



System Design in Autosar

Vector AUTOSAR Roadshow 2008

Agenda

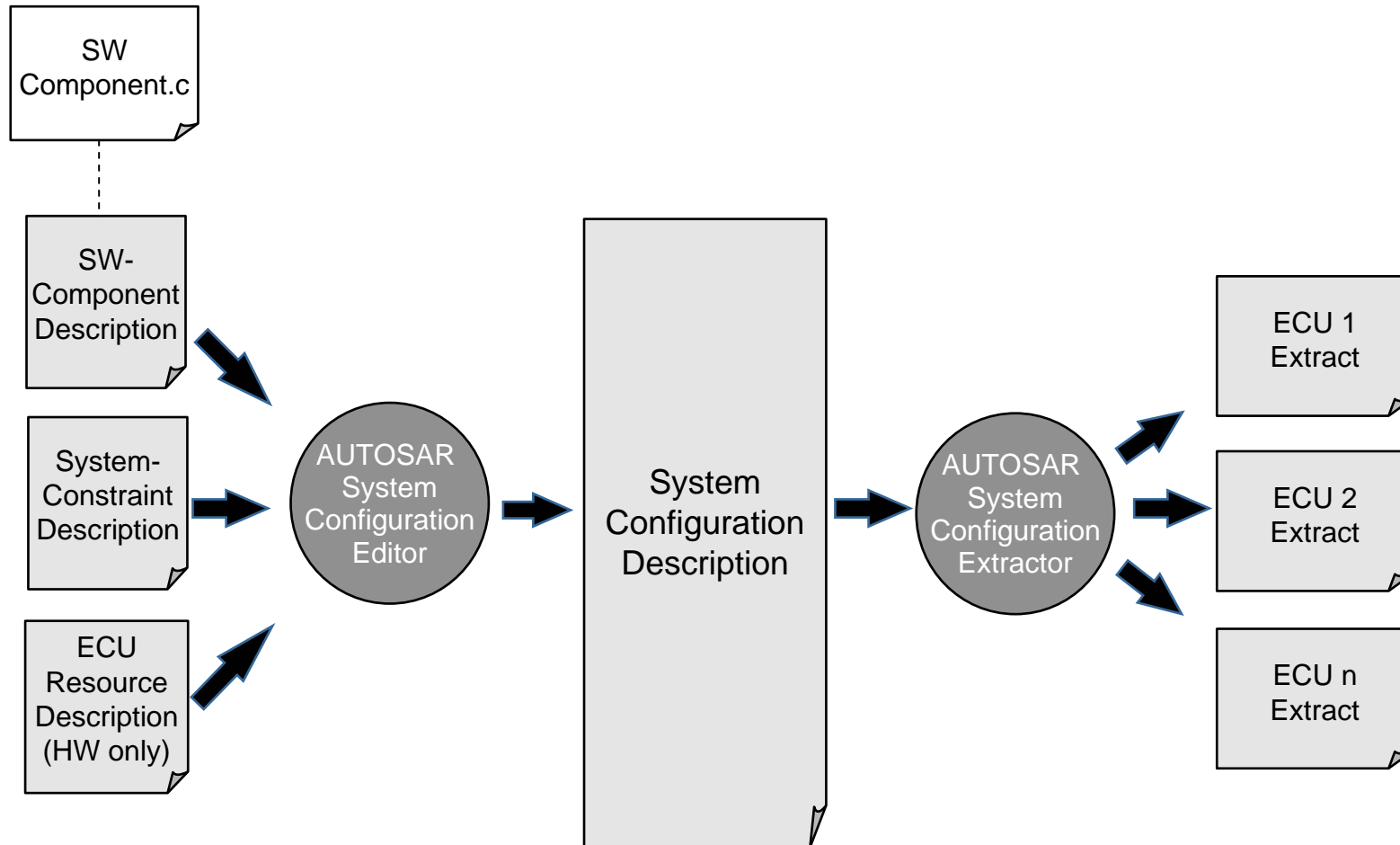
> The ideal AUTOSAR process

Scalability

Tooling strategy

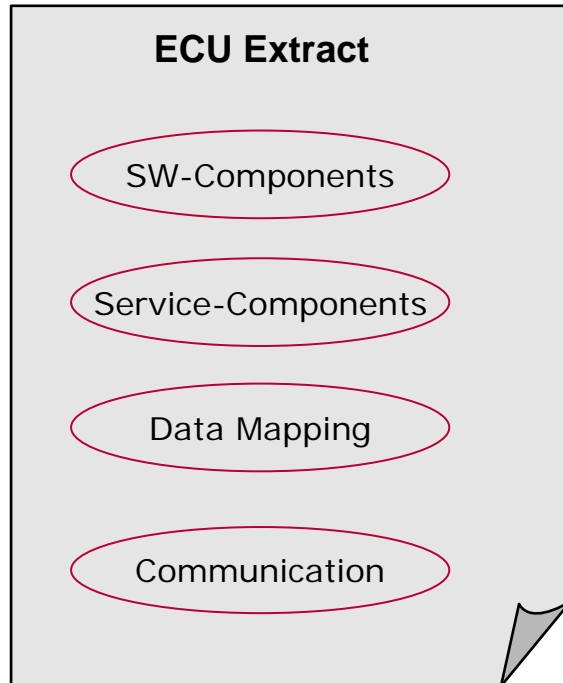
The ideal AUTOSAR process

System Configuration



The ideal AUTOSAR process

System Configuration – Exchange format to Suppliers



- ❑ ECU Extract of System Description contains
 - ❑ SW components of the ECU
 - ❑ Service components (access to services like ComM, NvM, EcuM)
 - ❑ Communication of the ECU (signals, frames, PDUs)
 - ❑ Data mapping
- ❑ All parts are optional!

The ideal AUTOSAR process

Challenges

- ❑ Scalability
 - ❑ How much AUTOSAR is reasonable during system design?
- ❑ Process
 - ❑ How to fit AUTOSAR into system development environment?
 - ❑ What is the tooling?

Agenda

The ideal AUTOSAR process

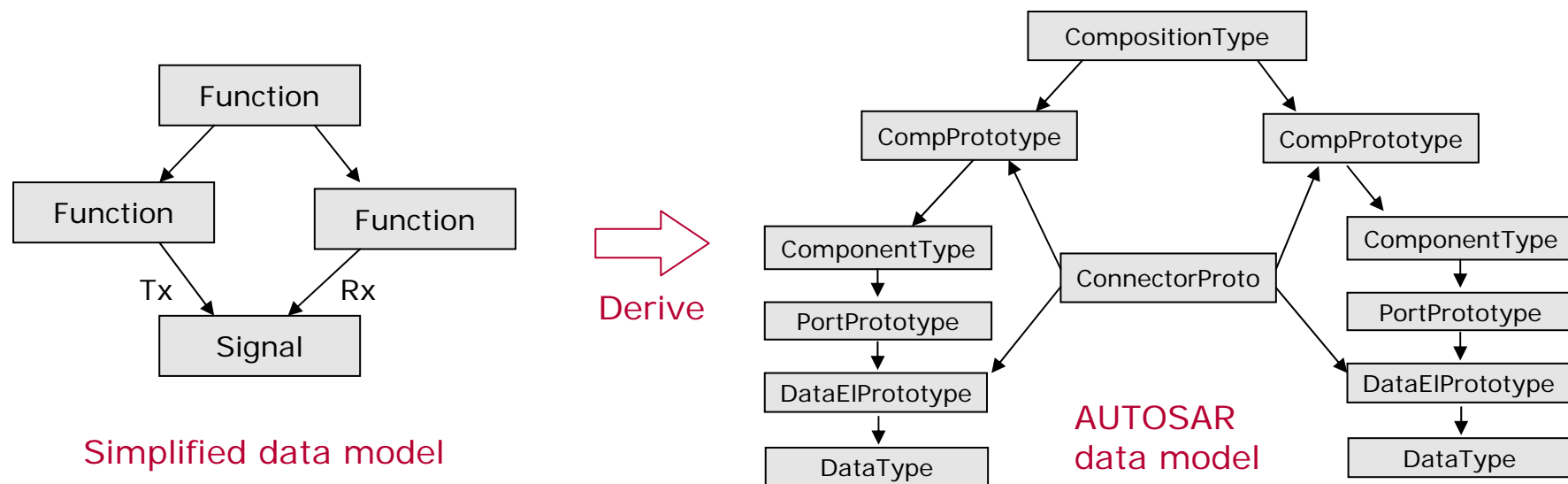
> Scalability

Tooling strategy

Scalability

Level of detail

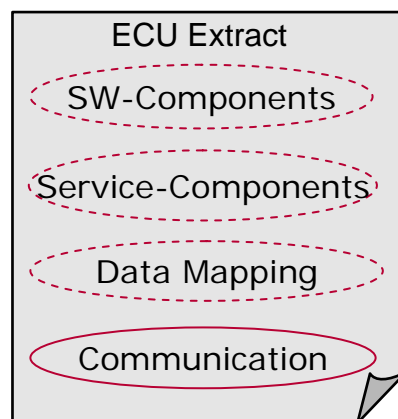
- ❑ OEM might want to define functions, not SW components – nevertheless, the supplier needs AUTOSAR specifications
- ❑ Transition from functional model to SW required
- ❑ Possible strategy: simplification
 - ❑ Use simplified data model for system description
 - ❑ Use heuristics to derive the System Description



Scalability

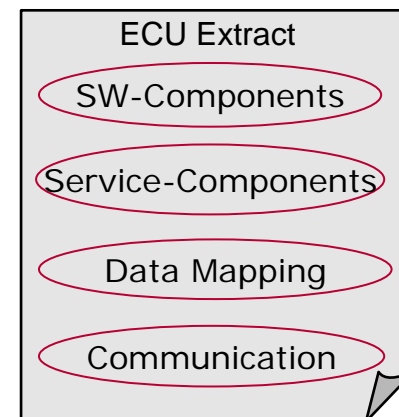
Level of completeness

- ❑ OEM might not define all SWC of all ECUs in full detail
- ❑ Possible strategy: Refinement/Completion by ECU supplier
 - ❑ OEM defines only compositions/interfaces, but no implementation
 - ❑ Supplier refines the compositions given by the OEM (e.g. add sub-components)
 - ❑ OEM defines only communication
 - ❑ Supplier defines the ECU application SW components against the given communication



ECU extract from OEM:
only communication

➔
Completion
by supplier



"Full featured" ECU extract

Agenda

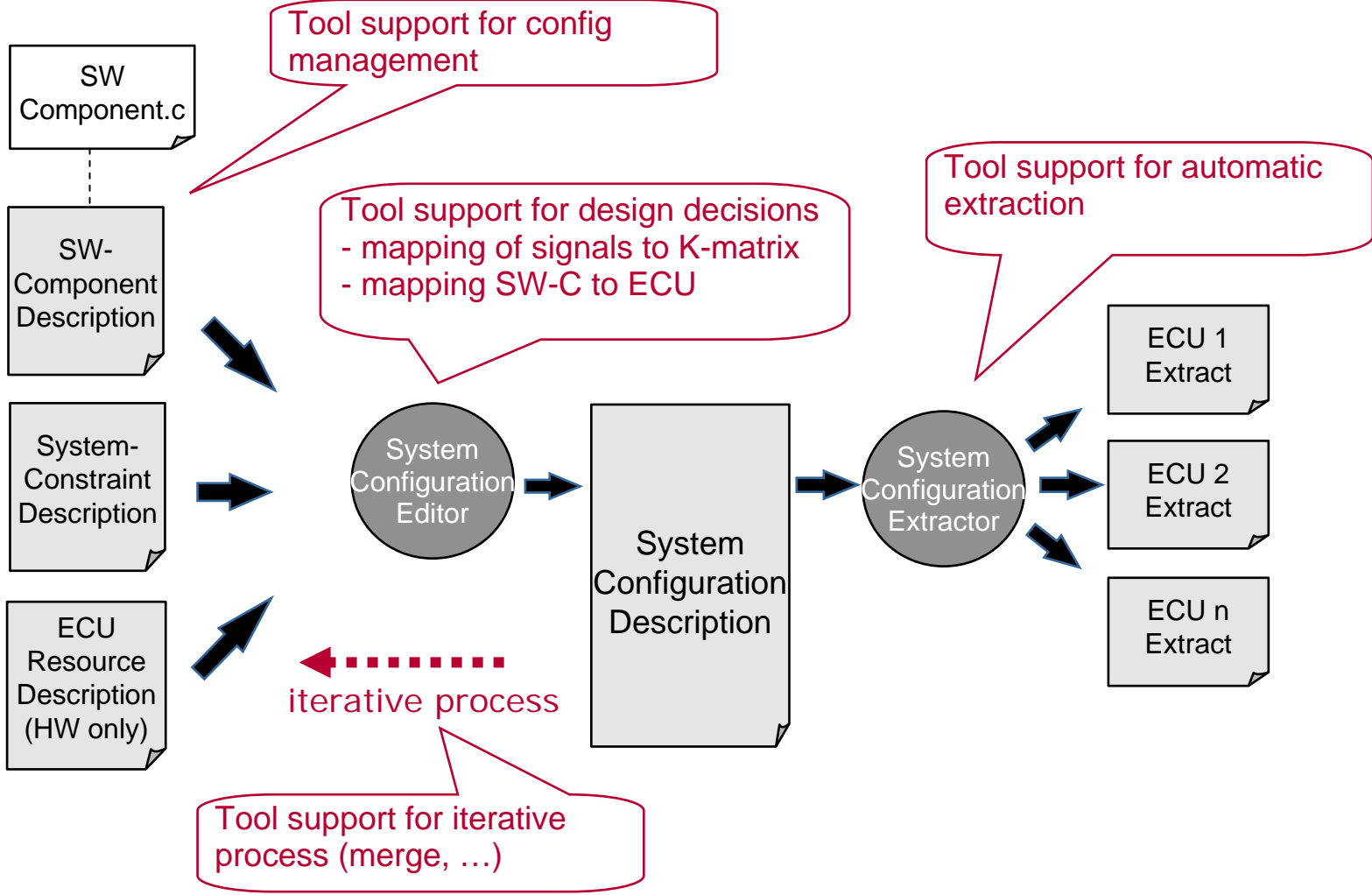
The ideal AUTOSAR process

Scalability

> Tooling strategy

Tooling strategy

System configuration – How tools can help



Tooling strategy

Integration of system development tools

- ❑ OEM wants to use existing tool environment also for AUTOSAR
 - ❑ Function development tools (e.g. Simulink, ...)
 - ❑ E/E Architecture tools
 - ❑ Communication data base systems
- ❑ What are possible strategies?

Tooling strategy

Integration strategies

- ❑ Architecture driven
 - ❑ AUTOSAR architecture is the master
 - ❑ Apply AUTOSAR concepts for reusing design
 - ❑ Implement according to architecture
 - ❑ Pro: Quality of deliverables (specs) to Suppliers, full AUTOSAR support
 - ❑ Con: Change of process

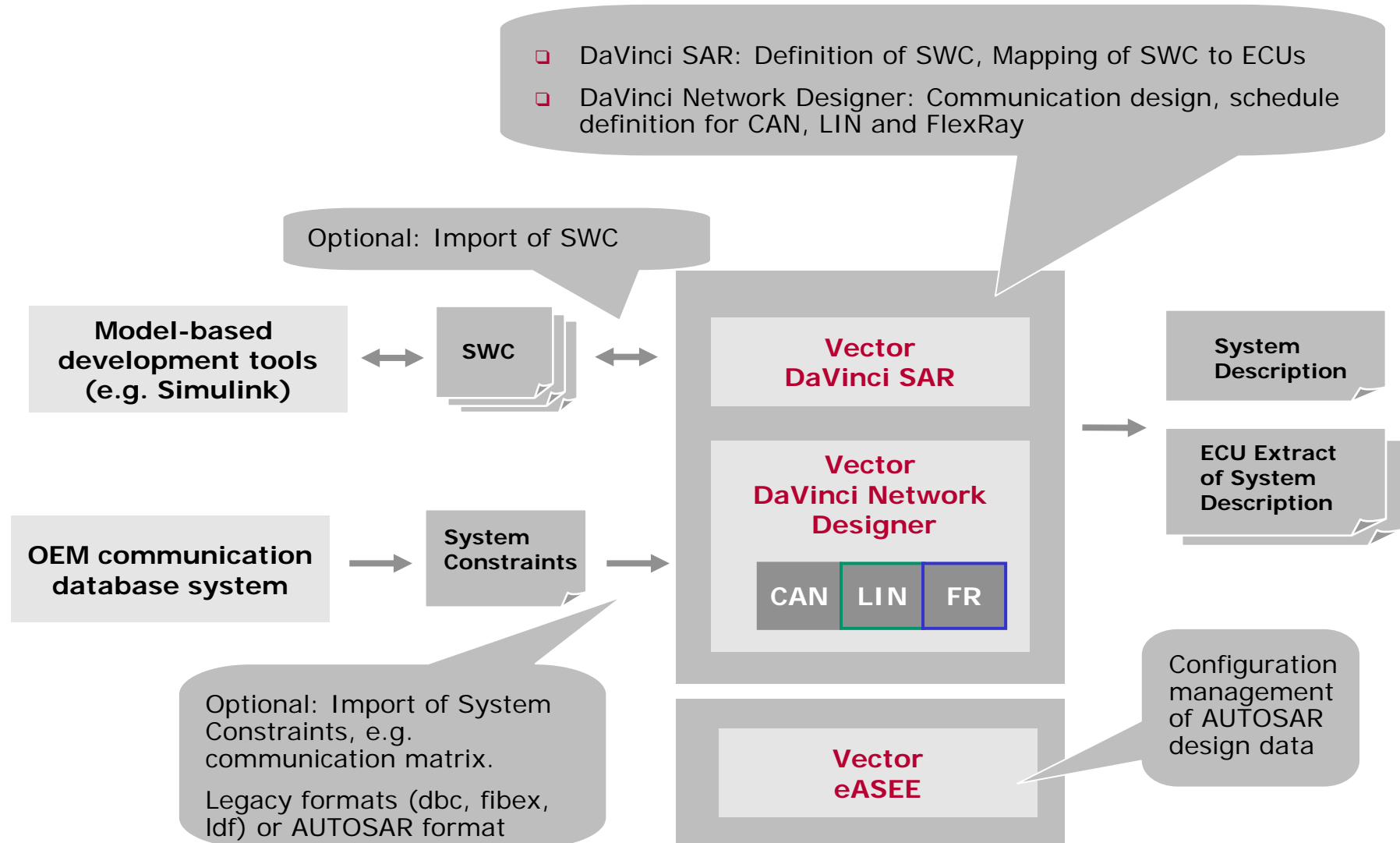
Tooling strategy

Integration strategies

- ❑ Implementation driven
 - ❑ Functions are the master
 - ❑ Guidelines/constraints required when using development tools
 - ❑ To ensure easy creation of AUTOSAR data
 - ❑ To avoid integration problems
 - ❑ Typically only a limited subset of AUTOSAR is used, or even hide AUTOSAR (AUTOSAR as “integration backplane”)
 - ❑ Pro: Easy migration
 - ❑ Con: Inherent features of AUTOSAR are not used (e.g. reuse concept), proprietary infrastructure

Tooling strategy

System configuration - Vector's tooling





Thank you for your attention.

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and our products please have a look at:

www.vector-informatik.com

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