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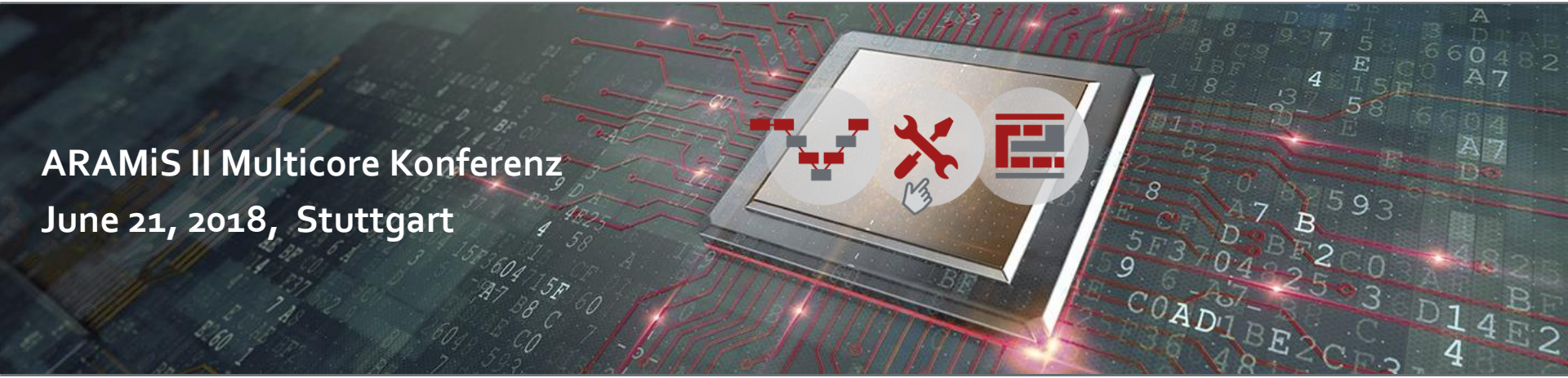
DEVELOPMENT PROCESSES I TOOLS I PLATFORMS
FOR SAFETY-CRITICIAL MULTICORE SYSTEMS



ARAMiS II Multicore Konferenz
June 21, 2018, Stuttgart

Model-based Multicore Software Development

The ARAMiS II Development Process

Timo Sandman, KIT and Stefan Kuntz, Continental AG

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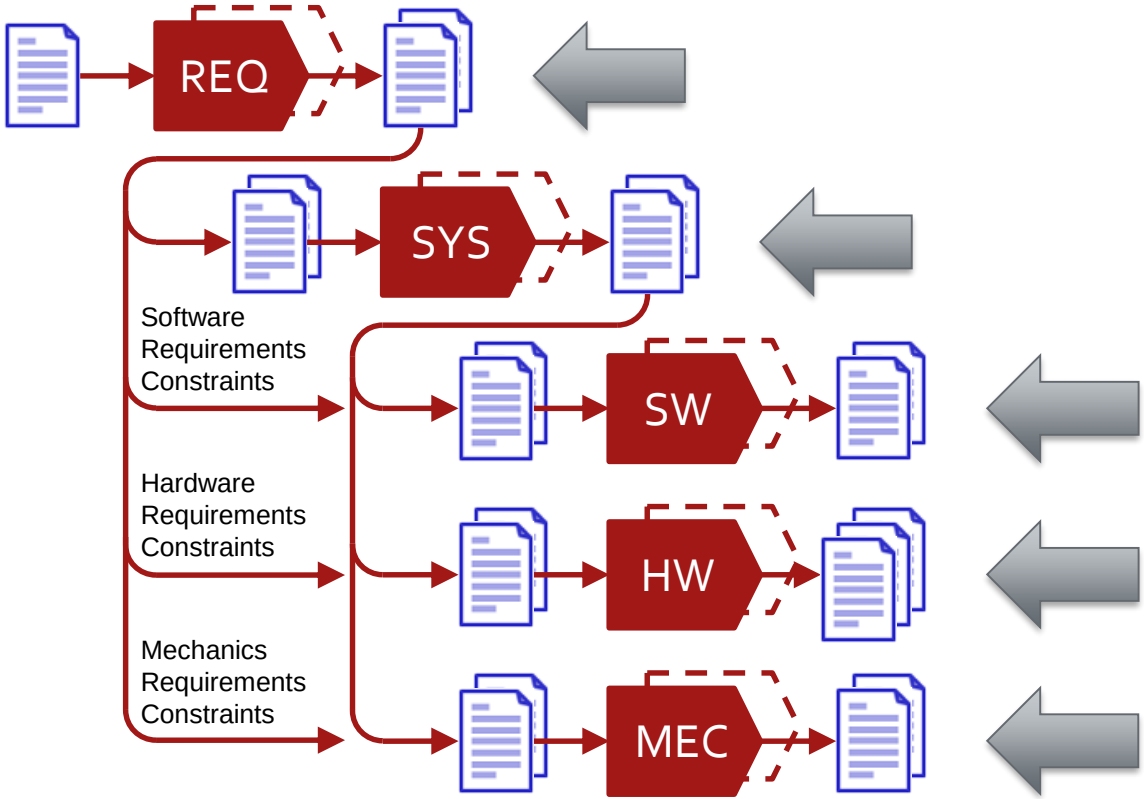
Introduction

- ARAMiS II Generic Development Process **and** Methods
- Characterization of software and hardware platforms – Technical Architecture Models

Generic Development Process – Overview



REQ	Requirements
SYS	System Architecture
SW	Software
HW	Hardware
MEC	Mechanics

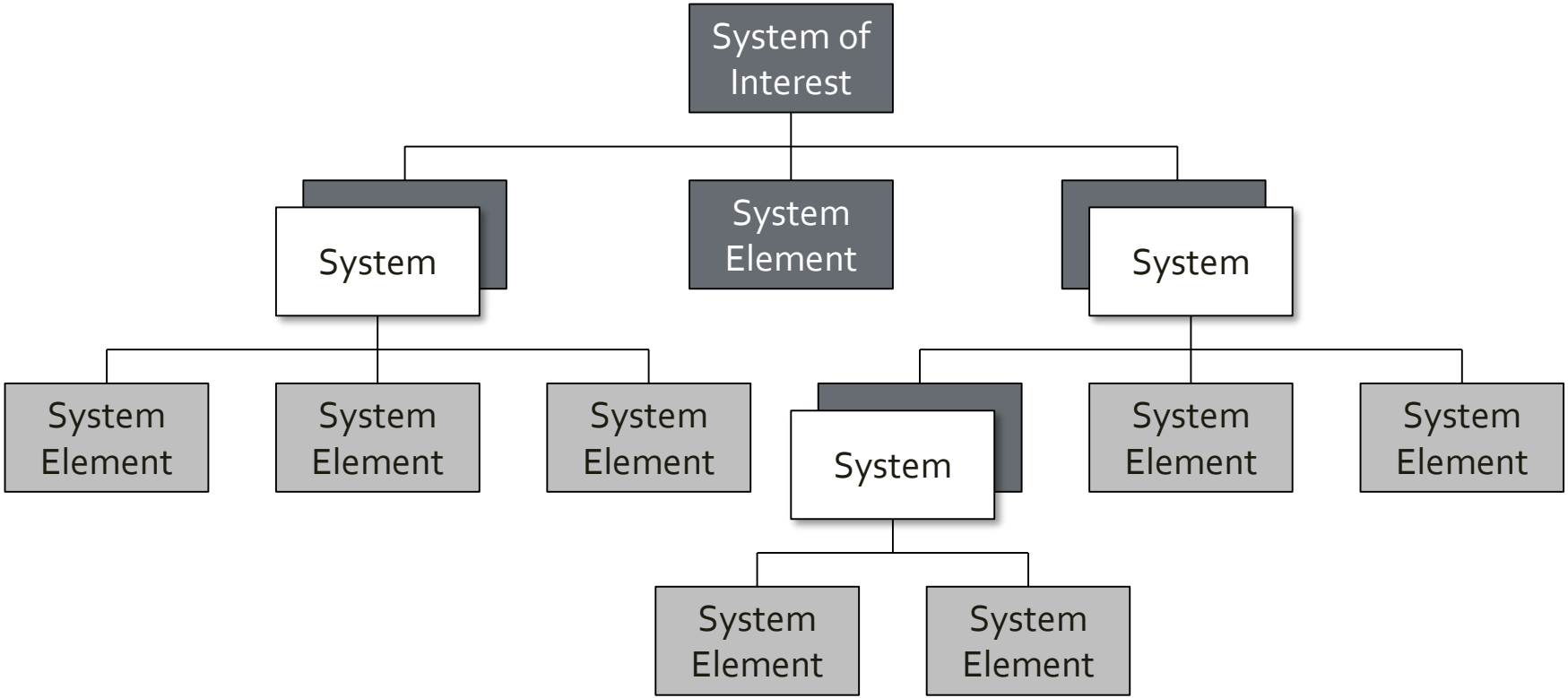
Task

Verification and Validation VV
Certification

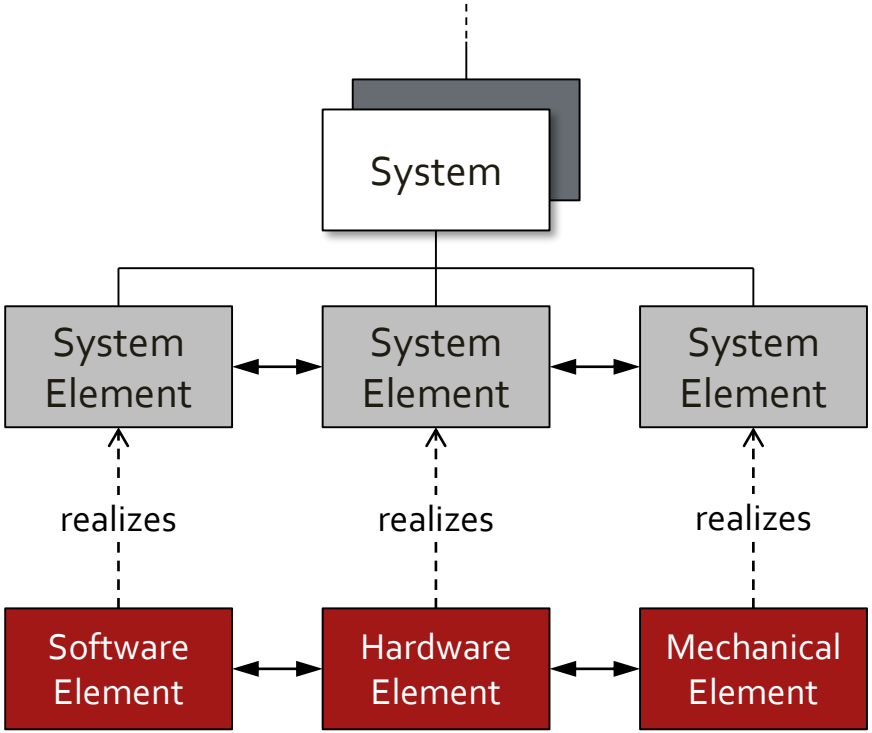
Artefact
Work Product

Validation from the “Right Wing” of the V-Model

Generic Development Process – System Analysis



Generic Development Process – System Analysis



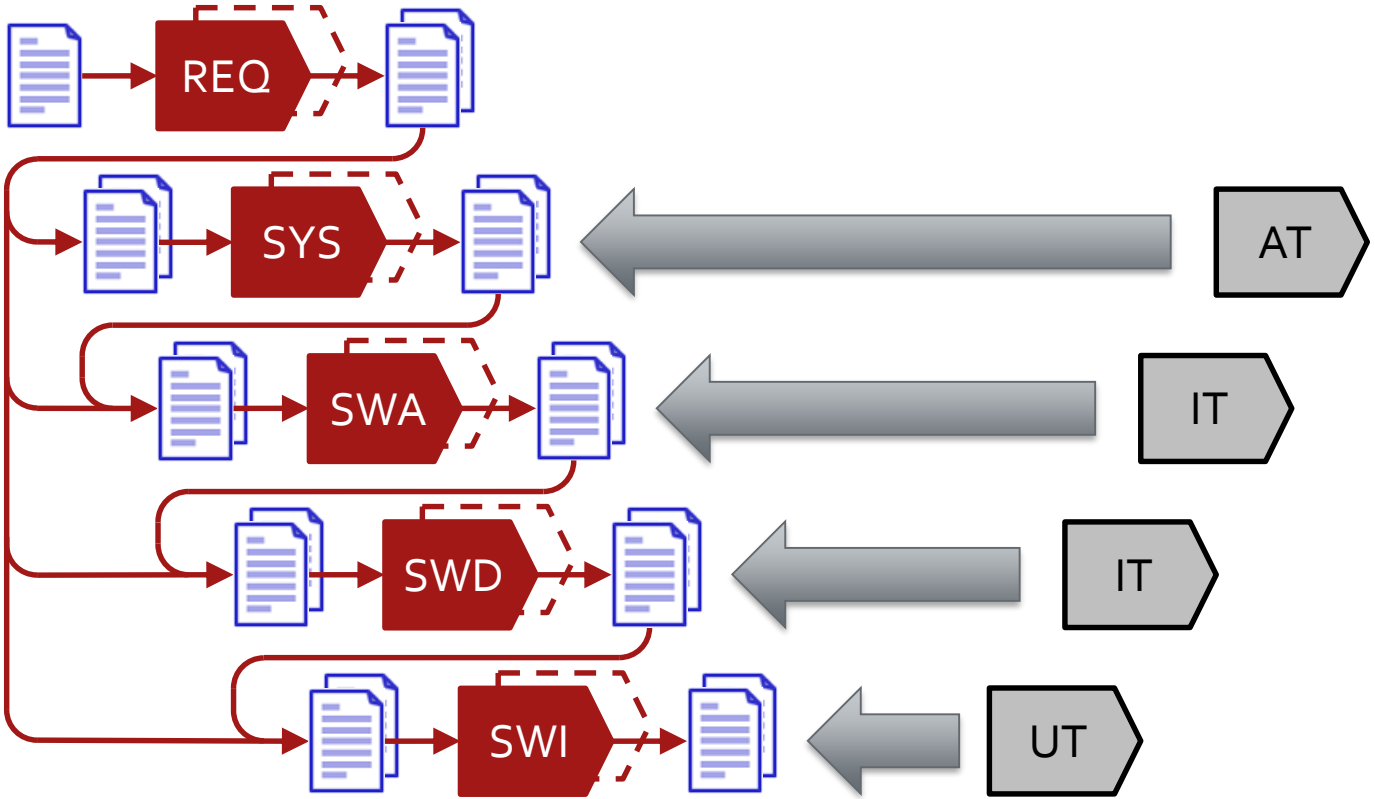
Taking decisions about which system elements are realized by:

- Software – Software platforms
- Hardware – Multicore based platforms
- Mechanics

considering functional, safety, security, timing, performance, etc. requirements

SW and HW capabilities are described by models for analyses purposes

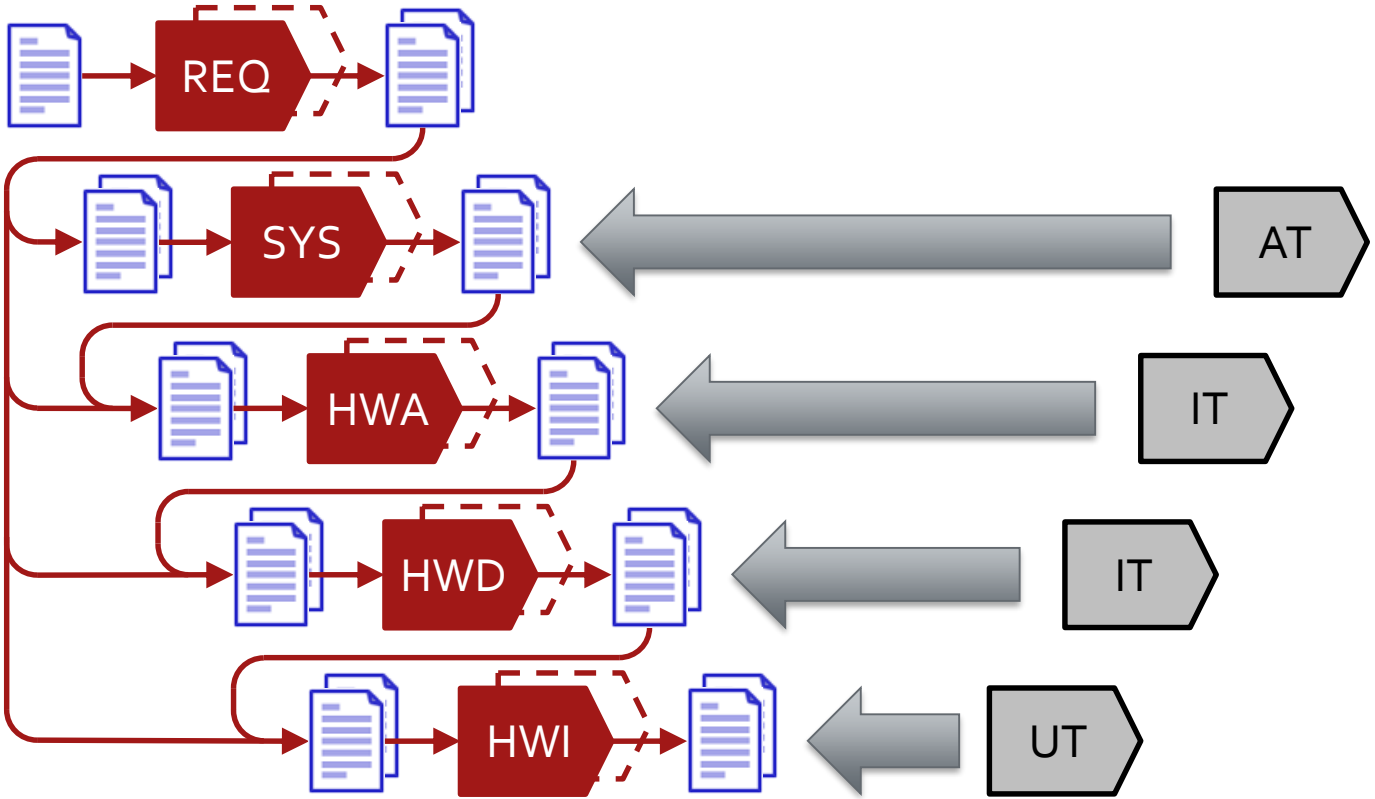
Generic Development Process – Software



- Requirements
- Models

REQ	Requirements
SYS	System Architecture
SWA	Software Architecture
SWD	Software Design
SWI	Software Implementation
UT	Unit Test
IT	Integration Test
AT	Acceptance/System Test

Generic Development Process – Hardware



- Requirements
- Models

REQ	Requirements
SYS	System Architecture
HWA	Hardware Architecture
HWD	Hardware Design
HWI	Hardware Implementation
UT	Unit Test
IT	Integration Test
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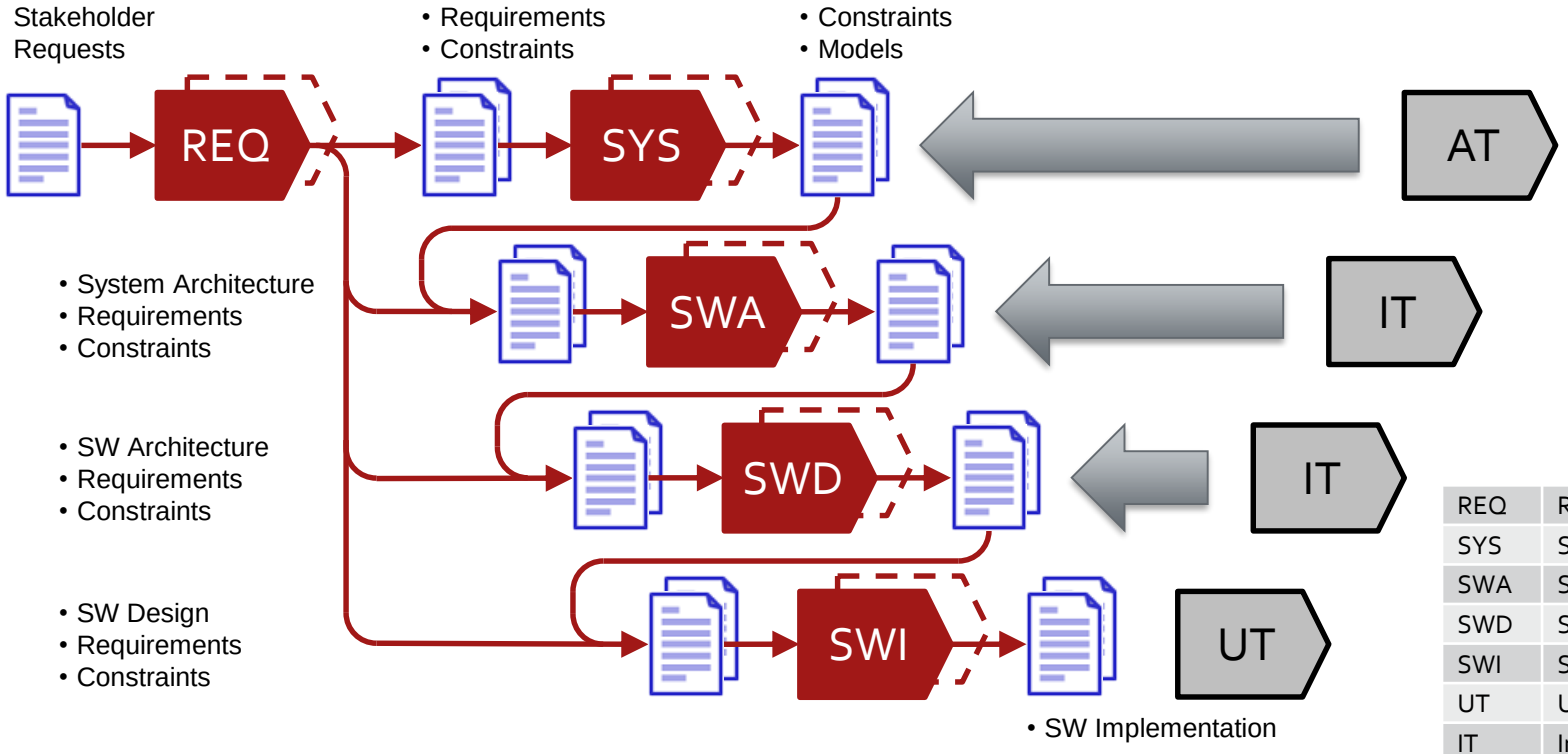
Generic Development Process



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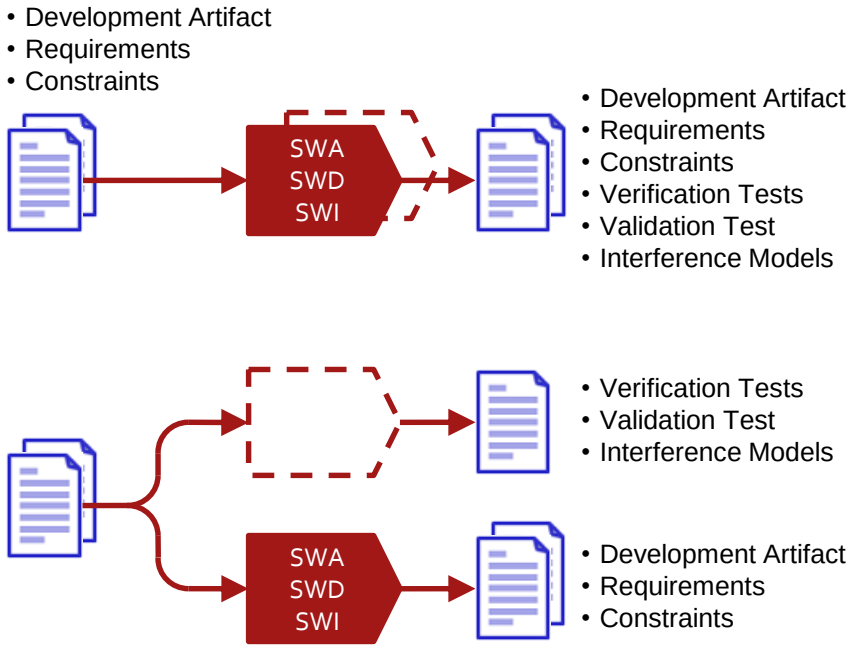
Generic Development Process



Architecture, Design and Implementation:

- Decomposition
- Composition
- Partitioning
- Parallelization
- Deployment

Task

- Verification and Validation VV
- Certification

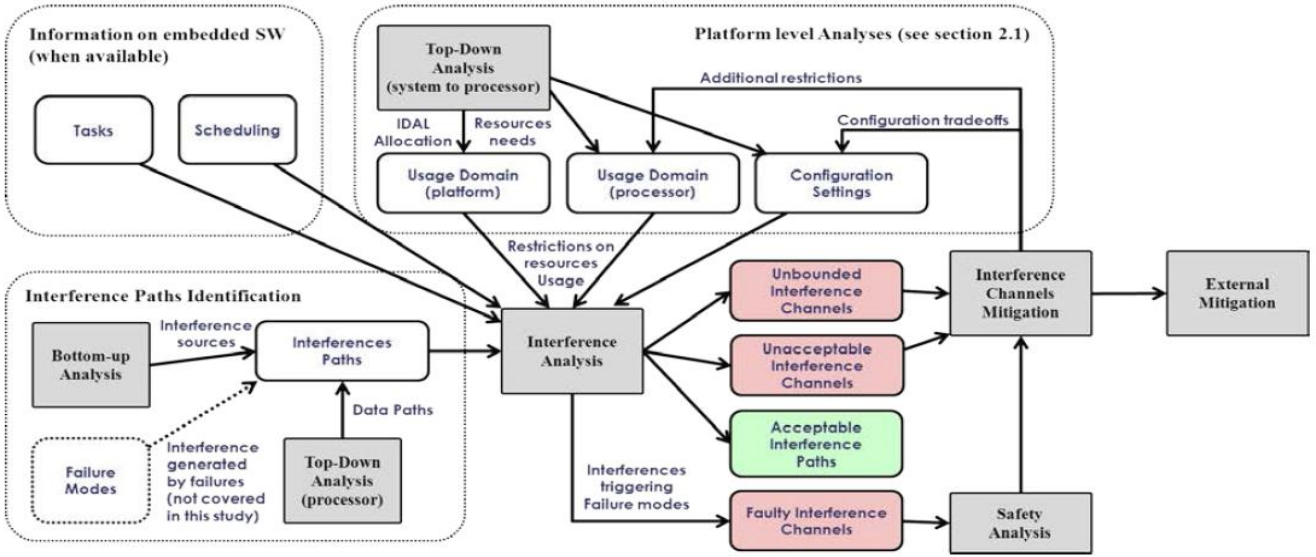
Artefact
Work Product

Models and Interference Models

- Hardware and software models
- Interference models
- Failure models

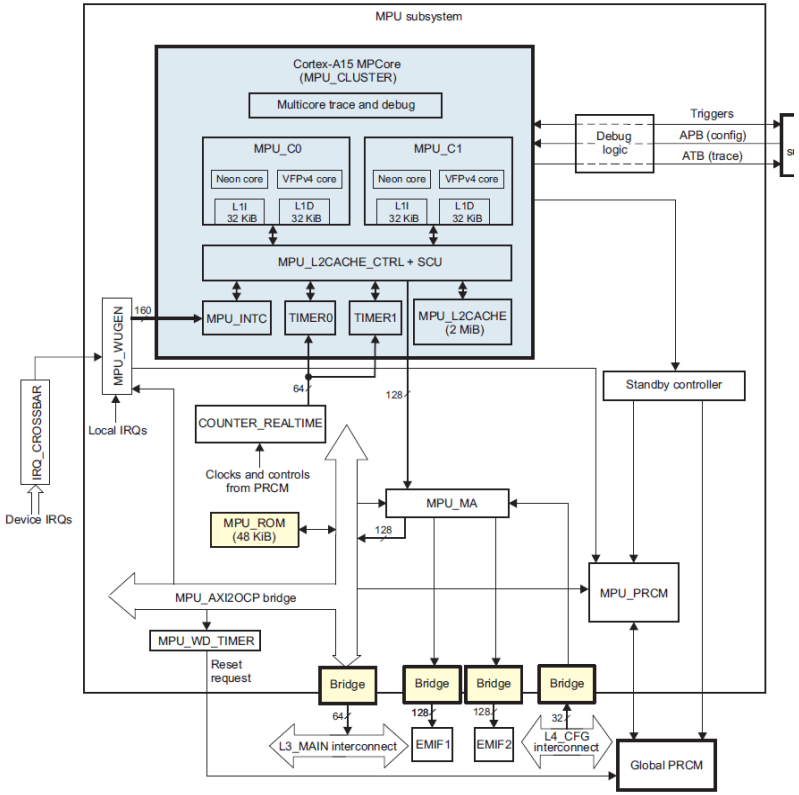
APP4MC

AUTOSAR
Enabling continuous innovations



Interference Models

- Architecture Level
- Causes
- Safety Impact
- Interference Class
- Effect
- Mitigation



Outlook

- Detailing the task of the Generic Development Process
- Refine the models
- Improving seamless and integrated methodology supported by appropriate tools

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ENTWICKLUNGSPROZESSE I WERKZEUGE I PLATTFORMEN
FÜR SICHERHEITSKRITISCHE MULTICORESYSTEME

STRUCTURED MULTICORE DEVELOPMENT

MULTICORE METHODS AND TOOLS

INDUSTRIAL PLATFORMS FOR MULTICORE SYSTEMS

Thank you for your attention!

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