



SYSTEMITE

Introduction



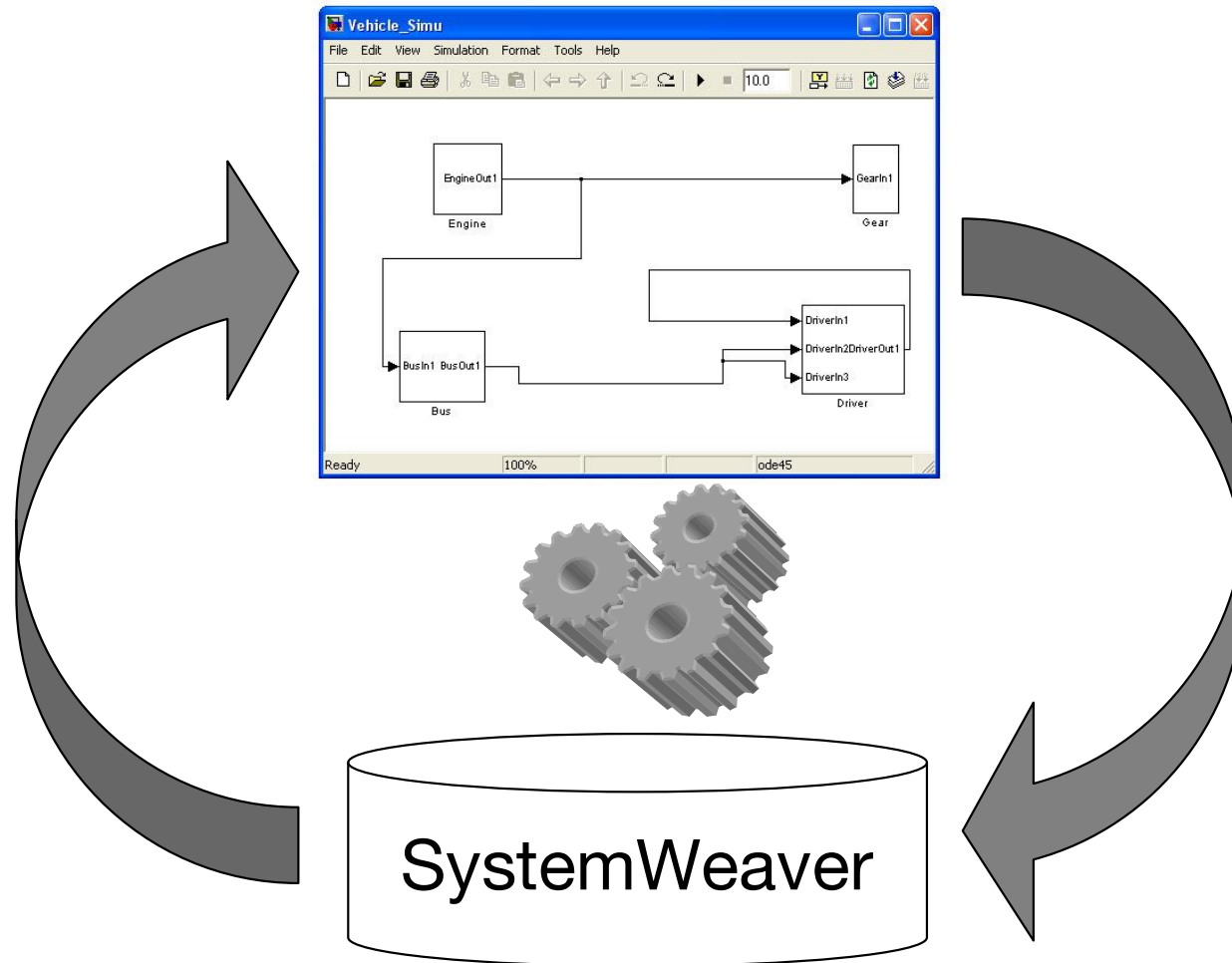
Motivation

- Need to coordinate (product) models in SystemWeaver and (simulation) models in Matlab/Simulink
- Support Matlab/Simulink users in maintaining Simulink models from a Life-cycle perspective



Vision

Design and simulate in Matlab/Simulink!



Organize and control in SystemWeaver!

Goals with SystemWeaver Simulink Integration

- Integrated CM of models and sub systems
- Controlled reuse of sub systems
- Adding a semantic layer of interpretation to simulink models and sub systems
- Generation of structured designs in SystemWeaver to Simulink
- Auto connectivity
- Management of simulation results
- Model comparison

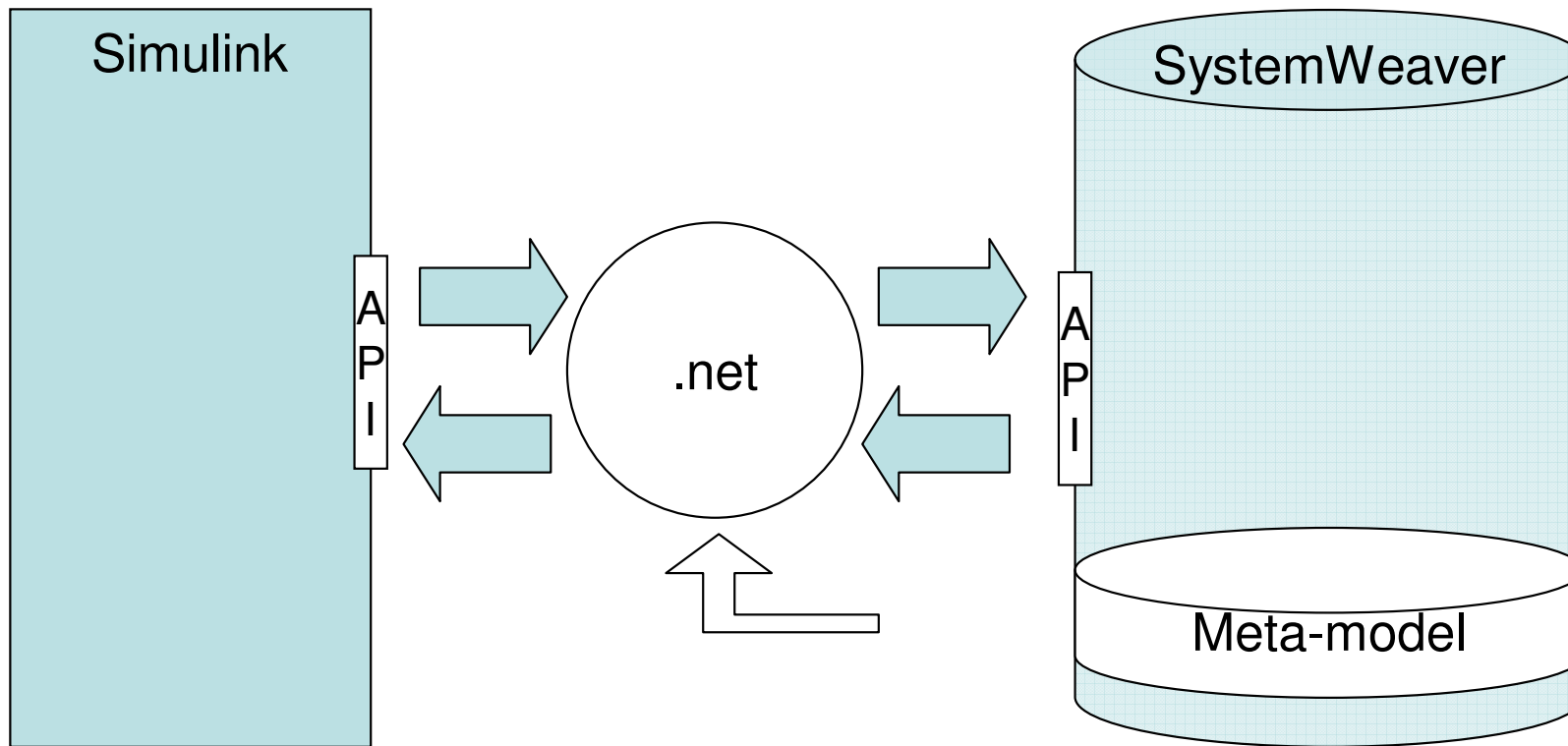


Semantical Integration

- Identify semantical objects in the "foreign" tool/model
 - In Matlab/Simulink: Sub systems and Models
- (If necessary) Create corresponding items in SystemWeaver (and associate them with other items in the SW model)
 - Defined a meta-model for items corresponding to sub systems and models and their relations
- Build software for mechanising information exchange
 - Build a software tool that creates product models in SystemWeaver from Matlab/Simulink objects (and vice versa)



Tool chain



Technology

- Integrated as a Plug-in to Simulink
 - Makes Simulink a SystemWeaver client
- SystemWeaver uses its own representation of the Simulink model
 - Parses Simulink parameters into this format
 - Generates Simulink parameters from this format
- SystemWeaver tags Simulink objects with corresponding SystemWeaver item's id
 - Necessary for identifying unique Simulink objects
 - Necessary for traceability and reuse



Solution

- Possible to integrate Matlab/Simulink models in SystemWeaver
 - Sub systems in Simulink are managed as (reusable) items in SystemWeaver
- Possible to generate Simulink-models from (product) models in SystemWeaver
 - Generated models only contain sub system structure and connections

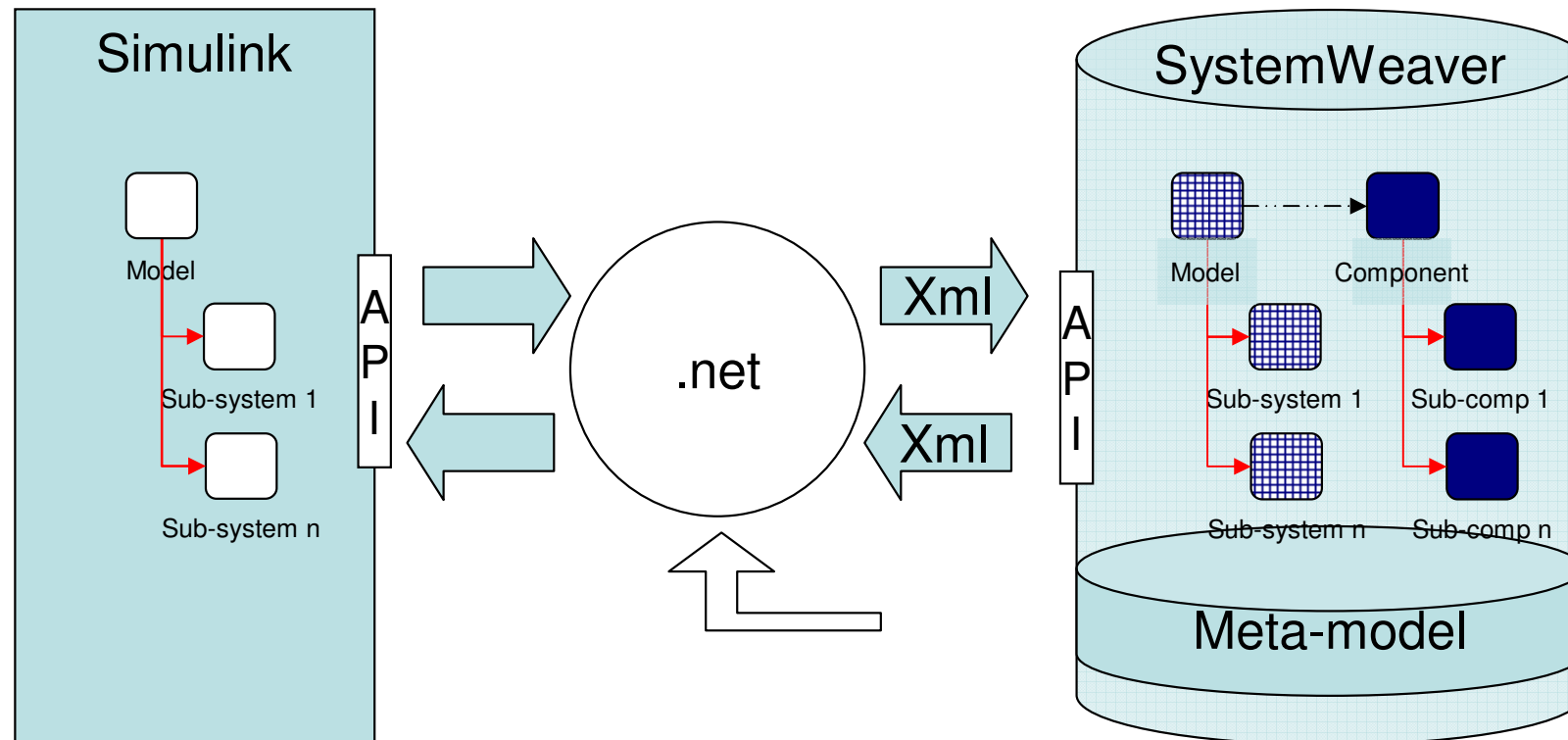


Structured Repository

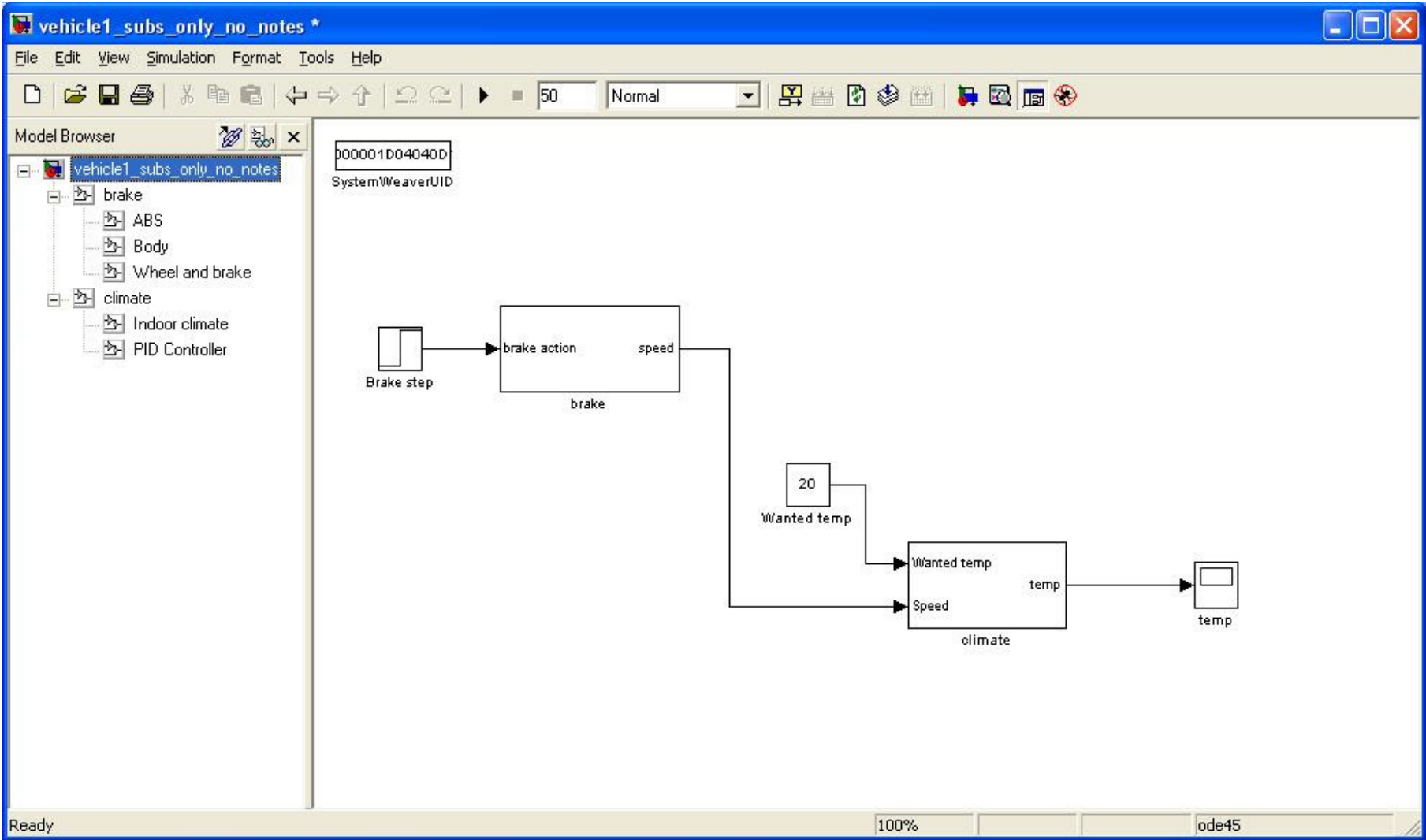
Integrate Matlab/Simulink models in
SystemWeaver



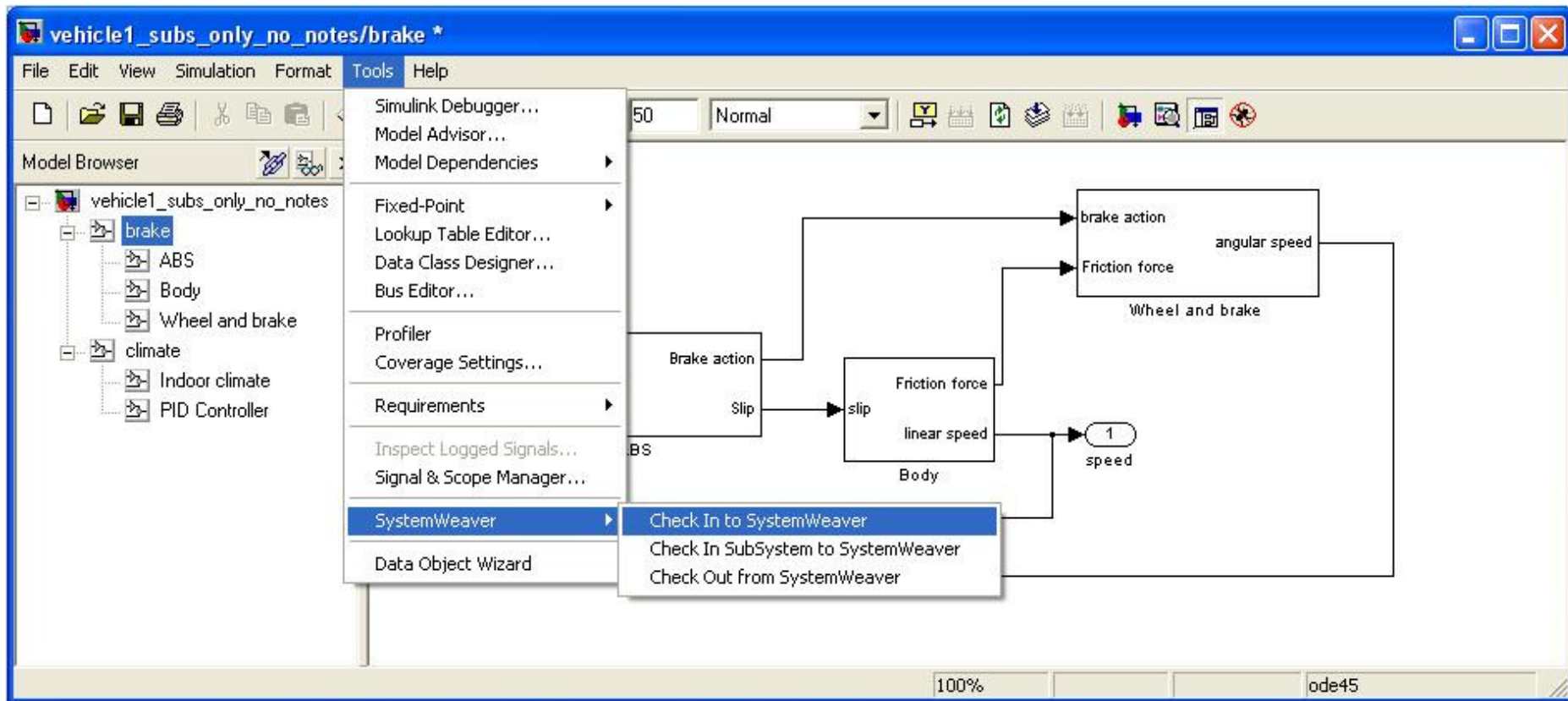
Use-case #1: Structured Repository



Simulink Model



Check-in dialog in Simulink



Checked-in Model in SystemWeaver

The screenshot displays the swExplorer2 interface for a project named [ergo11]. The main window shows a tree view on the left and a detailed view of a Simulink Model on the right.

Tree View:

- vehicle1_subs_only_no_notes (Released)
 - brake (Released)
 - ABS (Released)
 - Body (Released)
 - Wheel and brake (Released)
 - climate (Released)
 - Indoor climate (Released)
 - PID Controller (Released)

Simulink Model View:

Name	Last Changed	Last Changed By	Creation Date	Access	Owner	Status	Version
vehicle1_subs_only_no_notes	2009-04-23	Jan Söderberg	2009-04-22	Read Only	Jan	Released	(1)

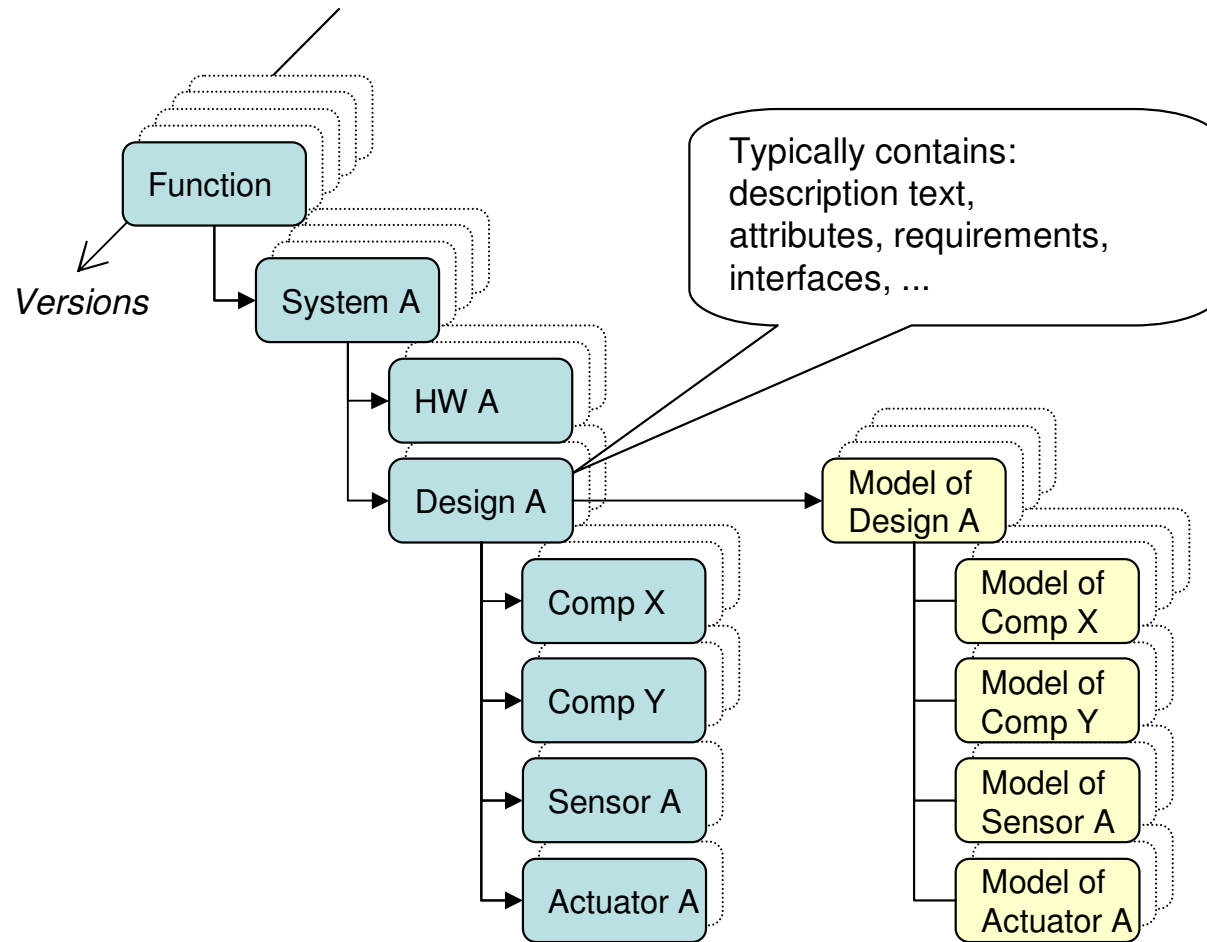
The Simulink Model view shows a table with the following columns: Name, Last Changed, Last Changed By, Creation Date, Access, Owner, Status, and Version. The table contains one entry for the model, which is in a 'Released' status and has a version of (1). Below the table, there is a section for 'Simulink Data' and a 'Last added note' field.

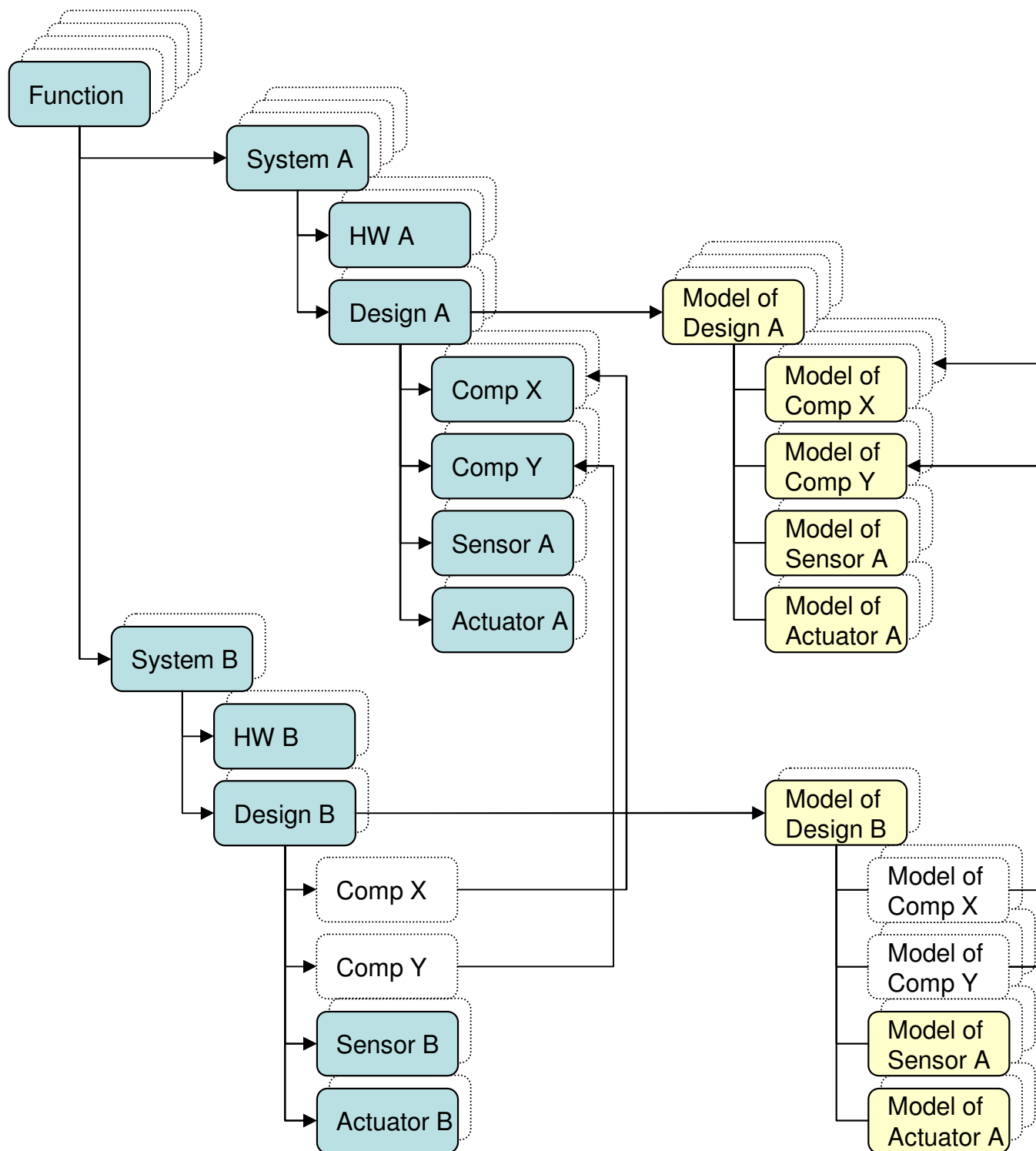
At the bottom of the window, the status bar indicates: vehicle1_subs_only_no_notes Opened. The path shown is: /wfors/Simulinkexempel/vehicle/Checked In Simulink Model.

Example: A Structured Model Repository



SystemWeaver – a structured repository for Matlab/Simulink



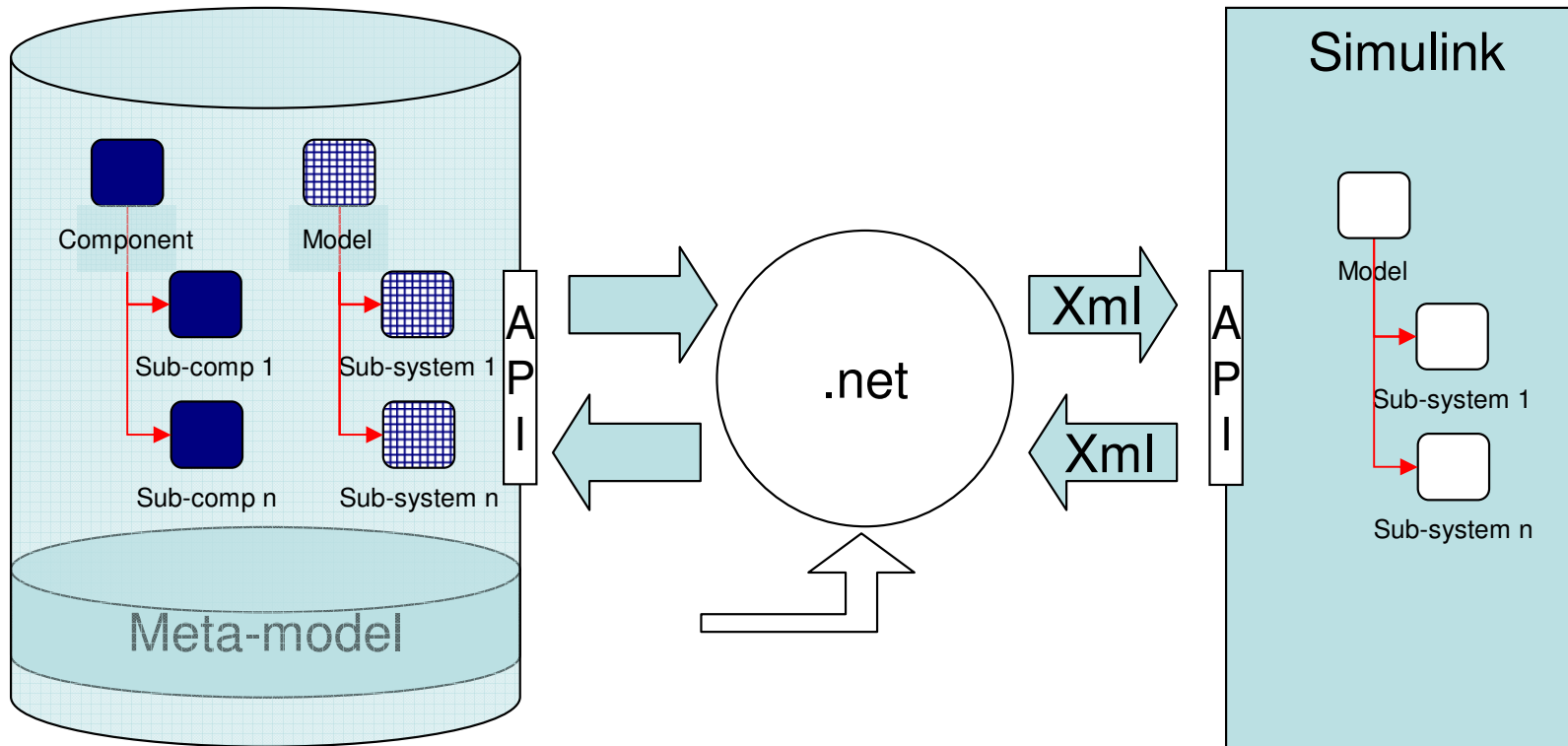


Model Generation

Generate Simulink-models from (product) models
in SystemWeaver



Use-case #2: Model Generation



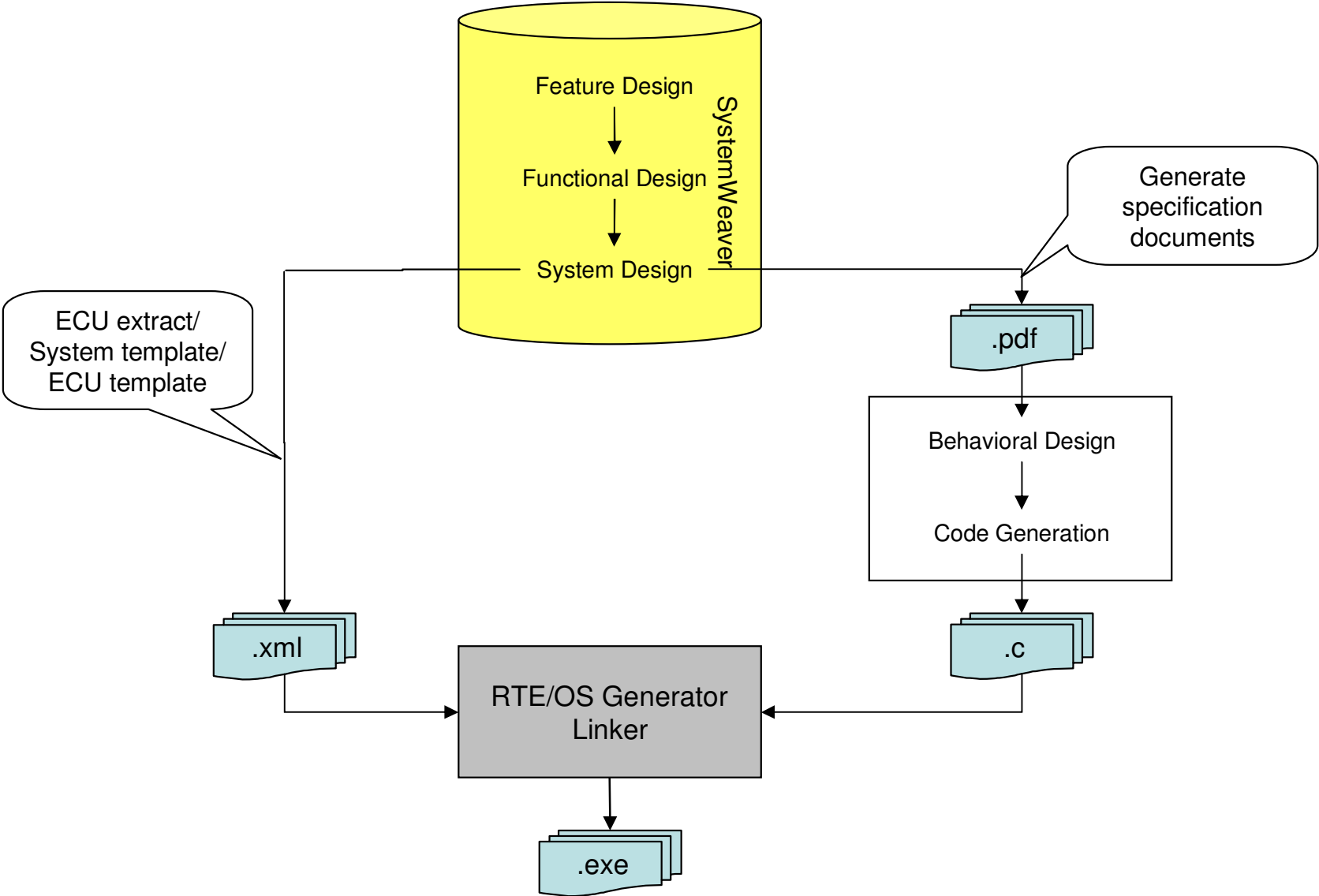
Wink Demo



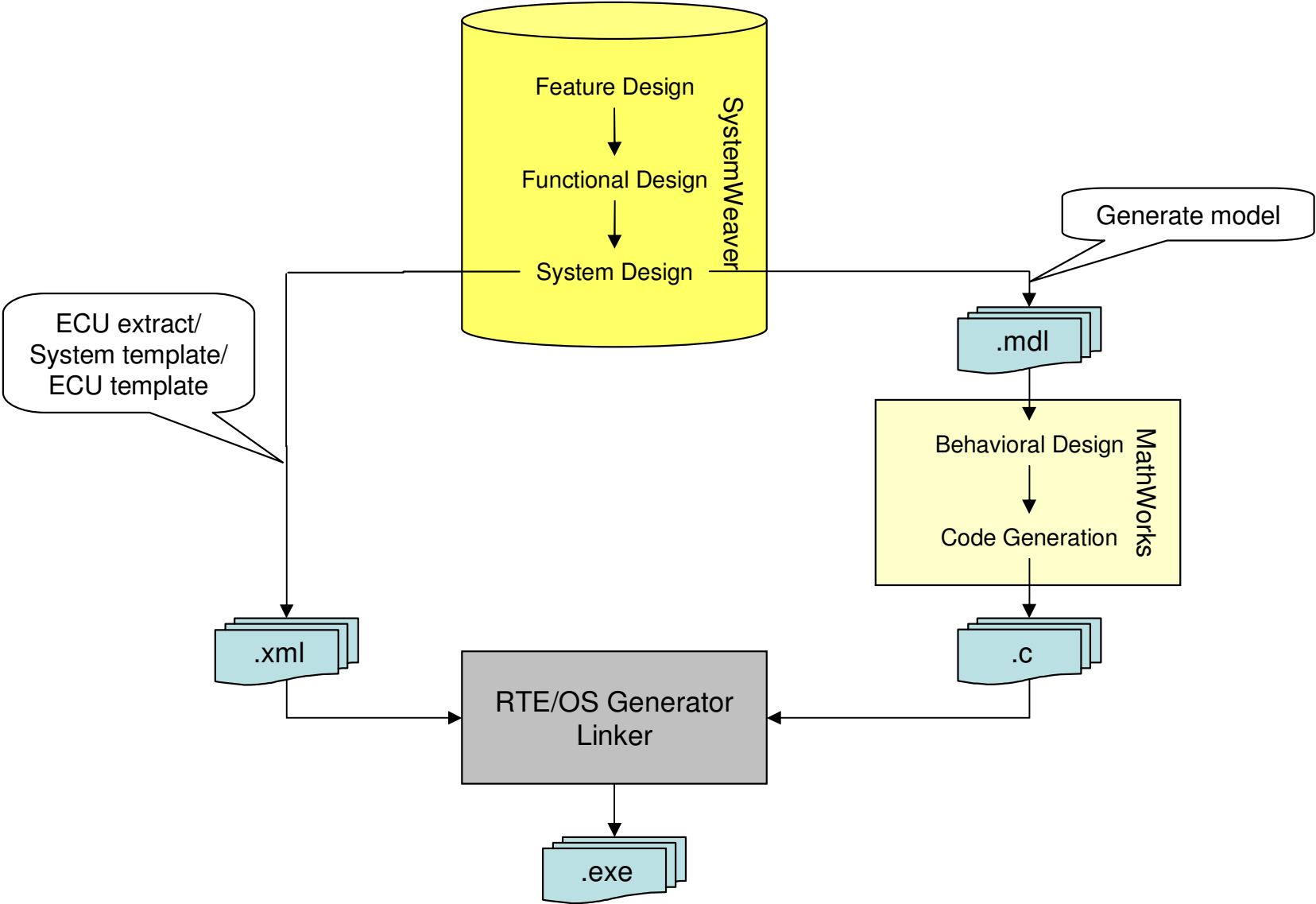
Example: Autosar



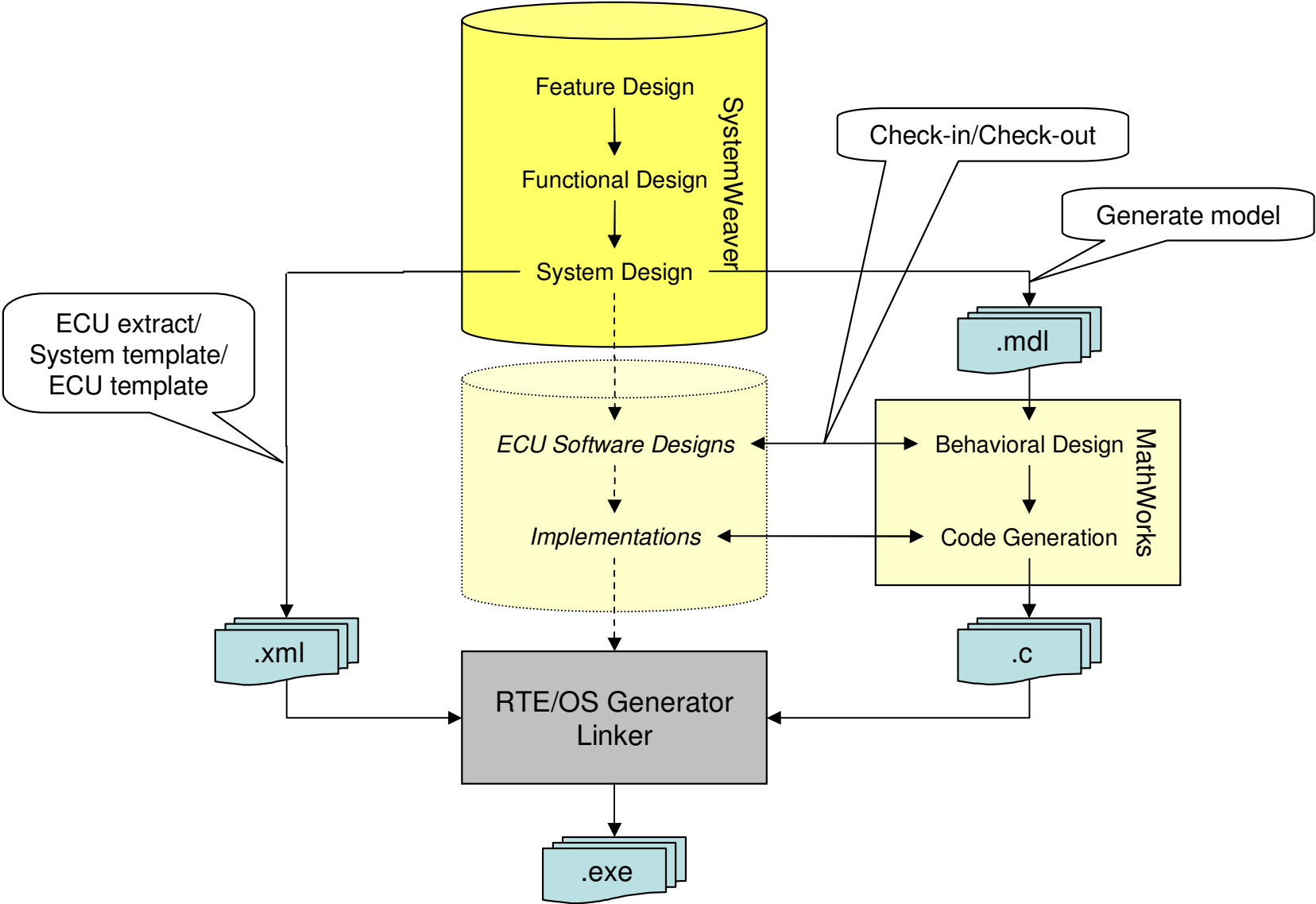
Autosar Process with SystemWeaver



Autosar Process with SystemWeaver



Autosar Process with SystemWeaver



Summary



Status of SystemWeaver Simulink Integration

- Integrated CM of models and subsystems
- Controlled reuse of subsystems
- Adding a semantic layer of interpretation to simulink models and subsystems
- Generation of structured designs in SystemWeaver to Simulink
- *Auto connectivity*
- *Management of simulation results*
- *Model comparison*



Thank You!

