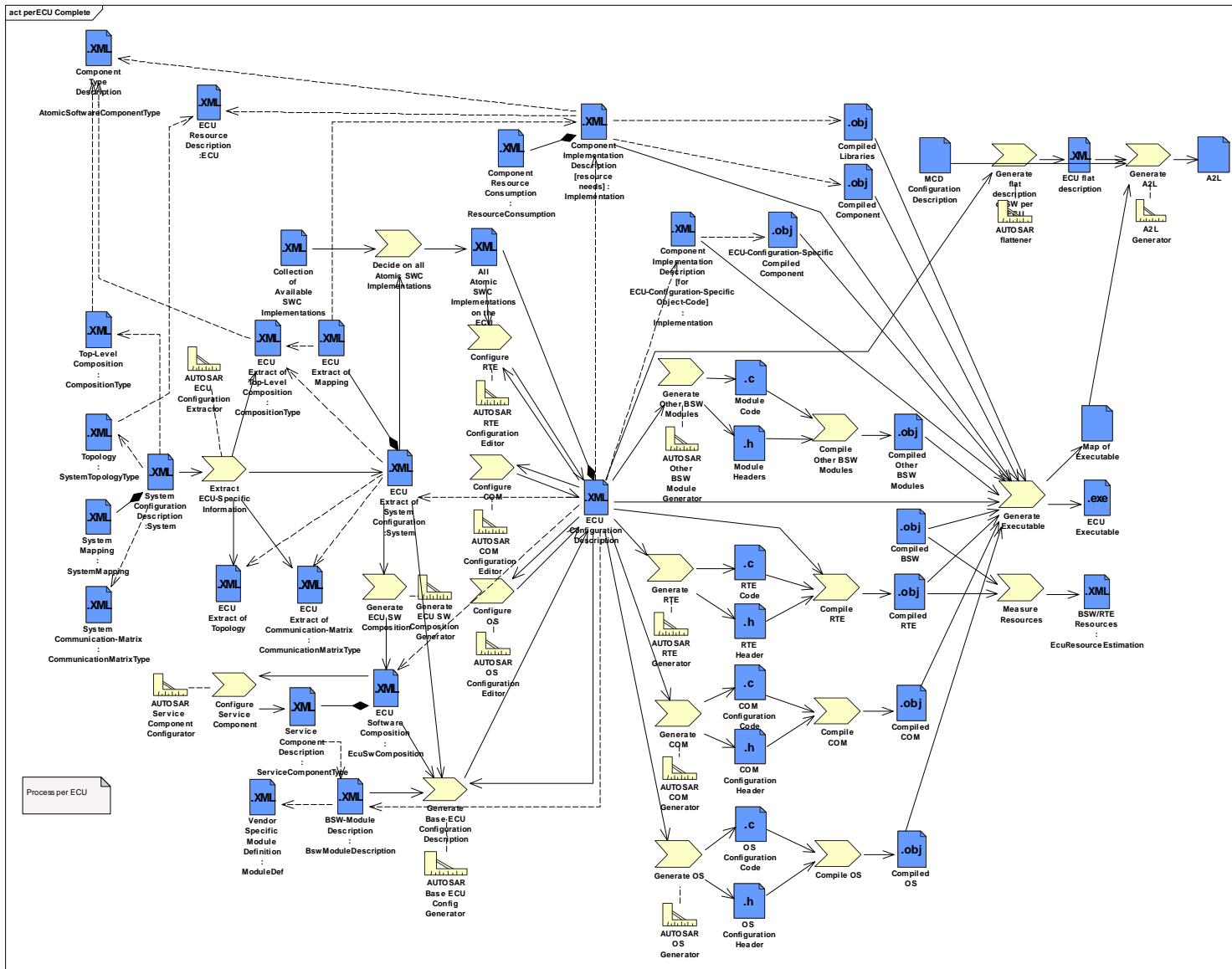
## > AUTOSAR Methodology

Data Exchange

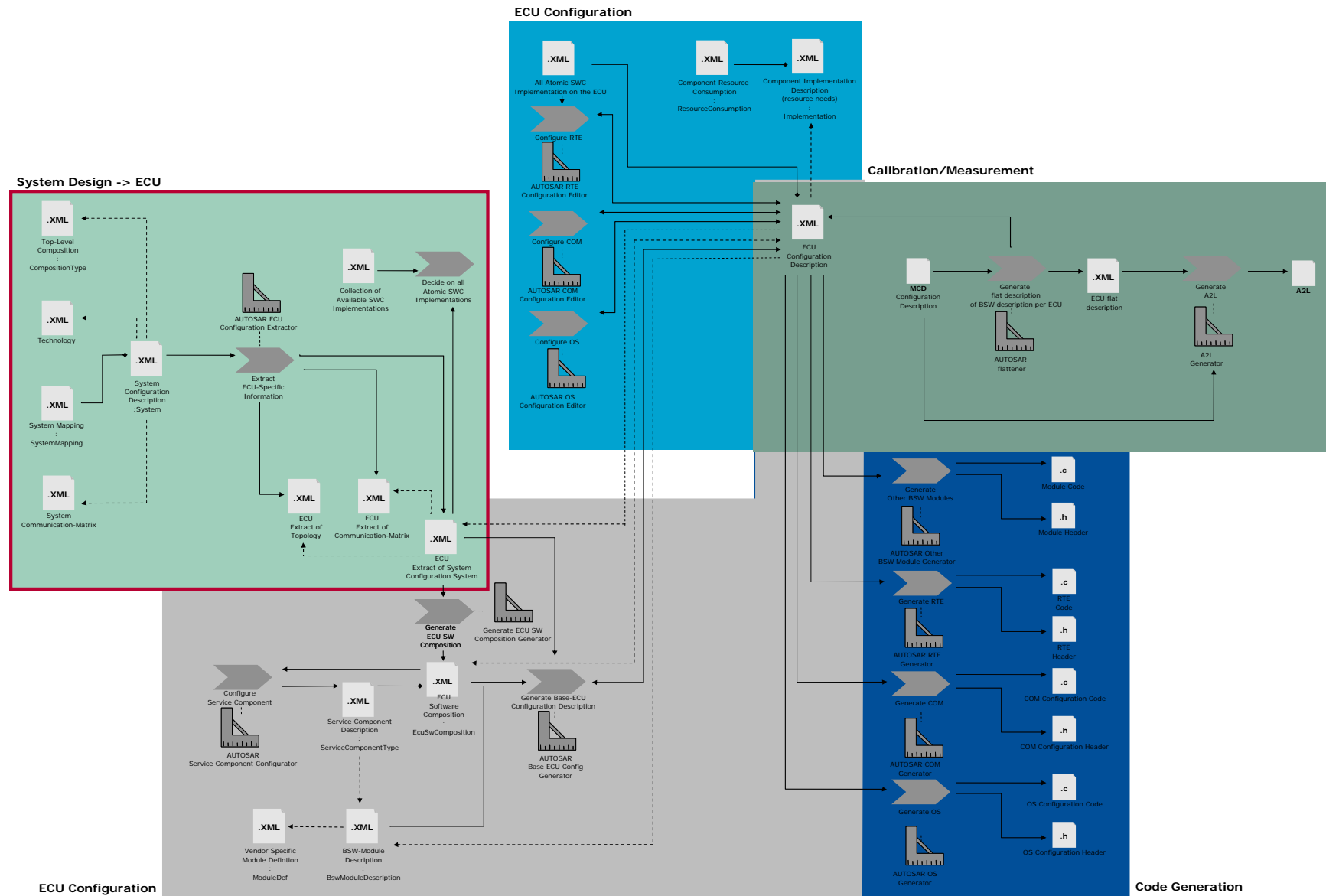
Working with the Tools

Summary

# AUTOSAR Methodology

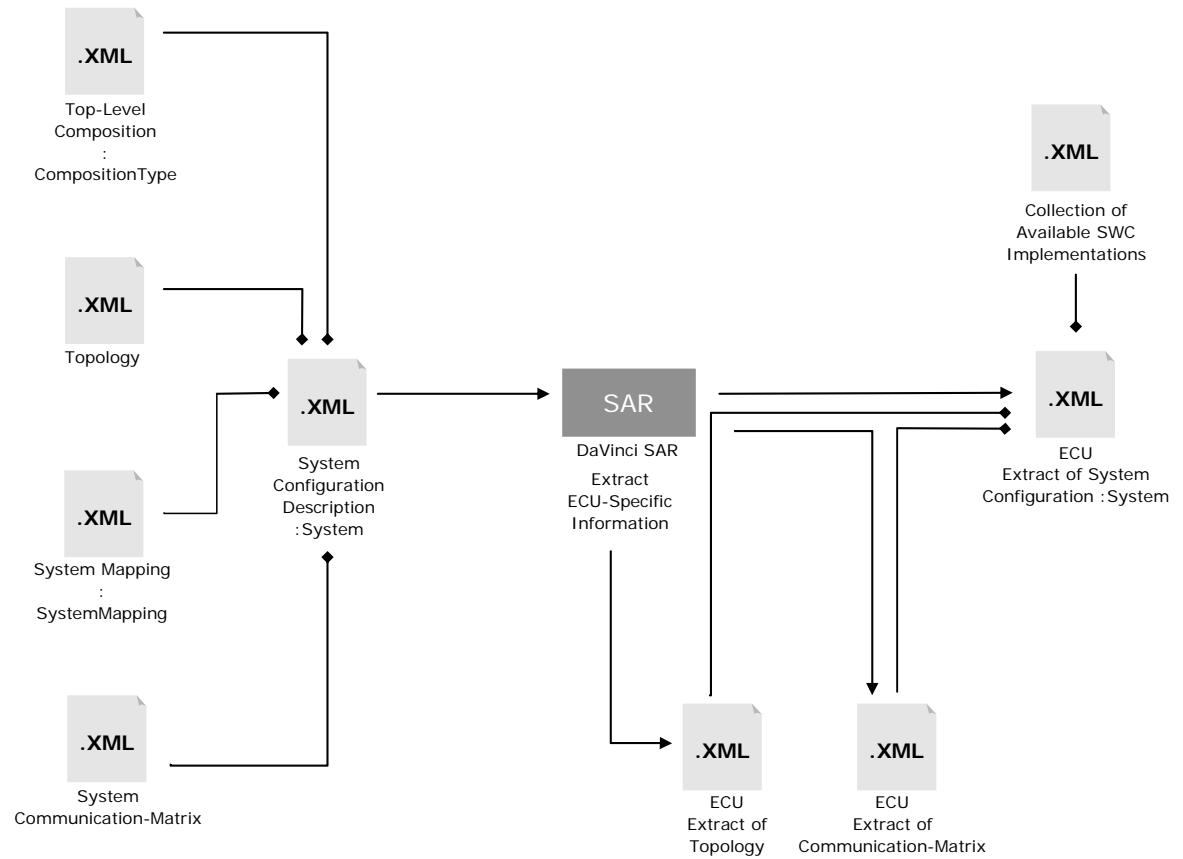
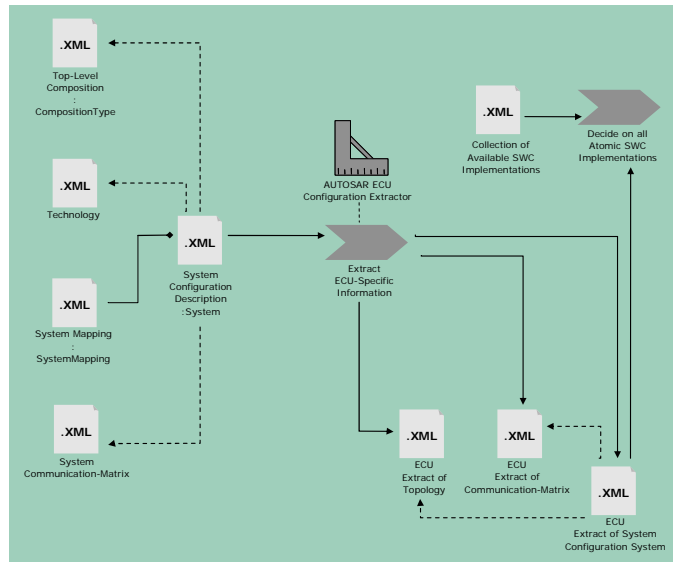


# AUTOSAR Methodology

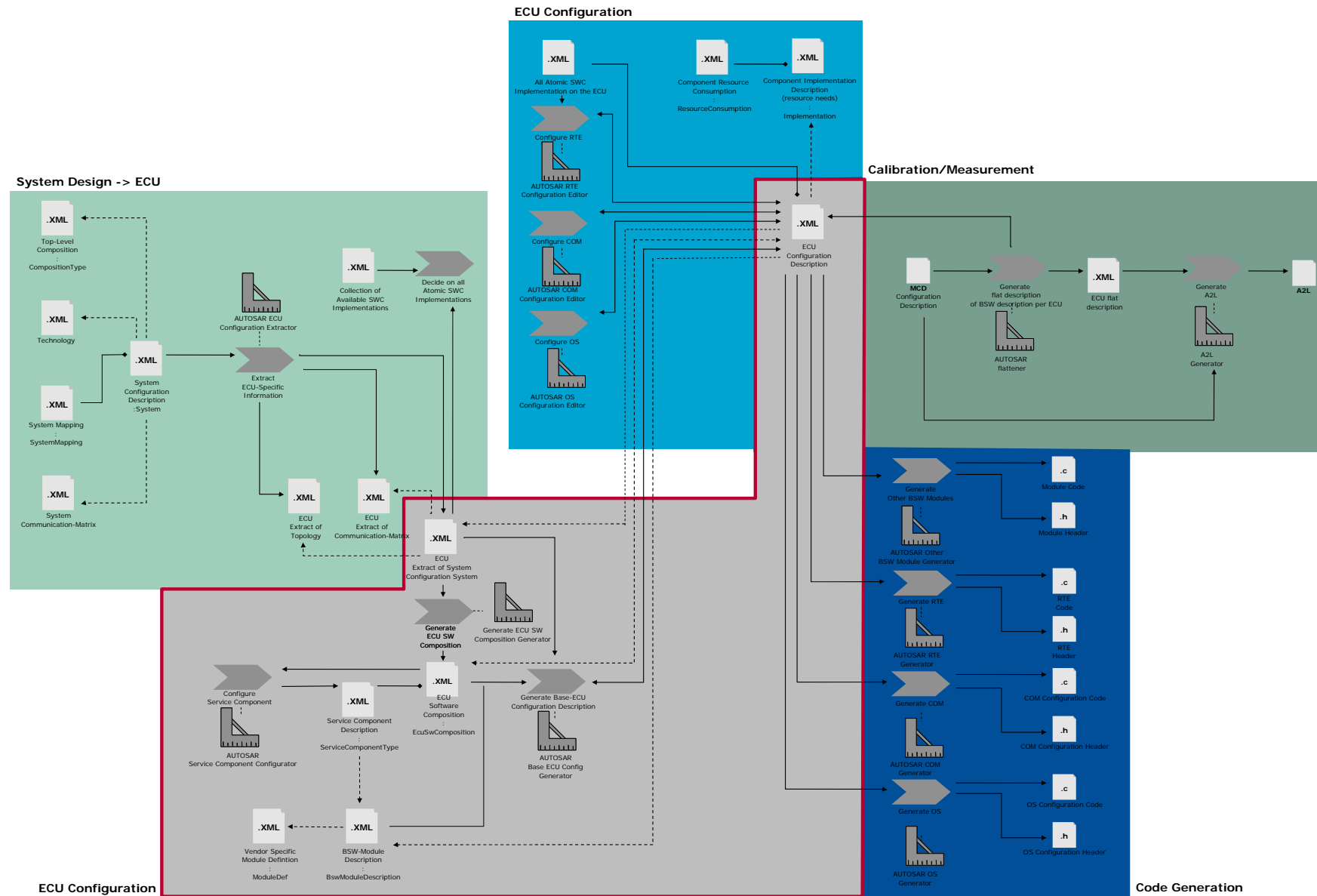


# AUTOSAR Methodology

## System -> Extract of System

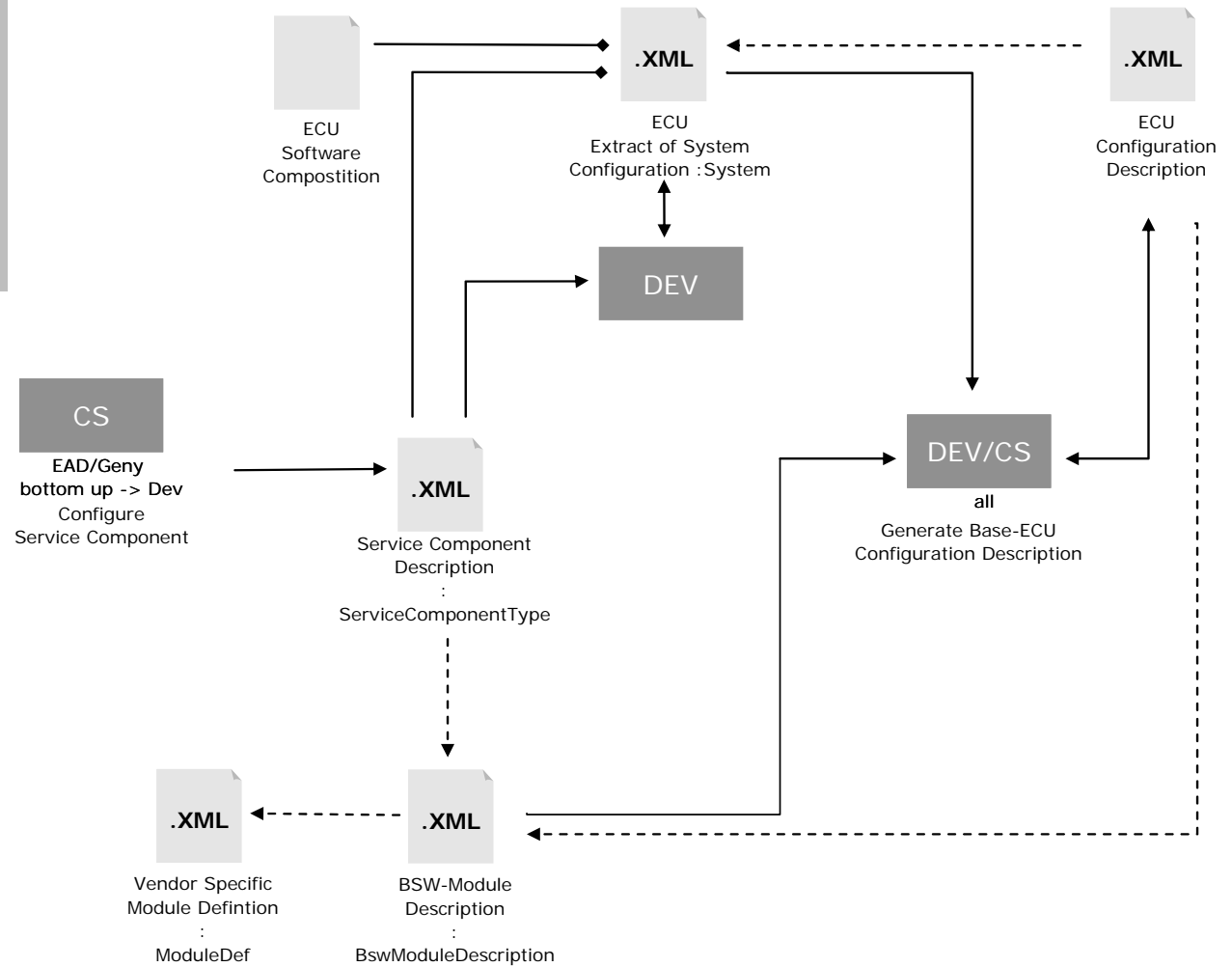
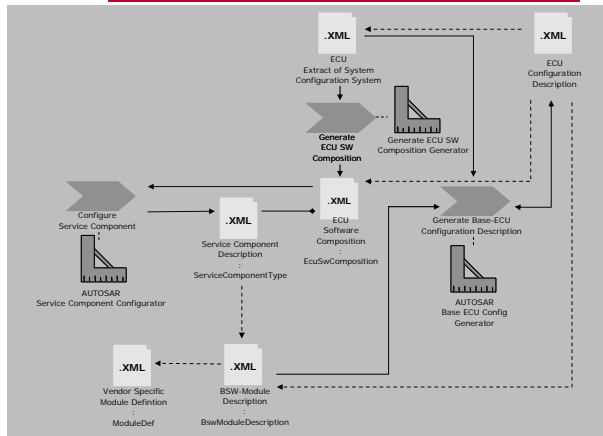


# AUTOSAR Methodology

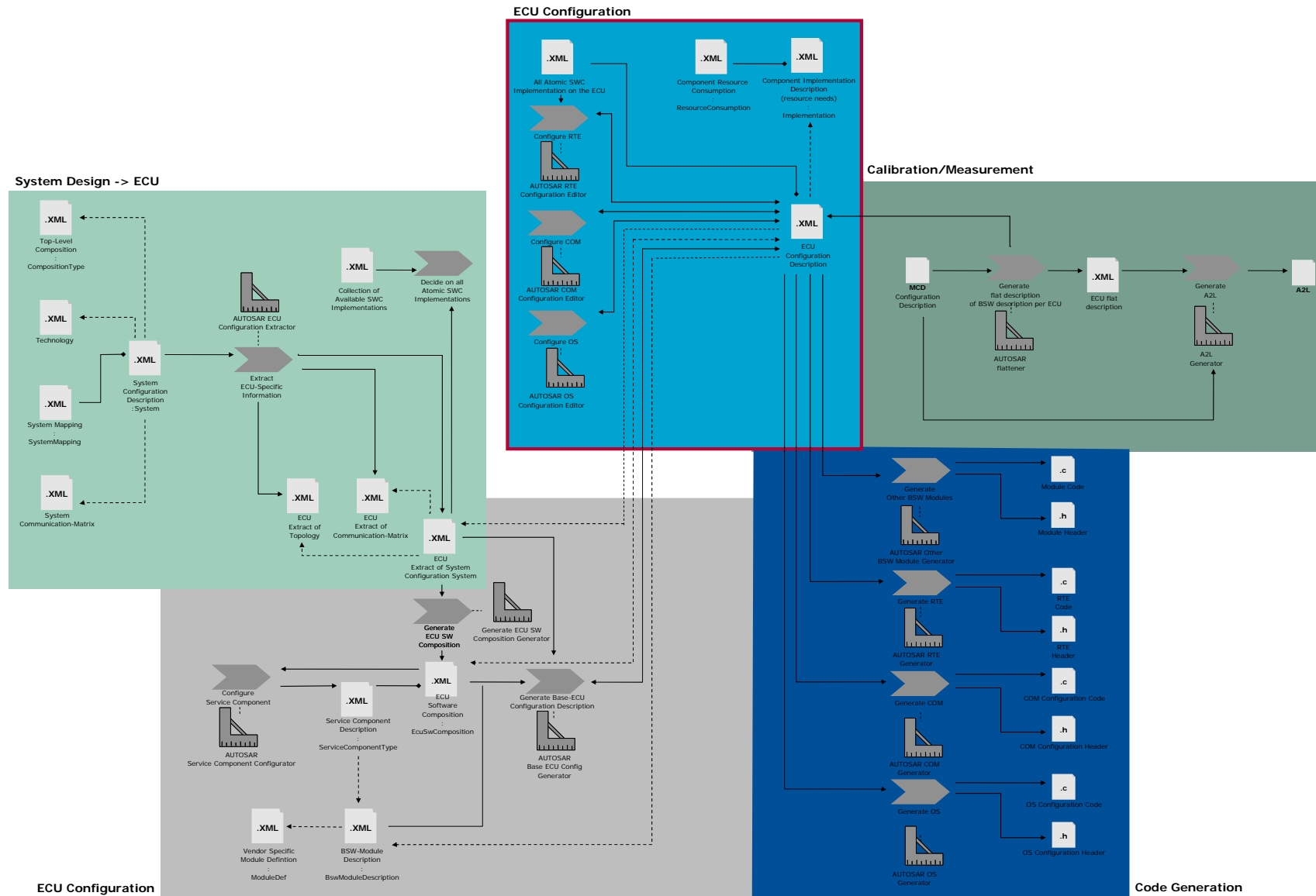


# AUTOSAR Methodology

## ECU Configuration

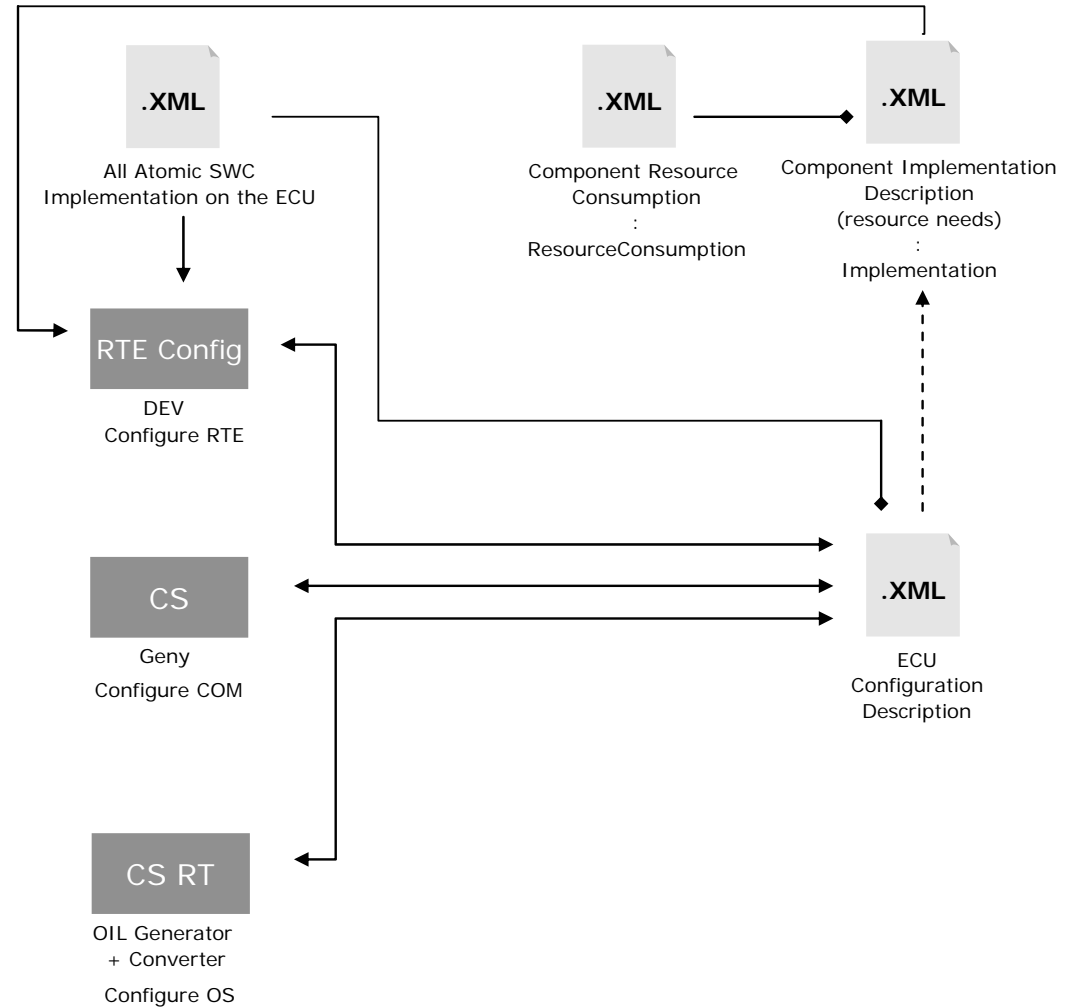
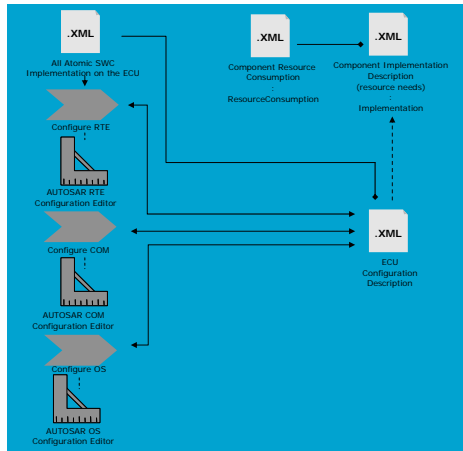


# AUTOSAR Methodology

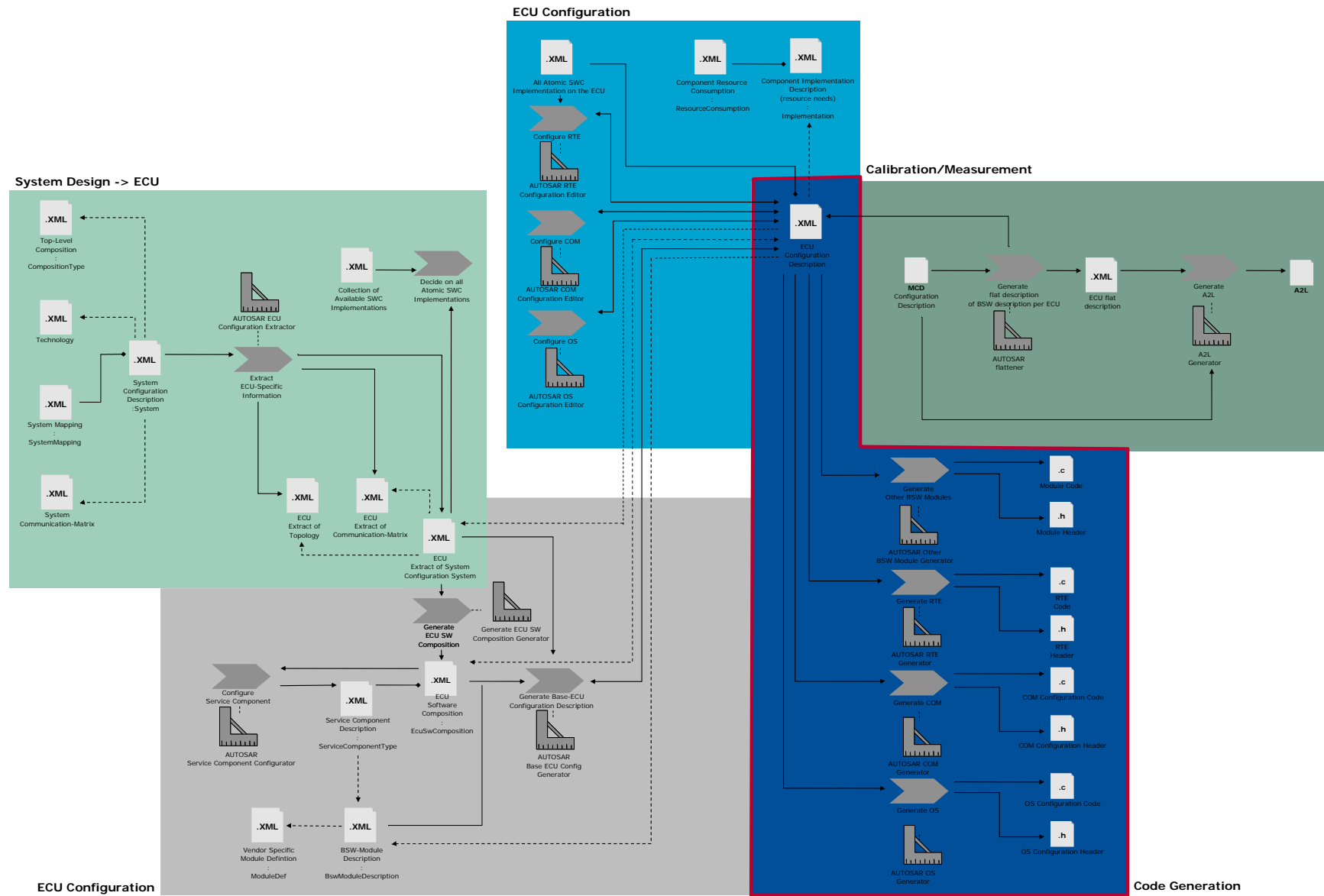


# AUTOSAR Methodology

## ECU Configuration

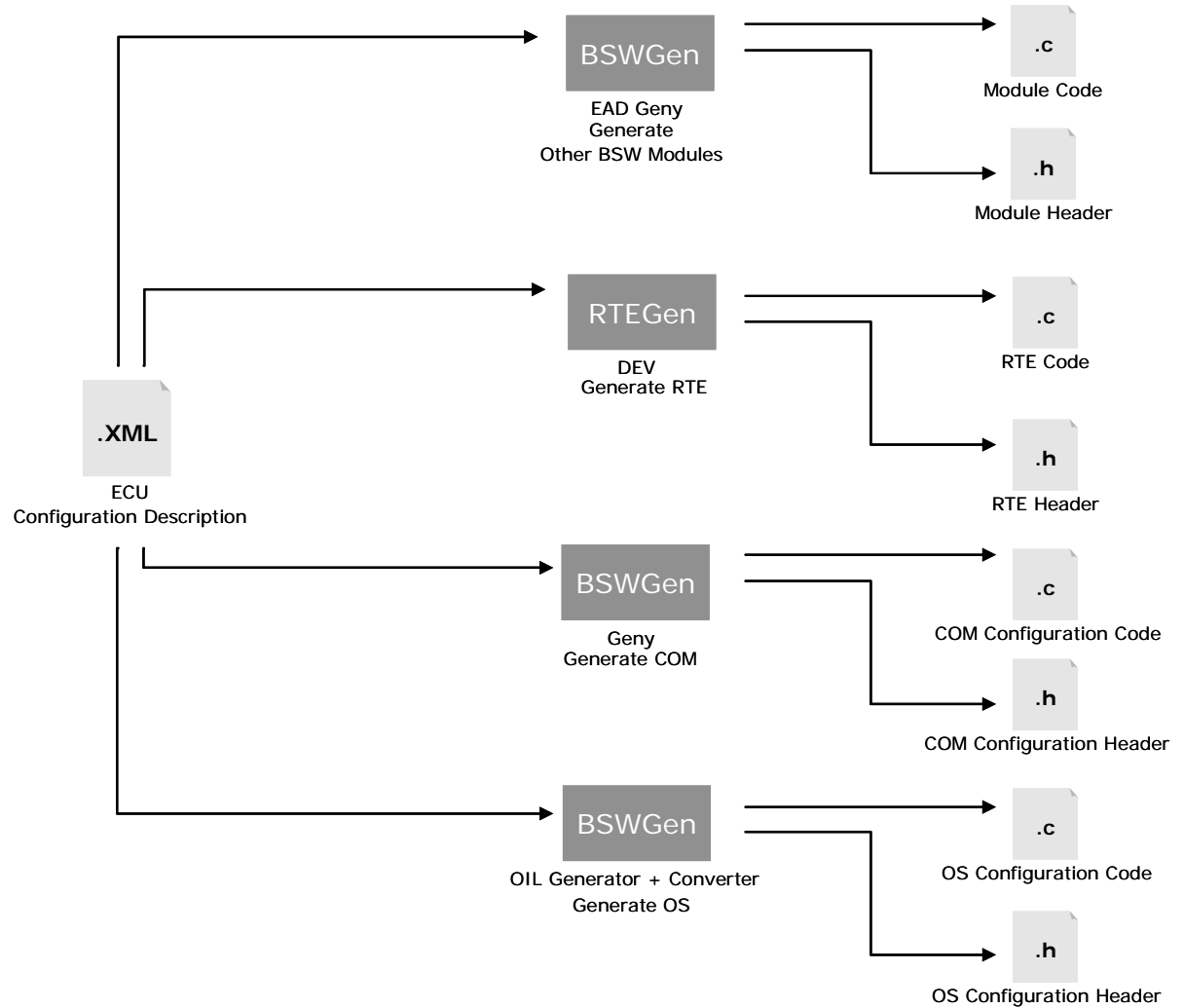
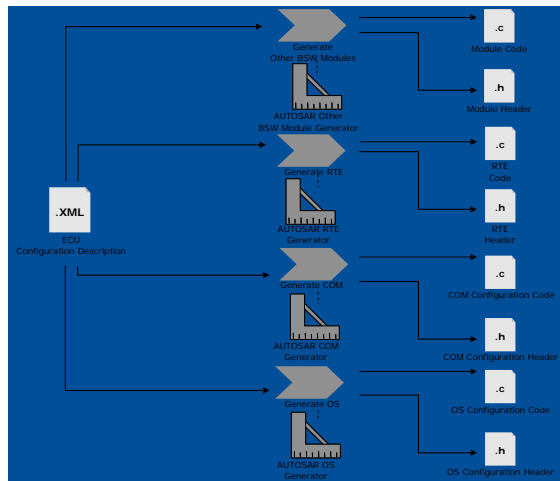


# AUTOSAR Methodology

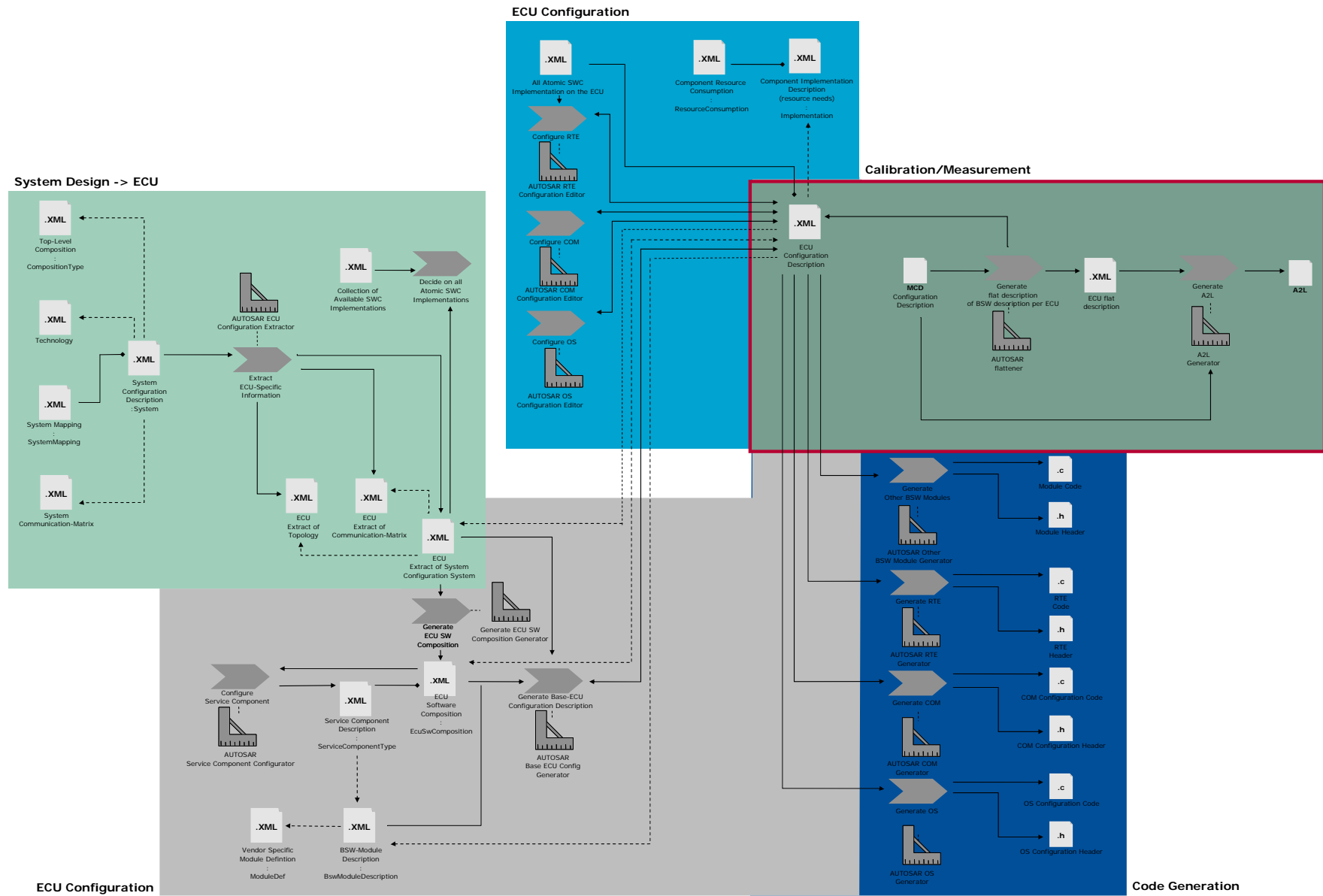


# AUTOSAR Methodology

## Code Generation

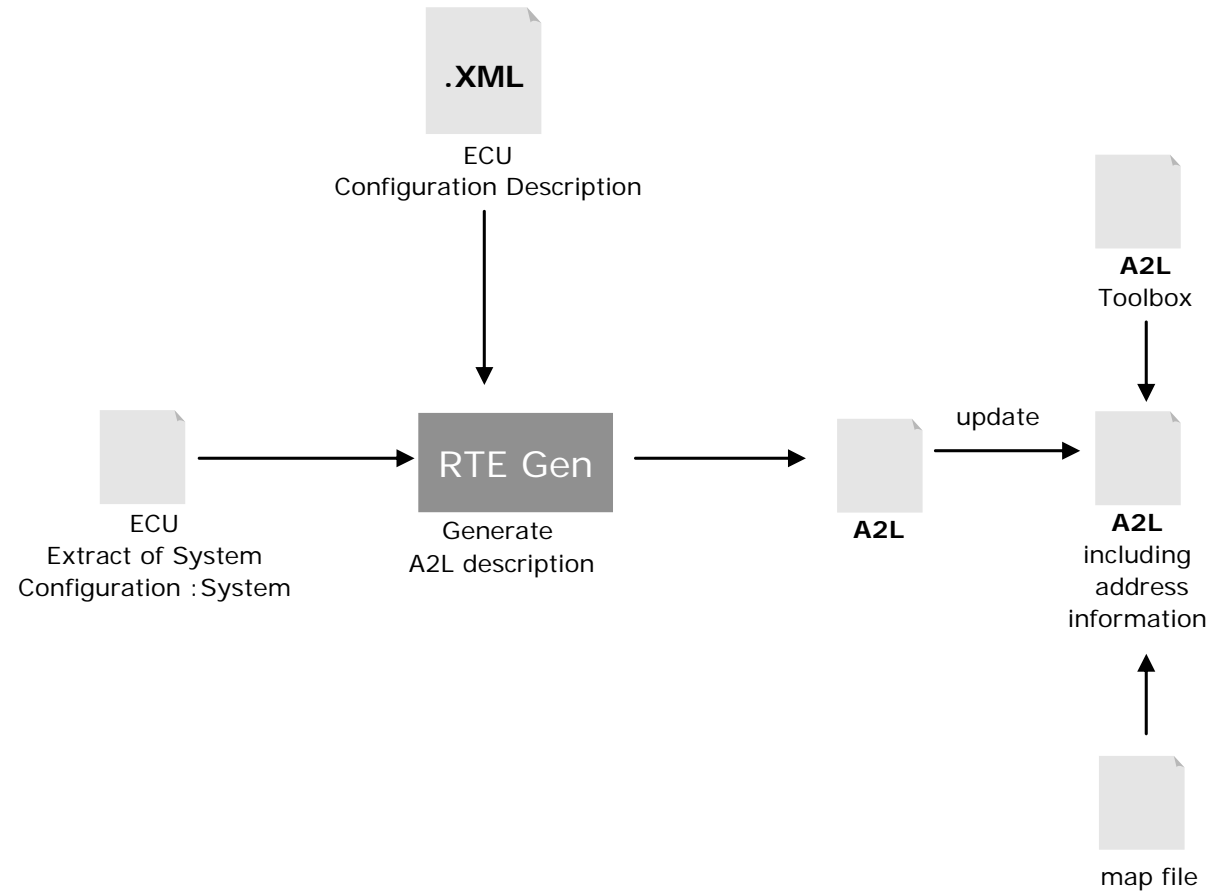
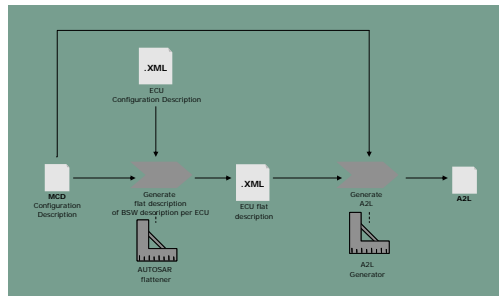


# AUTOSAR Methodology

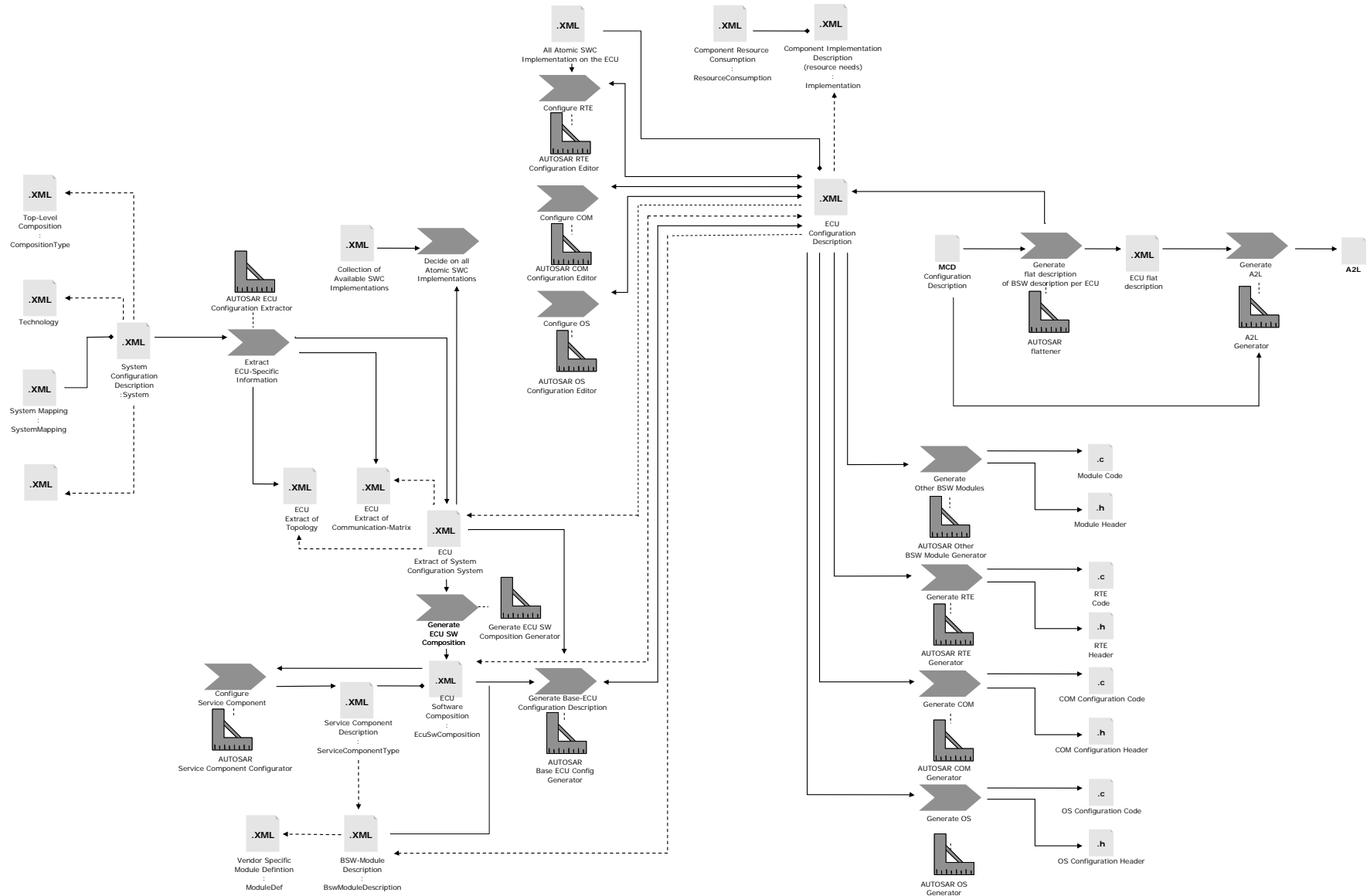


# AUTOSAR Methodology

## Calibration/Measurement

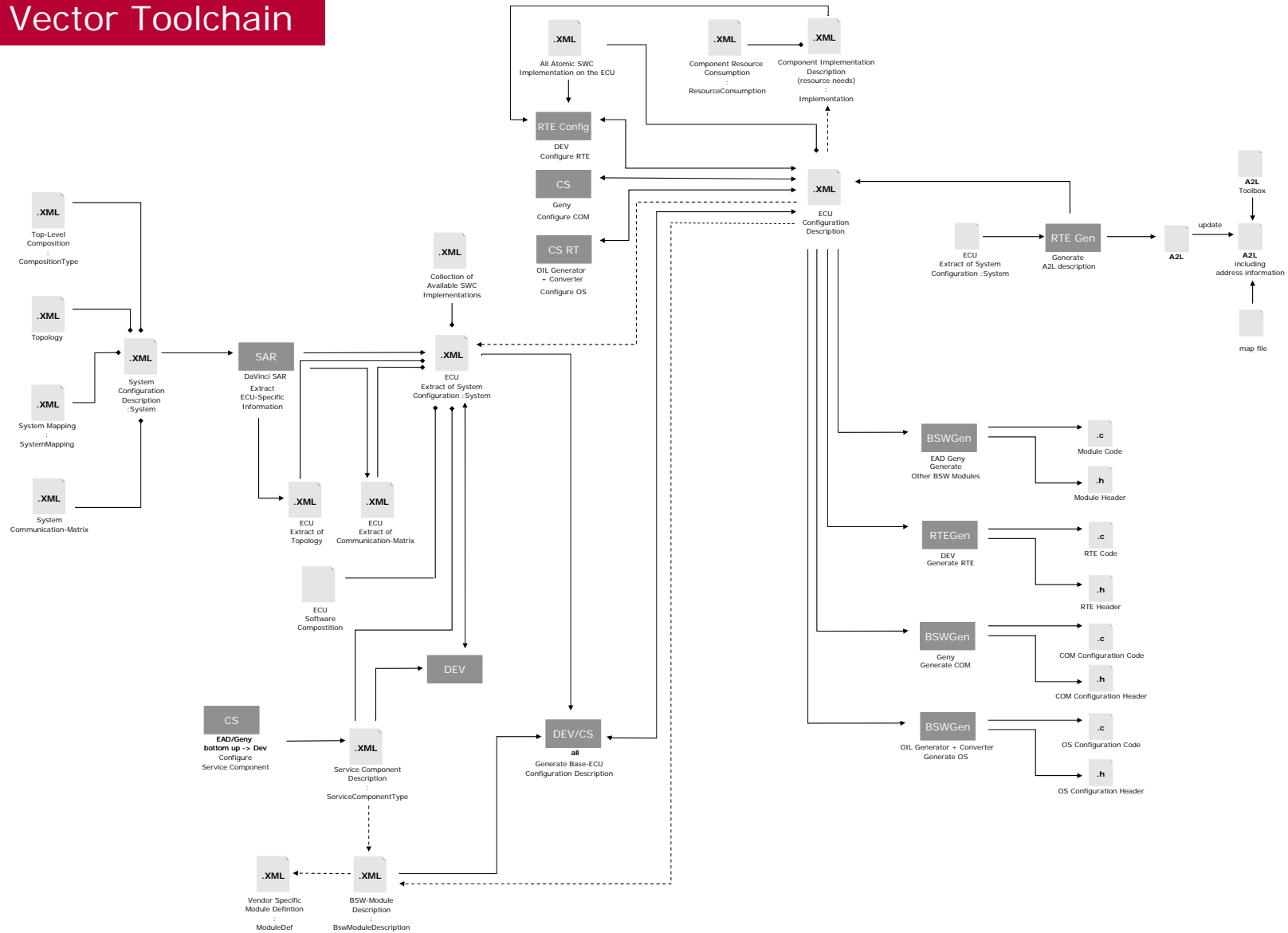


# AUTOSAR Methodology



# AUTOSAR Methodology

## Vector Toolchain



# Agenda

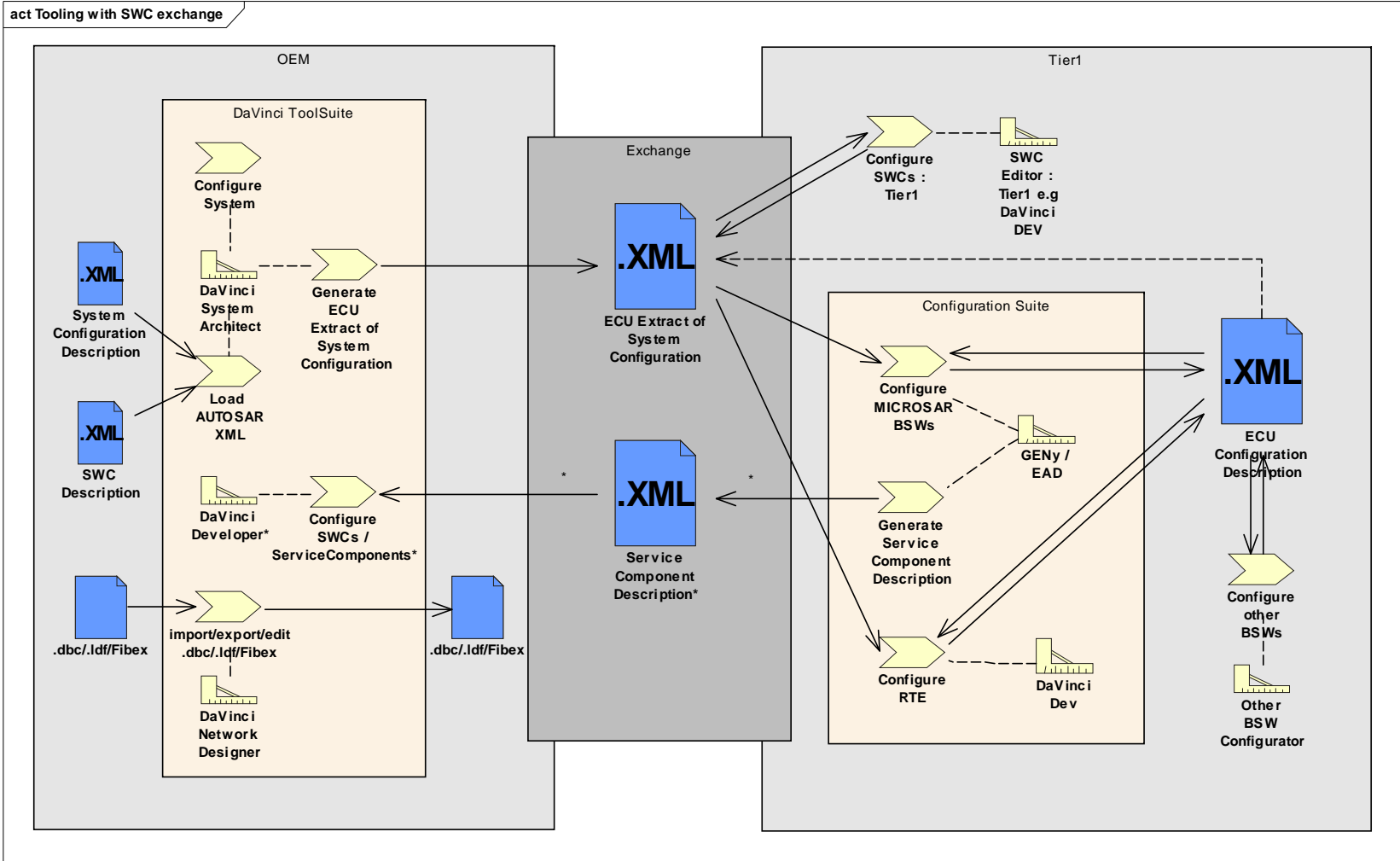
AUTOSAR Methodology

**> Data Exchange**

Working with the Tools

Summary

# Data Exchange



# Agenda

AUTOSAR Methodology

Data Exchange

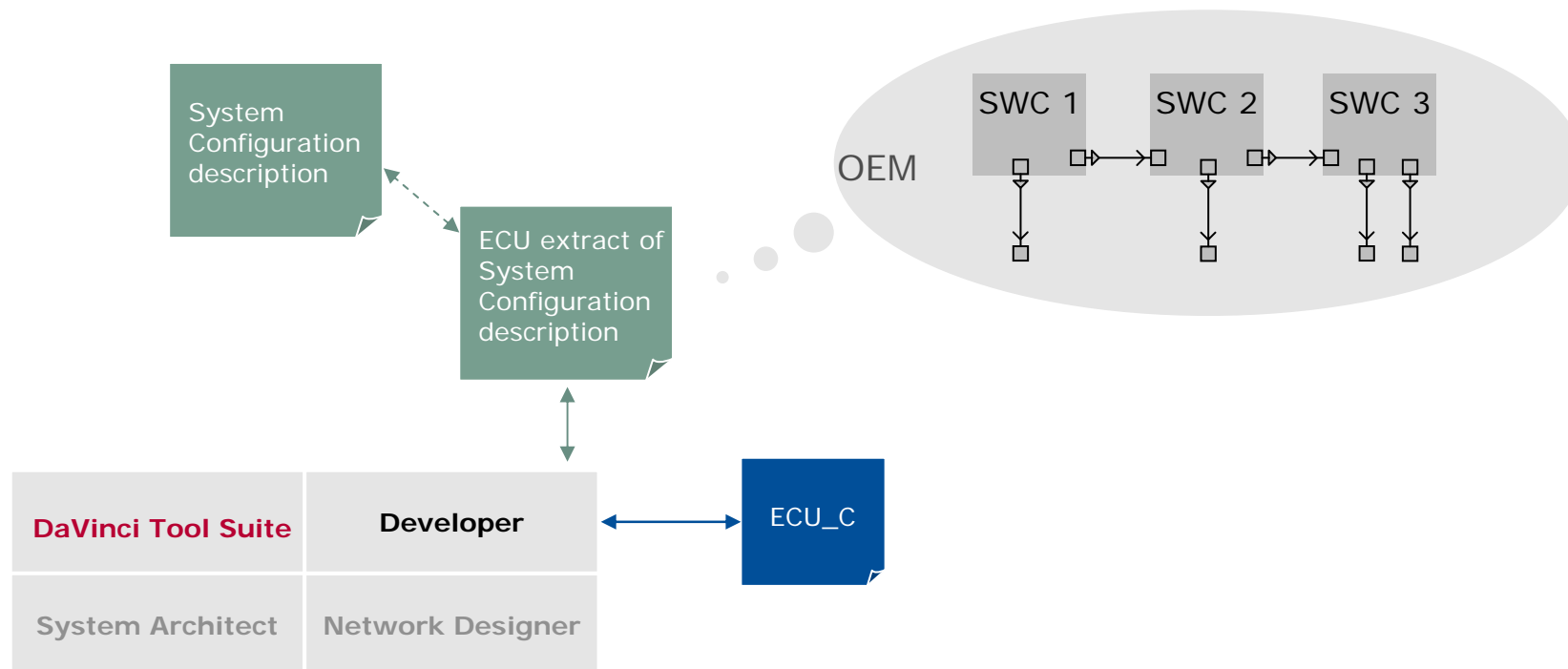
**> Working with the Tools**

Summary

# Working with the Tools

## Software Components

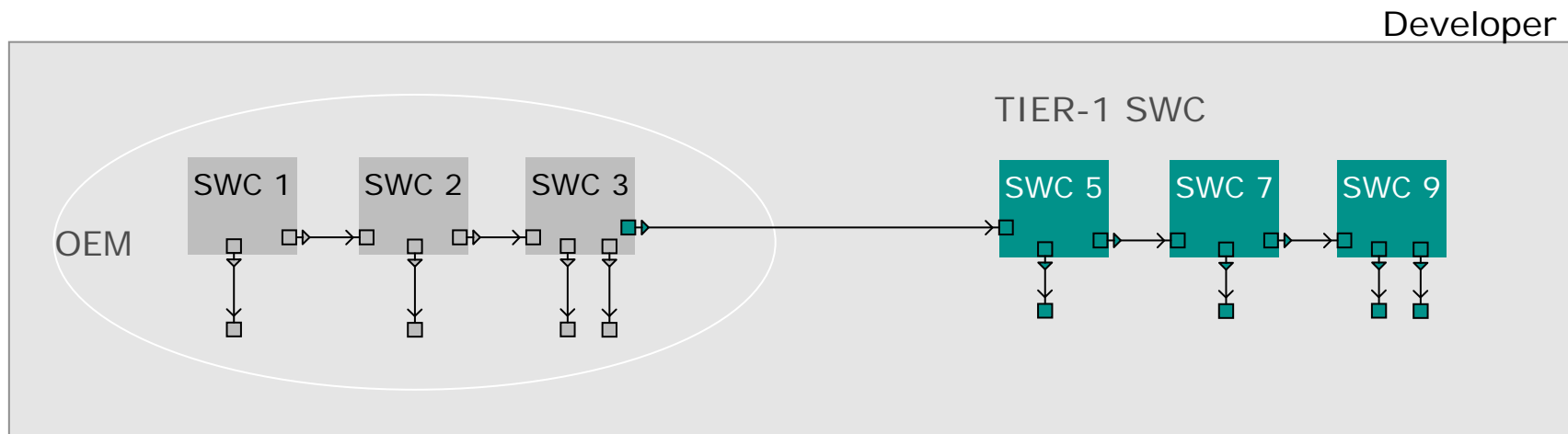
- ❑ Read extract of system description
  - ❑ Software Components as part of the system description (OEM)
    - ❑ Ports to other delivered SWCs are mapped
    - ❑ Ports to system signals are mapped



# Working with the Tools

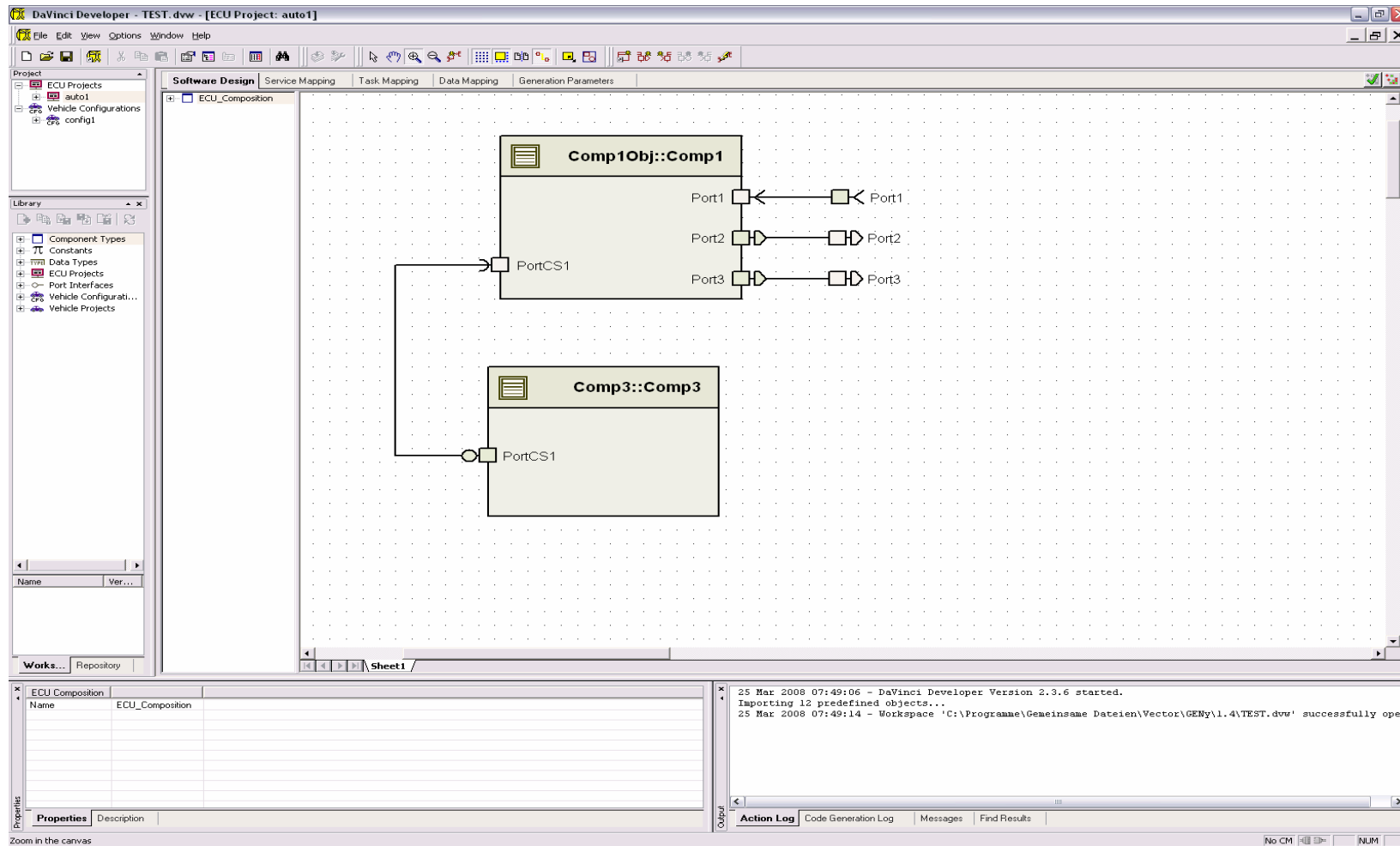
## Software Components

- ❑ Tier-1 SWC (Using modeling Tools)
  - ❑ Connecting ports with ports of other SWC
  - ❑ Connecting ports with system signals (bus signals)
  - ❑ Define runnables, exclusive areas,...
- ❑ Integration
  - ❑ Mapping runnables, critical sections



# Working with the Tools

## Software Components

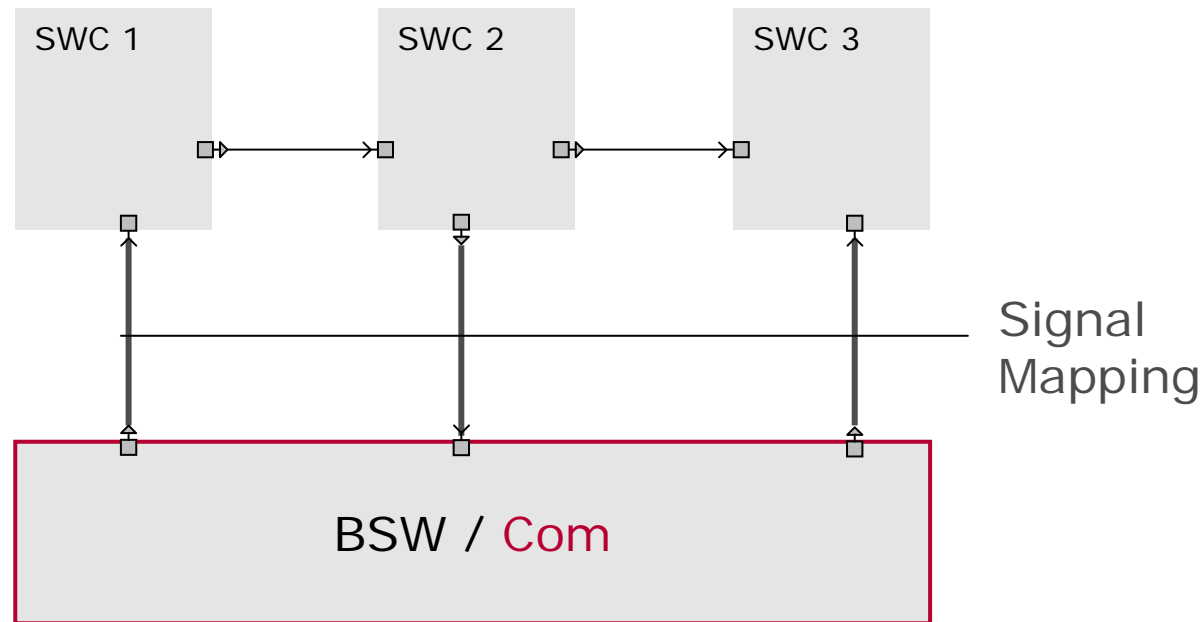


# Working with the Tools

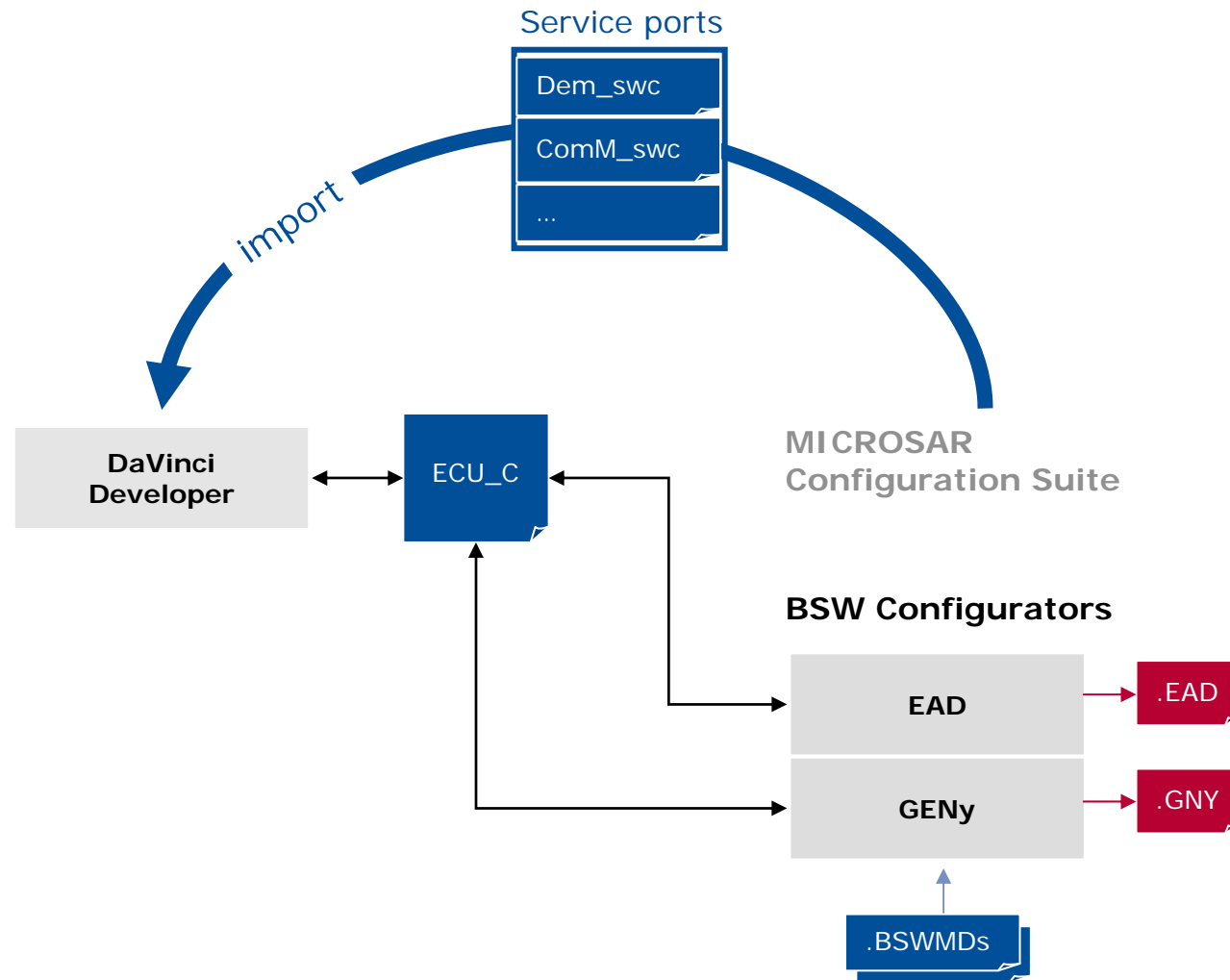
## Bus Signals

- ❑ Mapping between Ports and system signals

Software Design	Service Mapping	Task Mapping	Data Mapping	Generation Parameters	
Network Signal	Message	Network	Direction	Port	Data Element
SignalPort1_E1	msgAnmRxCh0	TsiVAP	Rx-Signal	Port1	Element1
SignalPort1_E2	msgAnmRxCh0	TsiVAP	Rx-Signal	Port1	Element2
SignalPort2	msgAnmTxCh0	TsiVAP	Tx-Signal	Port2	Element
SignalPort3	msgAnmTxCh0	TsiVAP	Tx-Signal	Port3	Element



# Working with the Tools



# Working with the Tools

## MICROSAR Configuration Suite

The image displays three windows from the MICROSAR Configuration Suite:

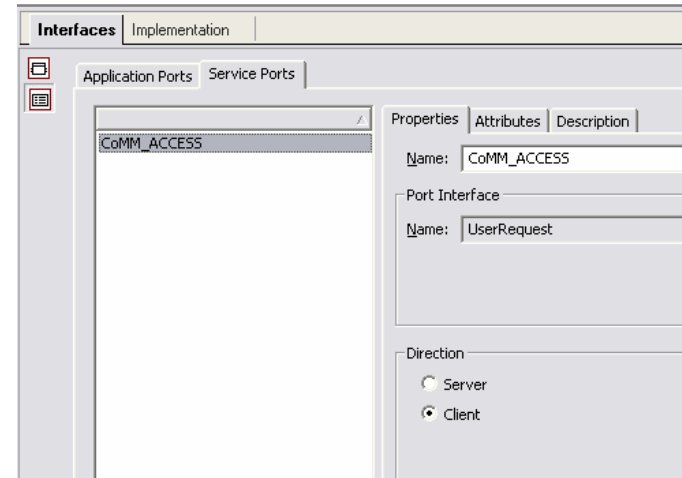
- GENy - [RoofUnit.gny : Nm\_AsrNmGeneric]**: Shows a tree view of components and a 'Configurable Options' panel. A callout points to the 'Generic Network Management Options' section, labeled 'configuration of the communication stack'. The options include Bus Load Reduction, User Data Support, Detection of Present Nodes, Remote Sleep Indication, Bus Synchronization, and Control Bit Vector.
- EAD - RoofUnit**: Shows a 'Project' window with 'Options' and 'MyECU' selected. A callout points to the 'Architecture' section, labeled 'configuration of I/O and memory'.
- Architect**: Shows a 'Services' window with 'I/O Drivers' selected, including 'Adc' and 'Dio'. A callout points to this window, labeled 'configuration of the OS'.

Additional windows visible include 'System Configuration' with a table of components and 'Adc - Analog/Digital-Converter' with various configuration settings.

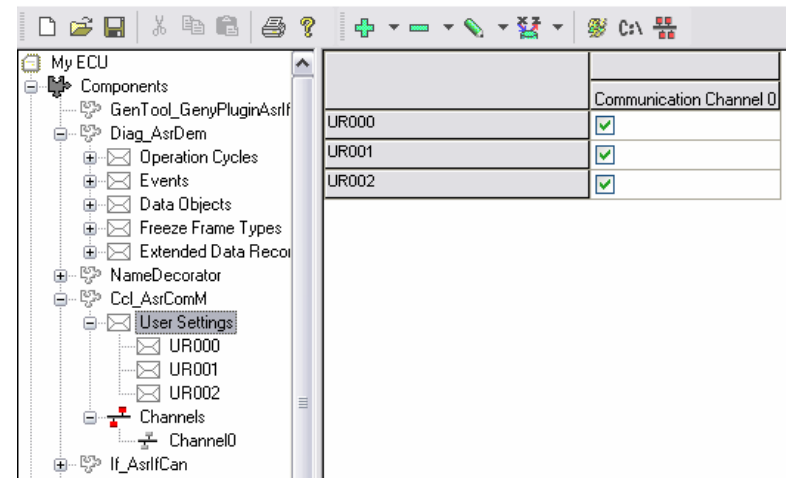
# Working with the Tools

## Service Ports

- ❑ Definition of the Service needs
  - ❑ Defining the Service Port
  - ❑ Select an Interface



- ❑ Definition of the Service Ports in the BSW
  - ❑ Definition of the Services based on the needs
  - ❑ Generating SWC Template

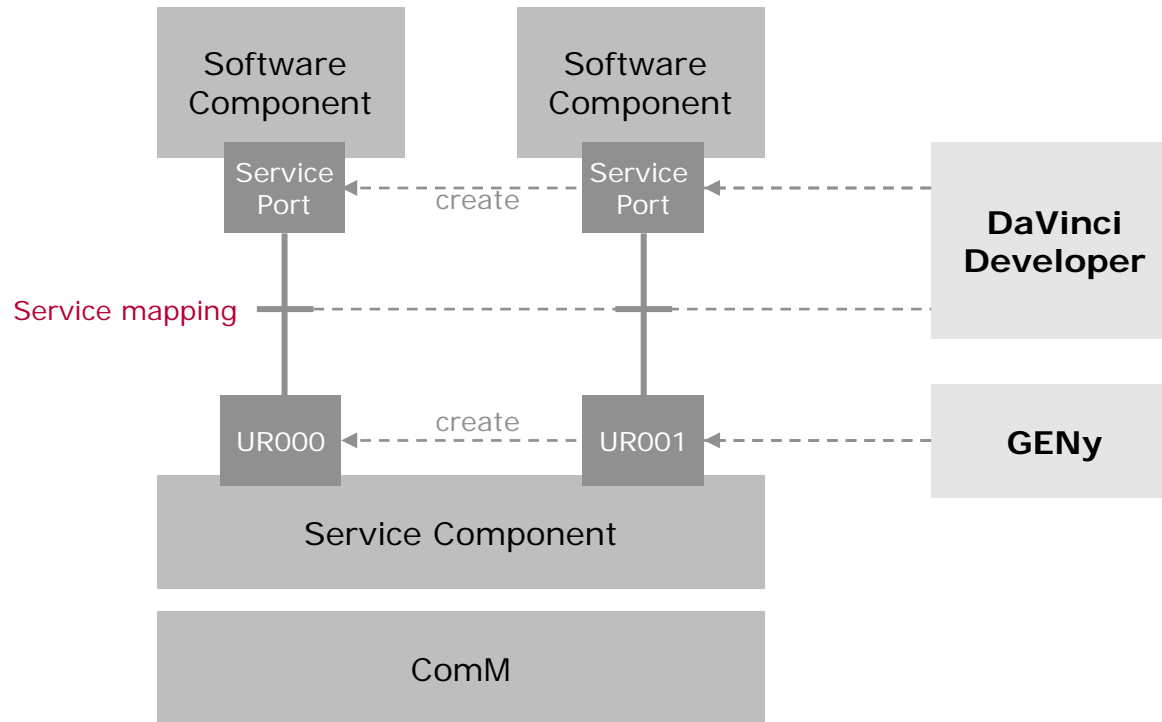


# Working with the Tools

## Service Ports

### □ Mapping the Service Ports

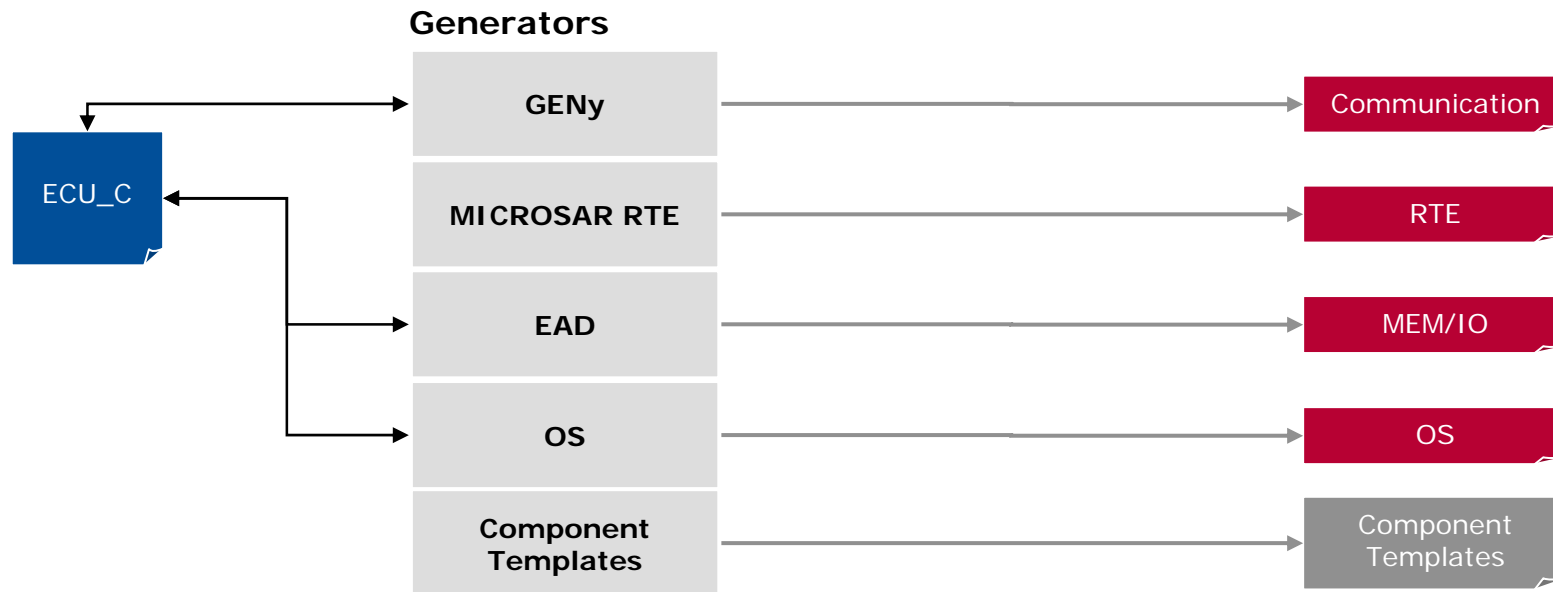
Application Component	Port	Port Interface	Service Component	Port	Port Interface
Comp1Obj	CoMM_ACCESS	UserRequest	ComM	UR000	UserRequest



# Working with the Tools

## Service Ports

### MICROSAR Tool Suite



# Working with the Tools

## Generating Code

### ❑ RTE

- Rte.c
- Rte.h
- Rte.oil
- Rte\_Cbk.h
- Rte\_Cfg.h
- Rte\_Compiler\_Cfg.h
- Rte\_Hook.h
- Rte\_Main.h
- Rte\_MemMap.h
- Rte\_ResourceUsage.txt
- Rte\_Type.h

- Rte\_ComM.h
- Rte\_Comp1.h
- Rte\_Comp3.h

- Rte\_cfg.mak
- Rte\_check.mak
- Rte\_defs.mak
- Rte\_rules.mak

### ❑ BSW

- \_doc
- mak
- CanIf.h
- CanIf\_Cbk.h
- CanIf\_Types.h
- LinIf.lib

- CanIf\_Cfg.c
- CanIf\_Cfg.h
- CanIf\_Lcfg.c
- CanIf\_PBcfg.c

- CanIf\_cfg.mak
- CanIf\_check.mak
- CanIf\_defs.mak
- CanIf\_rules.mak

# Agenda

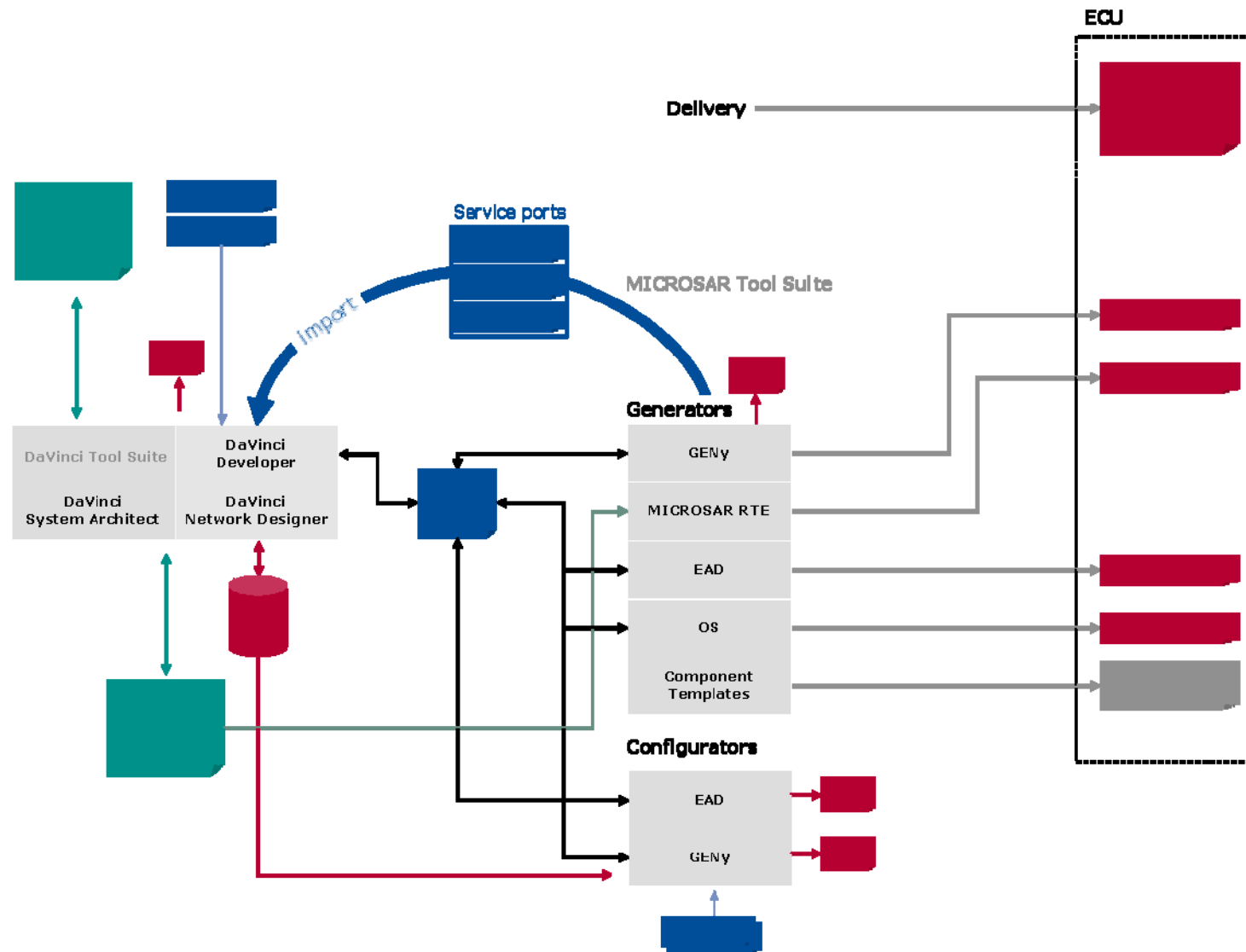
AUTOSAR Methodology

Data Exchange

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> **Summary**

# Summary





Thank you for your attention.

For detailed information about Vector  
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[www.vector-informatik.com](http://www.vector-informatik.com)

Author:

Jochen Rein

Vector Informatik GmbH

Ingersheimer Str. 24

70499 Stuttgart