

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

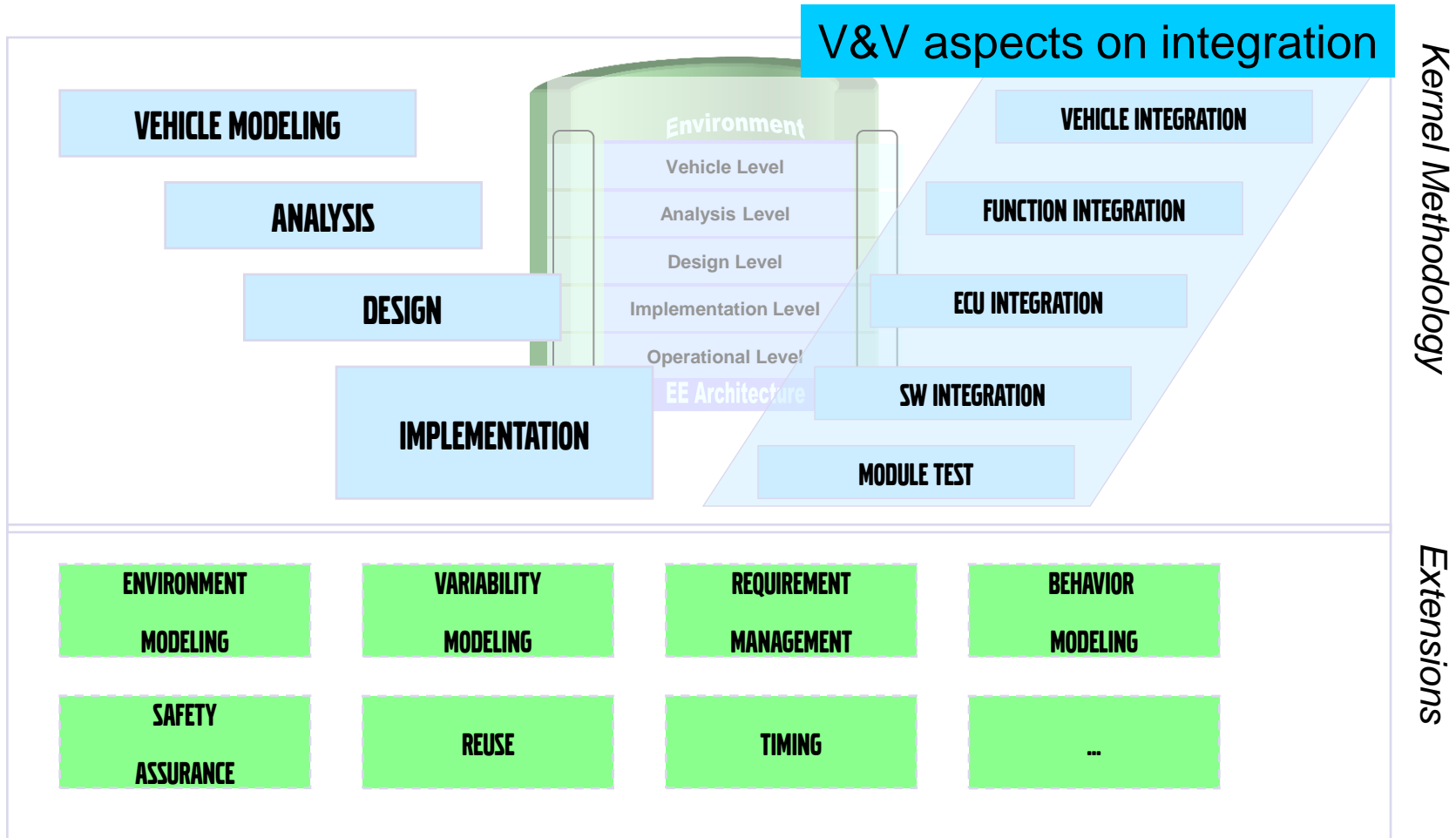
Notations:

- SPEM
(Software Process Engineering Metamodel)
- BPMN
(Business Process Methodology Notation)

Tools:

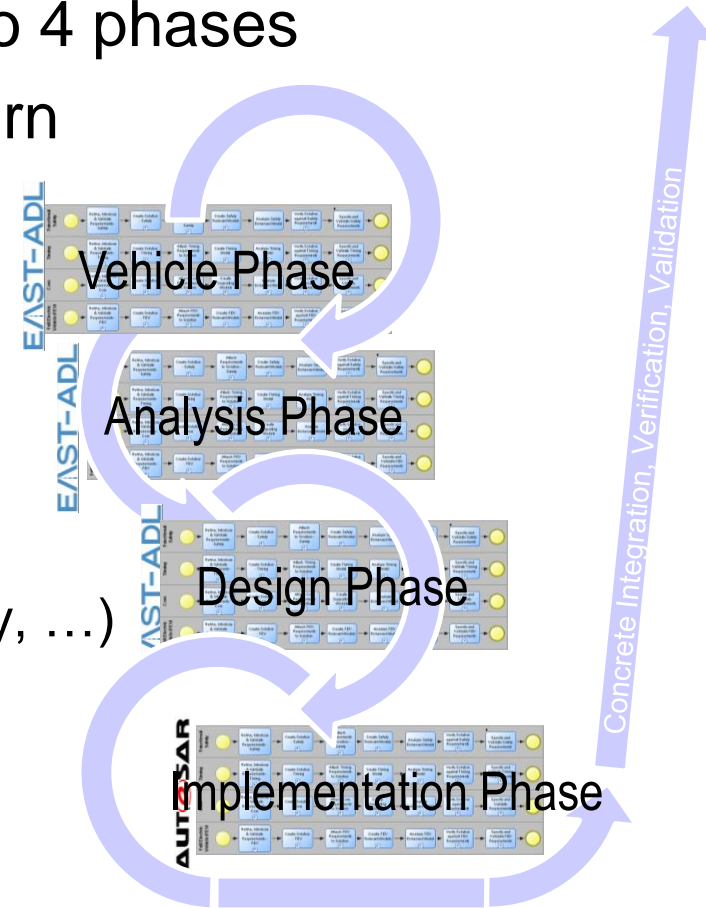
- EPF (Eclipse Process Framework) for SPEM
- ADONIS for BPMN

V-model as reference



EAST-ADL Methodology

- Methodology organized according to 4 phases
- Each phase follows a Generic 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
- Different aspects have individual “Swimlanes” (Safety, timing, variability, ...)
- Methodology Model
 - SPEM (EPF tool)
 - BPMN (ADONIS tool)

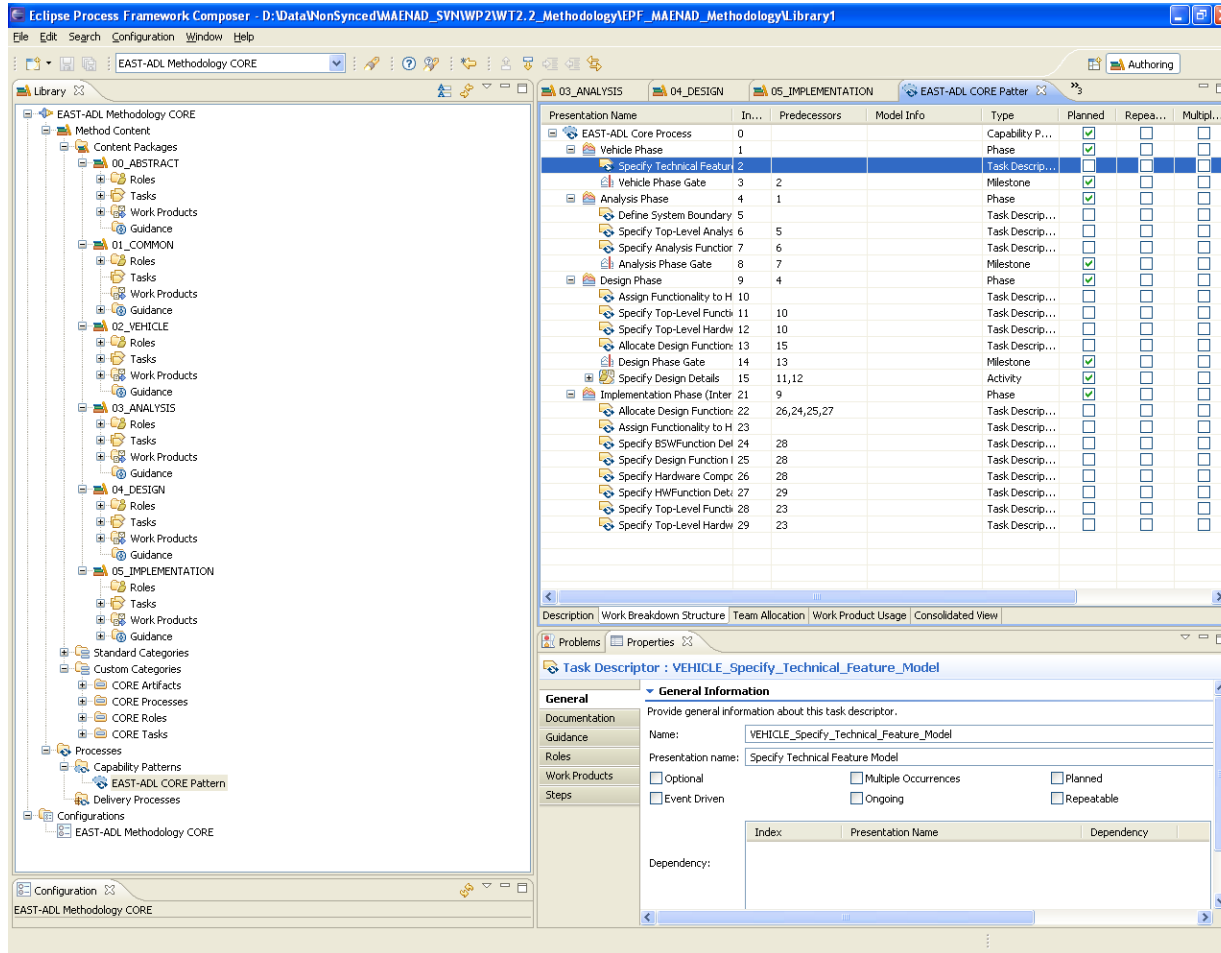


Methodology Artifacts

For the end-user: Html-export from Tool

For the methodology expert: The methodology model in EPF or Adonis , allowing for modifying existing plug-ins, adding new method plug-ins and for configuring specific methodology variants

The Methodology Model in EPF tool



The screenshot displays the Eclipse Process Framework Composer (EPF) tool interface. The main window shows a methodology model for 'EAST-ADL Methodology CORE'. The interface is divided into three main sections:

- Library (Left):** A tree view showing the methodology structure, including Method Content, Content Packages, Roles, Tasks, Work Products, and Guidance, organized into phases like 00_ABSTRACT, 01_COMMON, 02_VEHICLE, 03_ANALYSIS, 04_DESIGN, and 05_IMPLEMENTATION.
- Table (Center):** A table listing tasks with their dependencies and properties. The table has columns for Presentation Name, Index, Predecessors, Model Info, Type, Planned, and Repeatable.
- Task Descriptor (Right):** A detailed view of a selected task, 'VEHICLE_Specify_Technical_Feature_Model', showing its general information, documentation, and dependencies.

Presentation Name	In...	Predecessors	Model Info	Type	Planned	Repea...	Multip...
EAST-ADL Core Process	0			Capability P...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle Phase	1			Phase	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Technical Feature	2			Task Descrip...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle Phase Gate	3	2		Milestone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis Phase	4	1		Phase	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Define System Boundary	5			Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Top-Level Analys	6	5		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Analysis Function	7	6		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis Phase Gate	8	7		Milestone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design Phase	9	4		Phase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assign Functionality to H	10			Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Top-Level Functi	11	10		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Top-Level Hardw	12	10		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allocate Design Function	13	15		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design Phase Gate	14	13		Milestone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Design Details	15	11,12		Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Implementation Phase (Inter	21	9		Phase	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allocate Design Function:	22	26,24,25,27		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assign Functionality to H	23			Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify BSWFunction Del	28			Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Design Function I	25	28		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Hardware Comp	26	28		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify HWFunction Det	27	29		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Top-Level Functi	28	23		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Top-Level Hardw	29	23		Task Descrip...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Task Descriptor: VEHICLE_Specify_Technical_Feature_Model

General Information

Name: VEHICLE_Specify_Technical_Feature_Model

Presentation name: Specify Technical Feature Model

Optional: Multiple Occurrences: Planned:

Event Driven: Ongoing: Repeatable:

Dependency:

Index	Presentation Name	Dependency

Summary

- The EAST-ADL methodology provides guidelines for system modeling and analysis using EAST-ADL
- 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.