

EAST-ADL Introduction

Methodology



What is a methodology?

Merriam-Webster:

1. A body of methods, rules and postulates employed by a discipline. A particular procedure or set of procedures.
2. (The analysis of the principles or procedures of inquiry in a particular field.)

Objectives

- Give advice on how to efficiently use EAST-ADL
- Provide guidelines for system modelling and analysis using EAST-ADL
- Focus on integration and documentation
- Allow for adaptation of EAST-ADL usage to different contexts (processes, organizational, technical)

Methodology Modelling

A model-based approach was chosen to represent the methodology

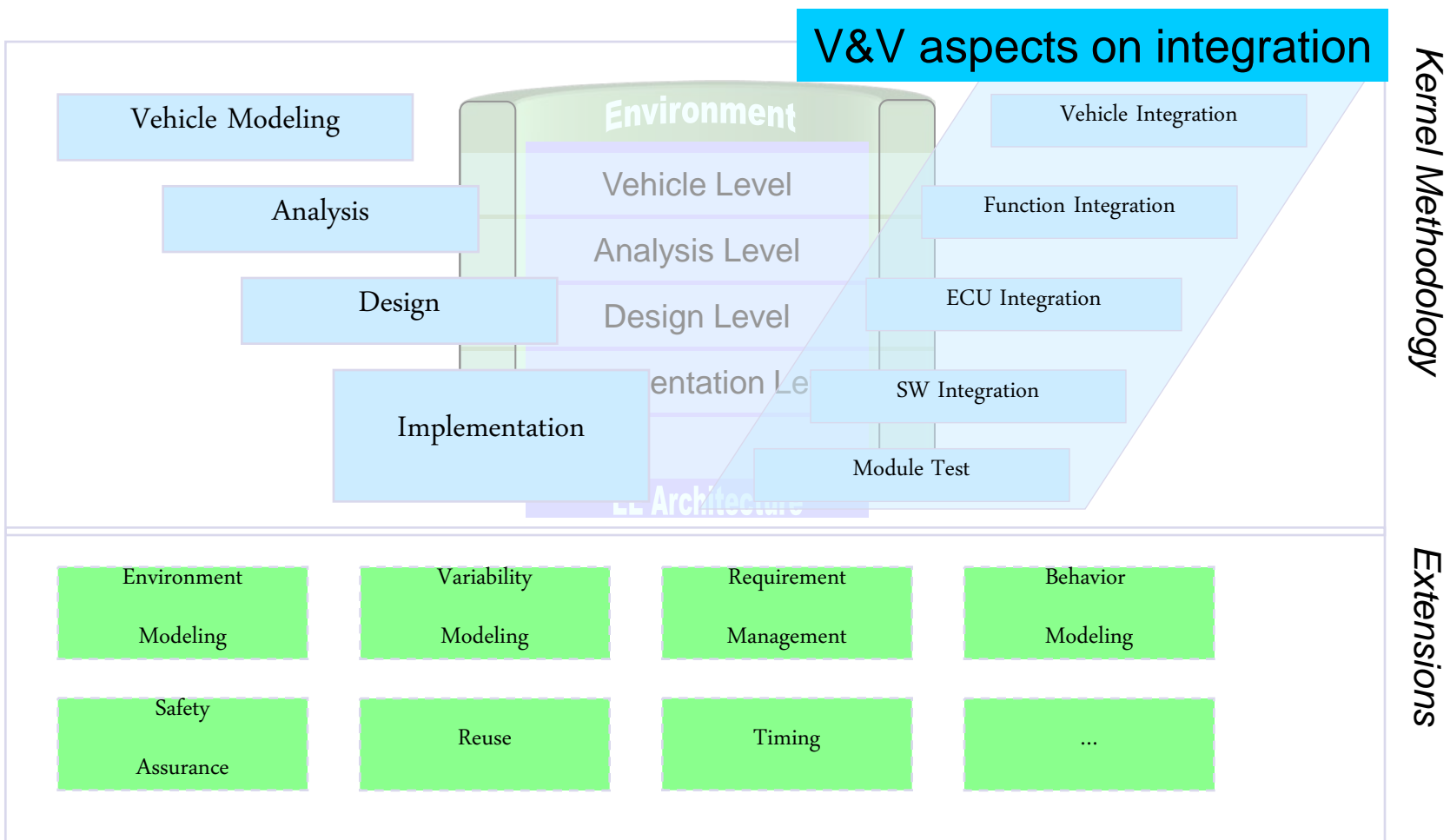
Notation:

- BPMN
(Business Process Methodology Notation)

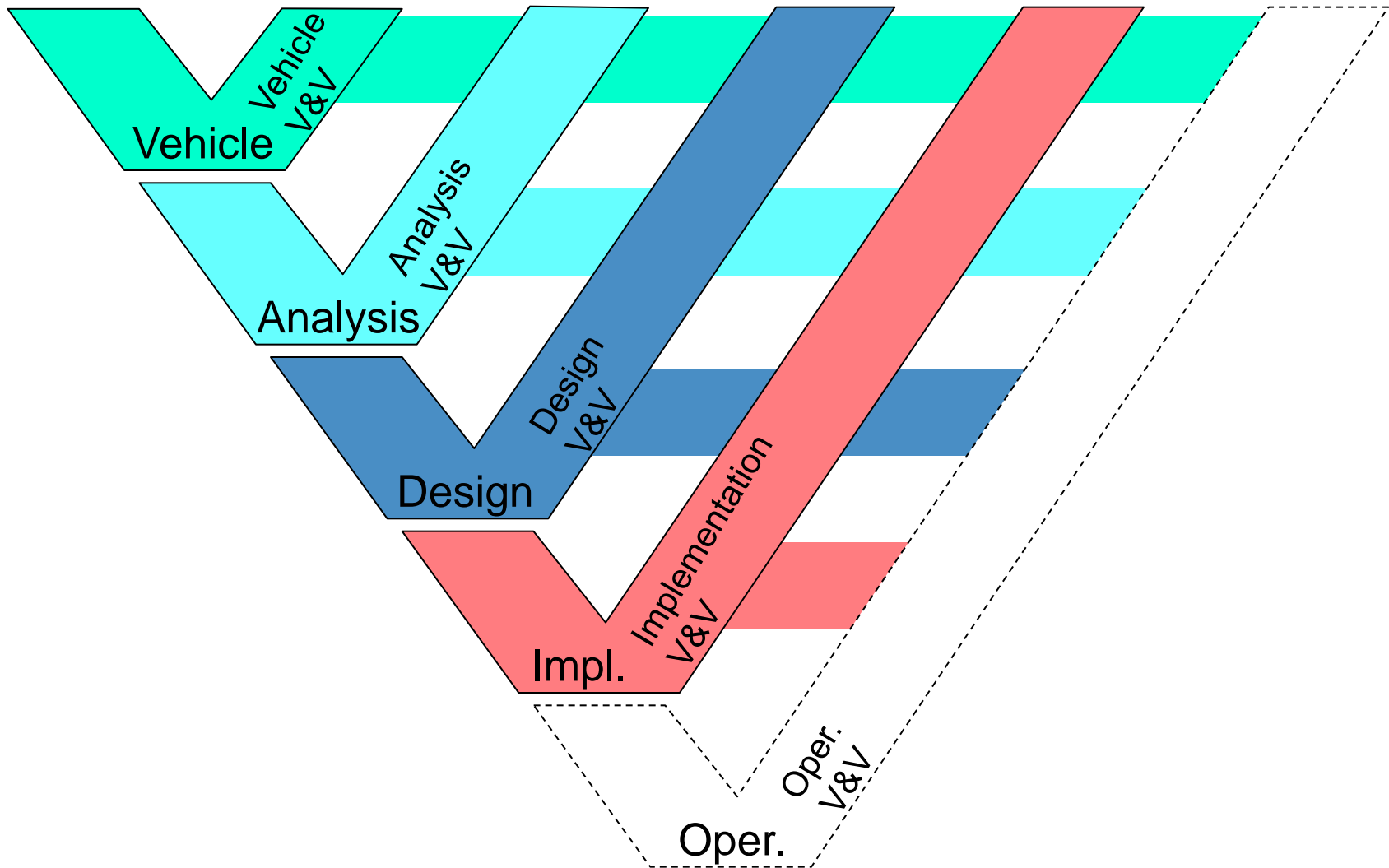
Tool:

- ADONIS

V-model as reference



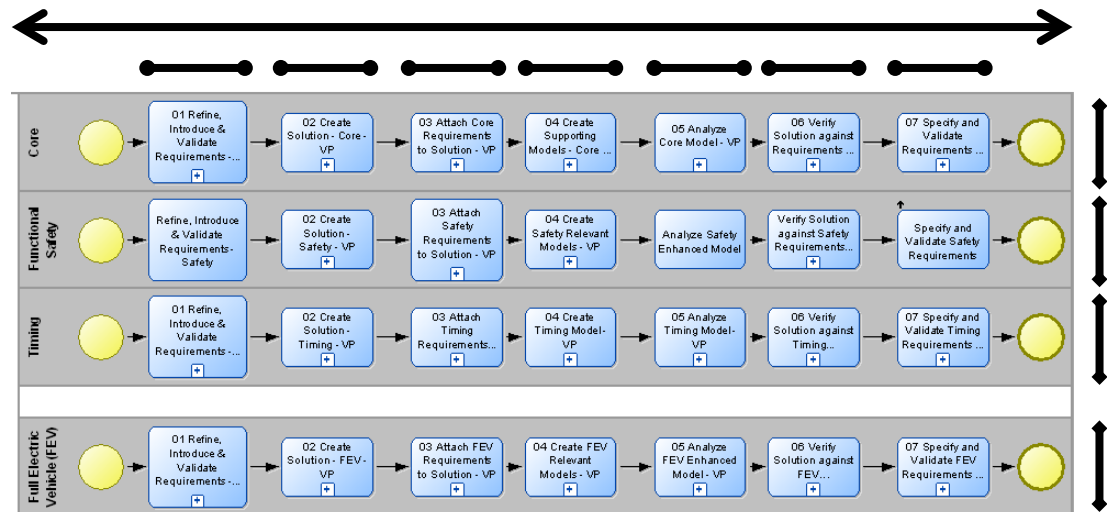
V-model as reference



EAST-ADL Methodology

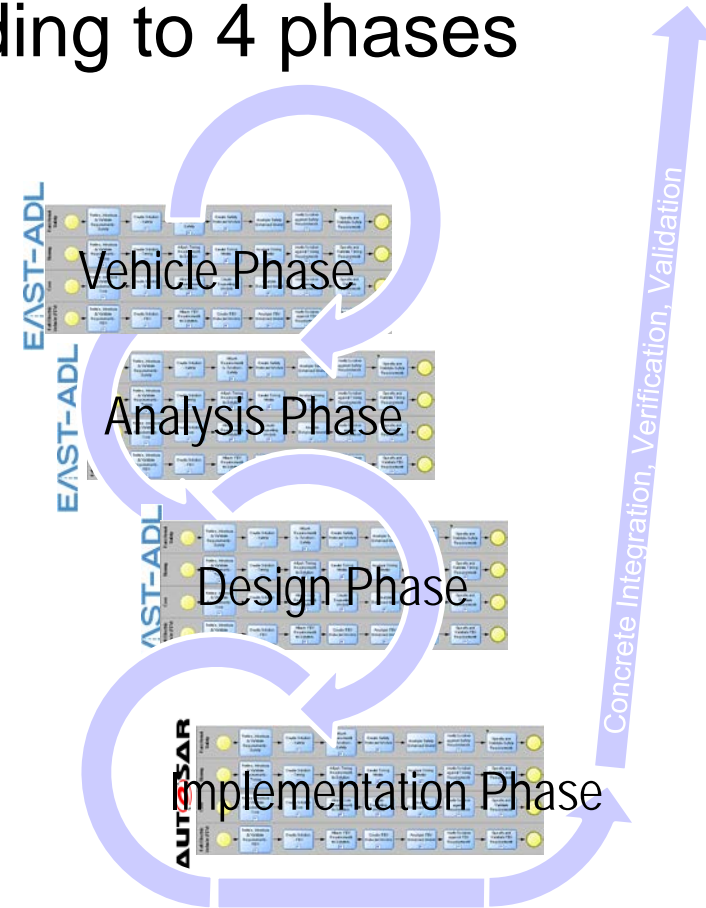
- Based on phases ↔
- Each Phase has several swimlanes ←→
- Each phase is organized in steps —● according to the Generic Method Pattern:

1. Introduce and Refine Requirements
2. Create Initial Solution
3. Attach Requirements to Solution
4. Refine Solution
5. Analyze Solution
6. Verify Solution
7. Specify and Validate Requirements



EAST-ADL Methodology

- Methodology organized according to 4 phases
- Each phase goes through the Generic Pattern steps
- Aspects have individual Swimlanes (Safety, timing, variability, ...)



Methodology Artifacts

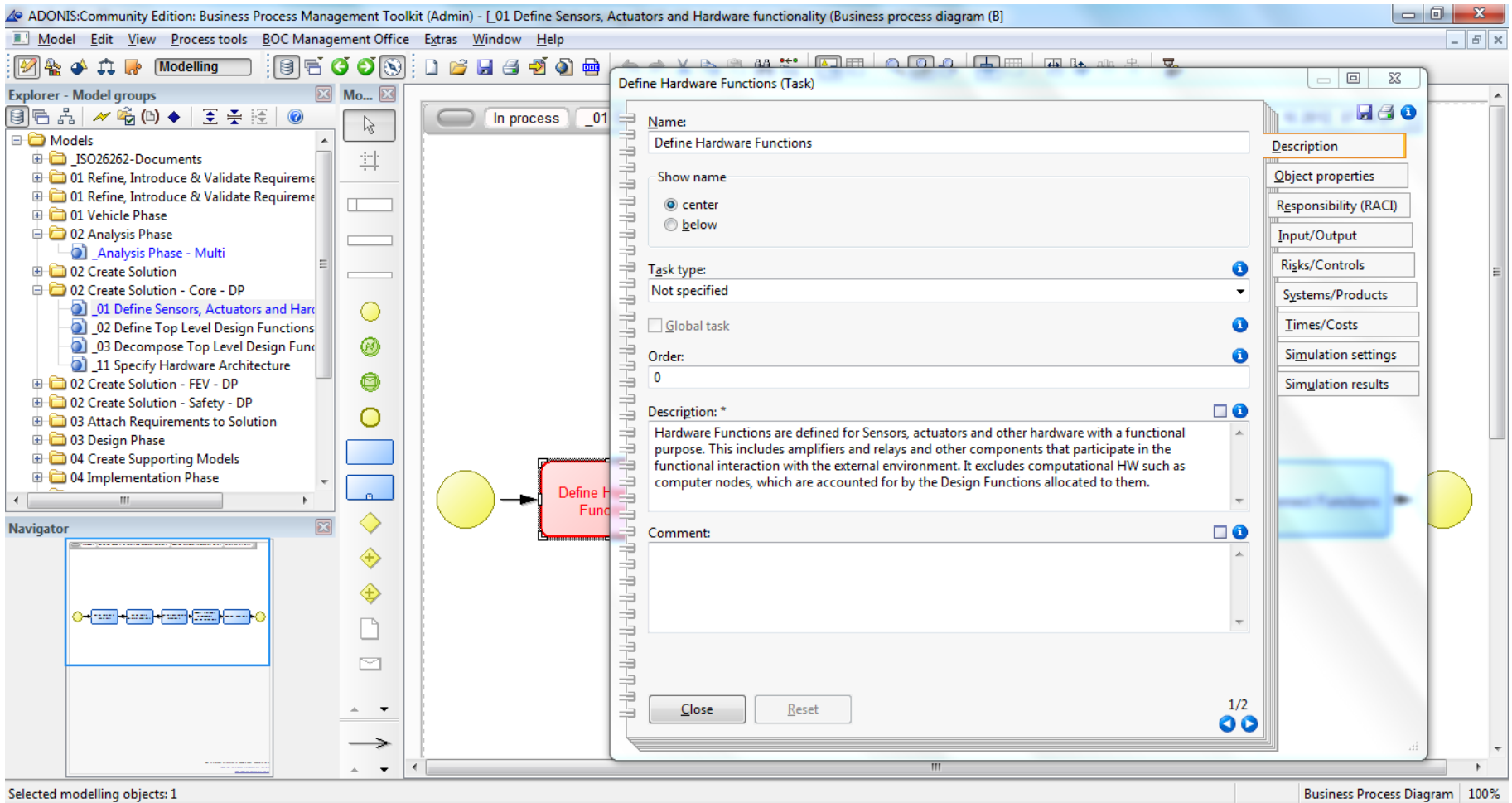
For the end-user:

Html-export from Tool

For the methodology expert:

The methodology model in Adonis tool,
allowing for adding new swimlanes

The Methodology Model in EPF tool



ADONIS:Community Edition: Business Process Management Toolkit (Admin) - [_01 Define Sensors, Actuators and Hardware functionality (Business process diagram (B))

Model Edit View Process tools BOC Management Office Extras Window Help

Modelling

Explorer - Model groups

- Models
 - _ISO26262- Documents
 - 01 Refine, Introduce & Validate Requireme
 - 01 Refine, Introduce & Validate Requireme
 - 01 Vehicle Phase
 - 02 Analysis Phase
 - _Analysis Phase - Multi
 - 02 Create Solution
 - 02 Create Solution - Core - DP
 - _01 Define Sensors, Actuators and Har
 - _02 Define Top Level Design Functions
 - _03 Decompose Top Level Design Func
 - _11 Specify Hardware Architecture
 - 02 Create Solution - FEV - DP
 - 02 Create Solution - Safety - DP
 - 03 Attach Requirements to Solution
 - 03 Design Phase
 - 04 Create Supporting Models
 - 04 Implementation Phase

Navigator

Selected modelling objects: 1

Business Process Diagram 100%

Define Hardware Functions (Task)

Name: Define Hardware Functions

Show name:

- center
- below

Task type: Not specified

Global task

Order: 0

Description: *
Hardware Functions are defined for Sensors, actuators and other hardware with a functional purpose. This includes amplifiers and relays and other components that participate in the functional interaction with the external environment. It excludes computational HW such as computer nodes, which are accounted for by the Design Functions allocated to them.

Comment:

Close Reset 1/2

Summary

- The EAST-ADL methodology provides guidelines for system modeling and analysis
- Purpose is to show how EAST-ADL can be applied in an ideal top-down sequence
 - Bottom-up, middle-out or combinations will occur in practice
- The results can be used both directly by the end-user (HTML Export) and by expert users tailoring the methodology model to company needs.