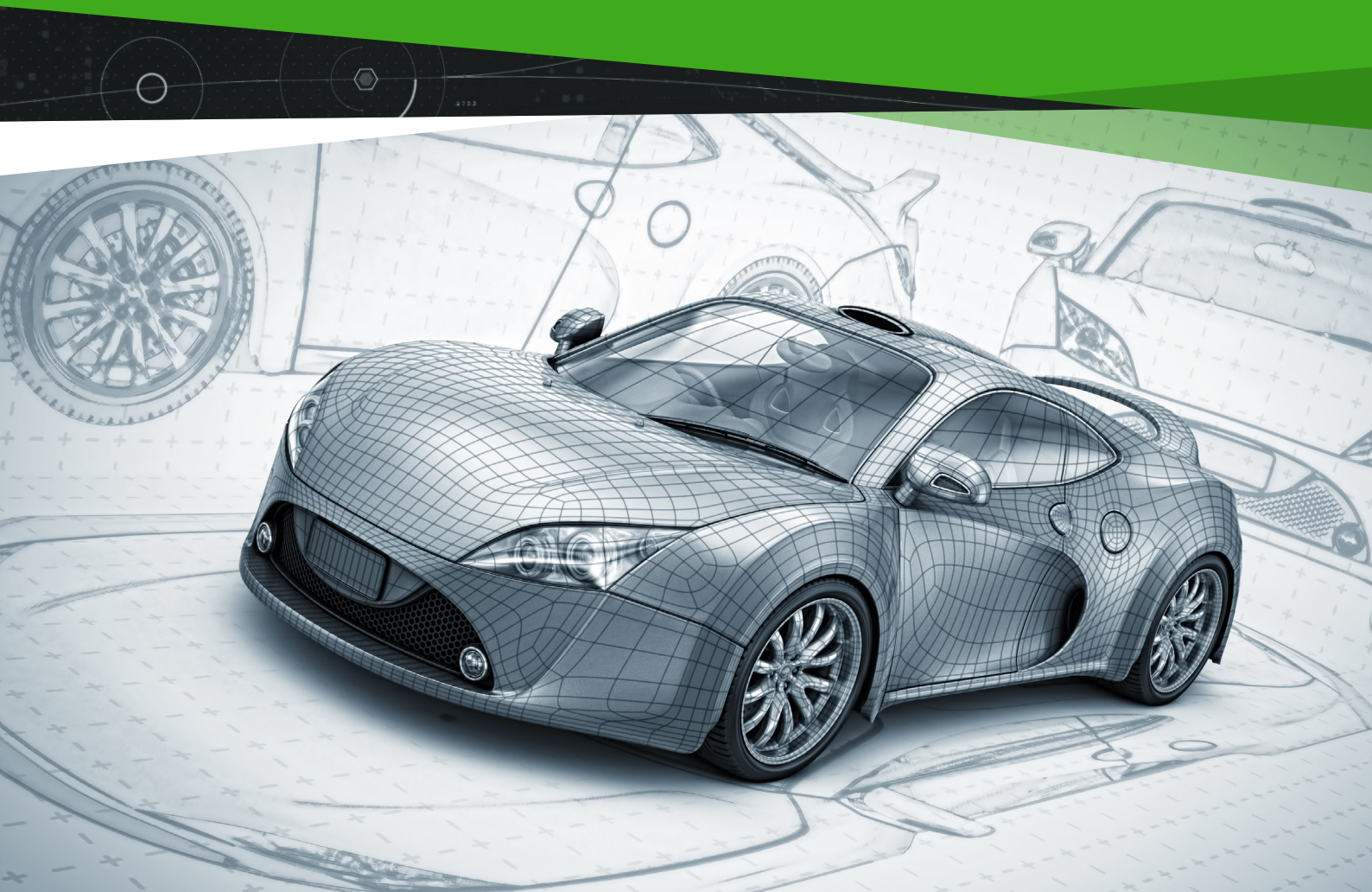




DIGITAL TRANSFORMS PHYSICAL

ISO 26262:2018 & ASPICE Template

for Automotive Product Development and Functional Safety Compliance



ISO 26262:2018 & ASPICE Template

for Automotive Product Development and Functional Safety Compliance

The evolution of functional safety and product quality requirements in the automotive industry is a growing source of headache for developers, suppliers, and manufacturers of digital mobility technology. Regulatory compliance is costly, complicated – and of crucial importance.

Codebeamer's Automotive ISO 26262:2018 & ASPICE Template leverages the advanced capabilities of our platform to adhere to and prove compliance with the requirements of automotive regulations and guidelines. This template helps implement the work products and workflows described by the second, 2018 edition of ISO 26262 in your automotive product delivery environment.

This template comes preconfigured to support automotive OEMs and suppliers in the development of high-quality automotive hardware and software systems that comply with relevant quality and safety standards. Using our platform enables you to develop safety-related embedded systems up to ASIL D or SIL 3.

Regulatory Landscape

ISO 26262

Road vehicles – Functional safety

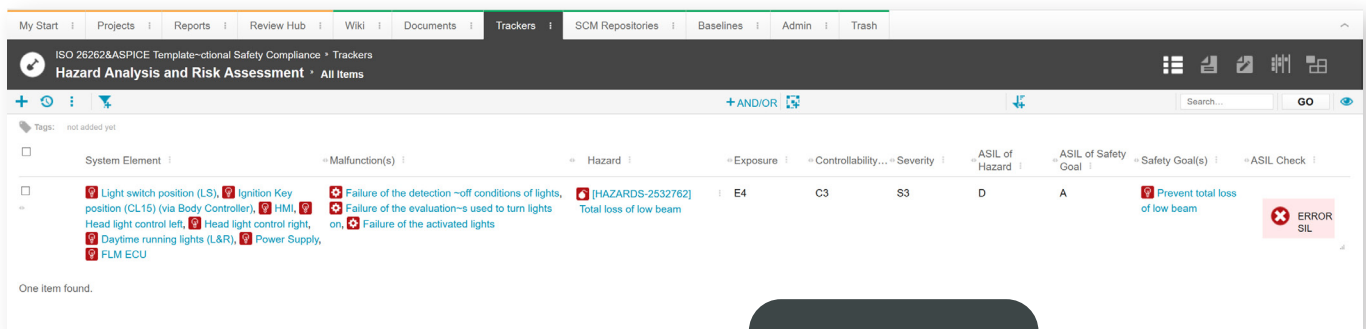
IEC 61508Functional Safety Of Electrical /
Electronic / Programmable
Electronic Safety-Related Systems**ASPICE**Automotive Software Process
Improvement and Capability
Determination

Design Functionally Safe Systems and Products

The scope of our Automotive ISO 26262:2018 & ASPICE Template covers system design, safety, hardware, and software engineering. Both Subsystem and System Design are supported by this template, providing you with a one-stop shop for your compliance needs. The preconfigured but flexibly adaptable artifacts in this template greatly accelerate the delivery of ISO 26262 and ASPICE work products.

Bidirectional Traceability for Hazard Analysis

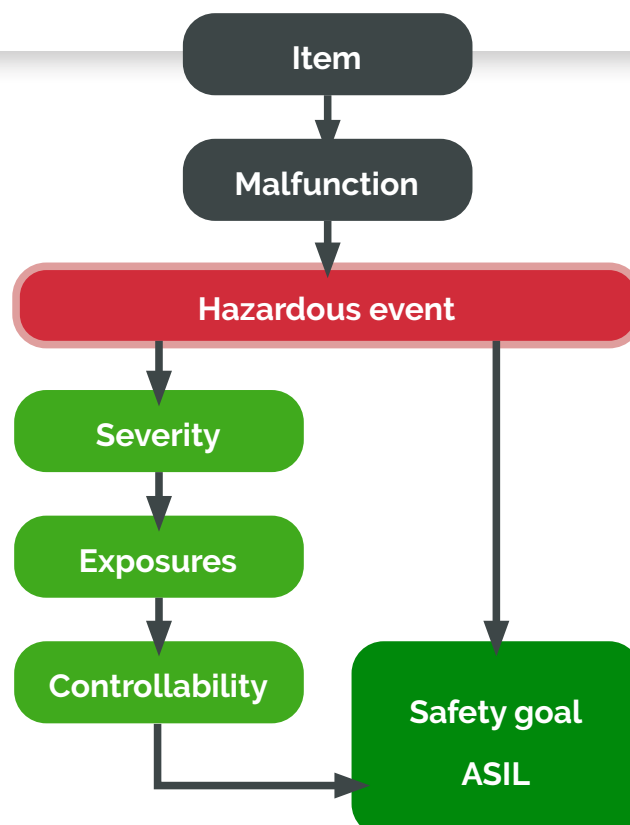
Hazard Analysis and Risk Assessment is a fundamental part of this template. With built-in functionality, the template lets you carry out hazard analysis for your work items, and determine ASIL classification levels for your safety goals. These then serve as input for safety requirements, providing upstream and downstream traceability on all hazards and their reduction/mitigation actions.



System Element	Malfunction(s)	Hazard	Exposure	Controllability...	Severity	ASIL of Hazard	ASIL of Safety Goal	Safety Goal(s)	ASIL Check
Light switch position (LS), Ignition Key position (CL15) (via Body Controller), HMI, Head light control left, Head light control right, Daytime running lights (L&R), Power Supply, FLM ECU	Failure of the detection - off conditions of lights, Failure of the evaluation - s used to turn lights on, Failure of the activated lights	[HAZARDS-2532762] Total loss of low beam	E4	C3	S3	D	A	Prevent total loss of low beam	ERROR SIL

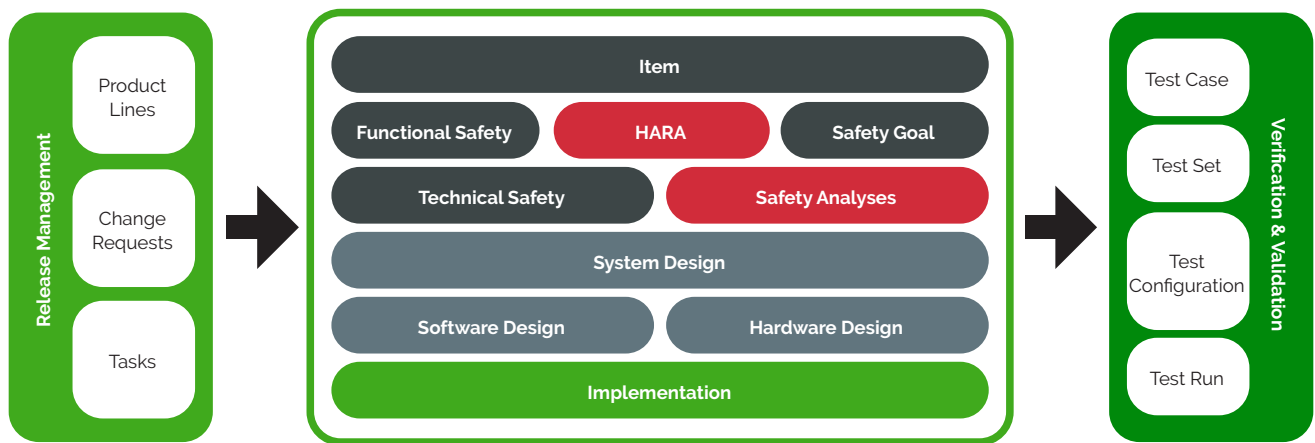
One item found.

Hazard Analysis & Risk Assessment



Integration to Safety Analysis Reports

The template enables you to import results from 3rd party safety analysis tools, and link those values to your model within the template. Whatever mode of safety analysis you apply (FMEA, ETA, Markov models, FTA, HAZOP, Reliability block diagrams), you'll be able to connect those results to actual development artifacts within this template.



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ISO 26262&ASPICE Template-clonial Safety Compliance > Trackers

Failure Mode and Effects Analysis > All Items

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Tags: not added yet

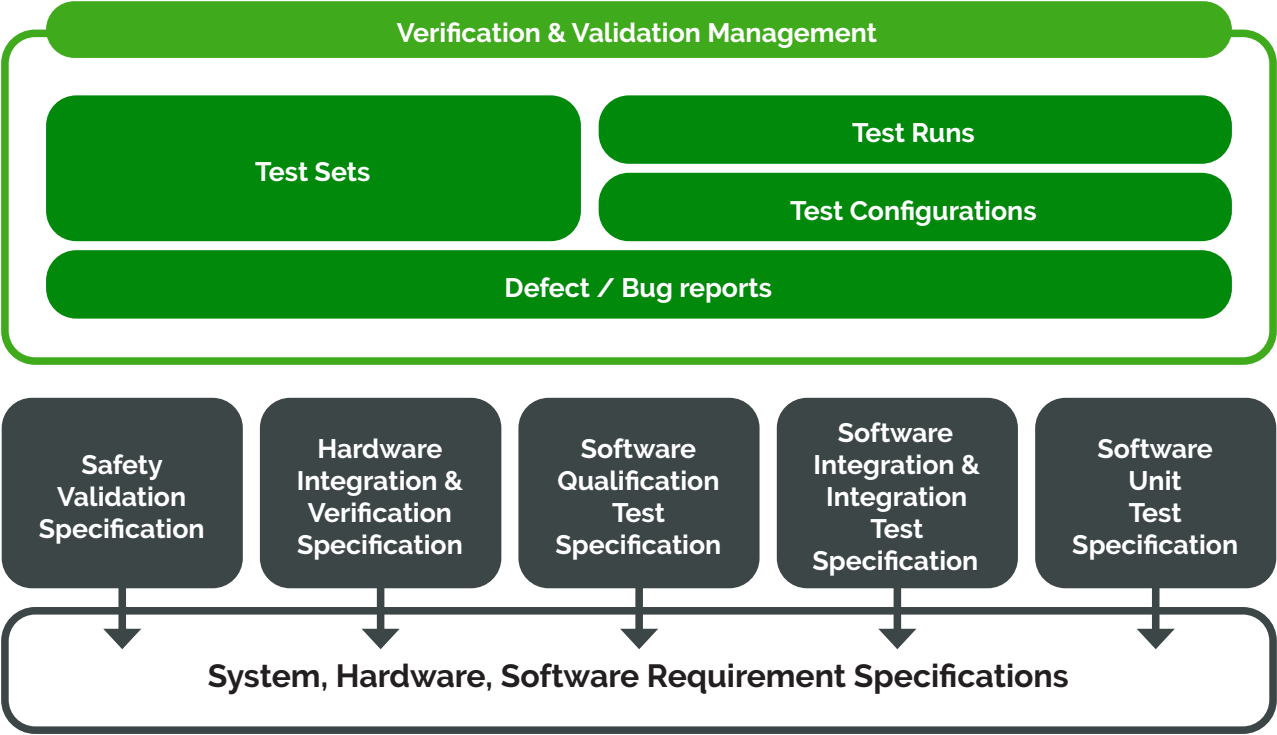
Potential Failure	Status	Function	Potential effect(s) of failure	Severity	Controllability	Class	Potential cause(s) of failure	Current preventive actions
<div><div></div><div>[FMEA-2532767] Failure of the activated lights</div></div>	NEW	<div><div></div><div>FunSaReq01-01</div></div>	Collosion with unnoticed object	3	2	3	Status read-back hardware failure	Status read-back checks by runtime self tests
<div><div></div><div>[FMEA-2532766] Failure of the evaluation and implementation of the light request function which is used to turn lights on</div></div>	NEW	<div><div></div><div>FunSaReq01-02</div></div>	Vehicle stopped by the driver	1	2	1	Connector failure	Redundant front line bulbs with segregated power and control lines
<div><div></div><div>[FMEA-2532765] Failure of the detection of the turn-on/ turn-off conditions of lights</div></div>	NEW	<div><div></div><div>FunSaReq01-03</div></div>	Erroneous display of the light status on HUD.	1	2	2	Still in evaluation	Will be worked out when causes identified

3 items found.

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System, Hardware, and Software V&V Management

This Automotive ISO 26262:2018 & ASPICE Template covers verification and validation (including test cases, test configurations, test sets, and test runs) for systems design and its hardware and software domains. From planning through delivery to verification, this template supports all system design processes with preconfigured functionality.



Initial Filter	Level 1	Level 2	Level 3	Level 4	Level 5
(26)	Hazard Analysis and Risk Assessment (8)	Safety Goal (8)	Functional Safety Concept (24)	Technical Safety Requirement Specification (104)	Software Safety Requirement Specification (416)
[ITEMDEF-2558976] Power Supply	[HAZARDS-2558978] Total loss of low beam	[SG-2559093] Prevent total loss of low beam	[FSC-2558979] FunSafReq01-01	[TSRS-2558983] SysSafReq01	[SADS-2559004] BC-ECU
			[FSC-2558980] FunSafReq01-02	[TSRS-2558984] SysSafReq02	[SADS-2559005] Light switch position (LS)
				[TSRS-2558985] SysSafReq03	[SADS-2559005] Light switch position (LS)
				[TSRS-2558986] SysSafReq04	[SSRS-2559038] The Application SWCs shall evaluate the light request and initiate the powering of the bulbs as specified.
					[SSRS-2559039] The Application-SWC shall determine the LB_OFF and CL15ON status as specified.
					[SSRS-2559040] The Application-SWC shall evaluate the light request conditions based on LB_OFF and CL15ON and their timing as specified.
					[SSRS-2559044] The correct powering of the bulbs according to the specification shall be ensured.
					[SADS-2559012] FLM ECU
					[SSRS-2559045] The correct powering of the bulbs according to the light request and the specification are to be signaled via set_pwm command.

Built-in Change Management

Using this template ensures full change control along the lifecycle. Any and all changes to artifacts (items and workflows) are logged and timestamped. Preconfigured change requests may be issued, with tasks linked to releases for complete traceability on change management.

Why use Codebeamer's ISO 26262:2018 & ASPICE Template?



**Out-of-the-box
regulatory support**



**ISO 26262
compliance and
validation matrix**



**System, safety, HW,
and SW engineering
support**



**Predefined but
adaptable model to
accelerate
compliance**



**Customization and
domain consulting
available**



**Certified TÜV Trusted
Tool for ISO 26262 &
IEC 61508**

Our solutions are successfully used by:



...and many more.

Explore Codebeamer's Automotive solutions in action

Find out why global leaders like Volkswagen, BMW, and Daimler use our tools! Discover the benefits of PTC®'s Codebeamer technology, our integrated Engineering and Application Lifecycle Management platform for automotive systems development & functional safety.

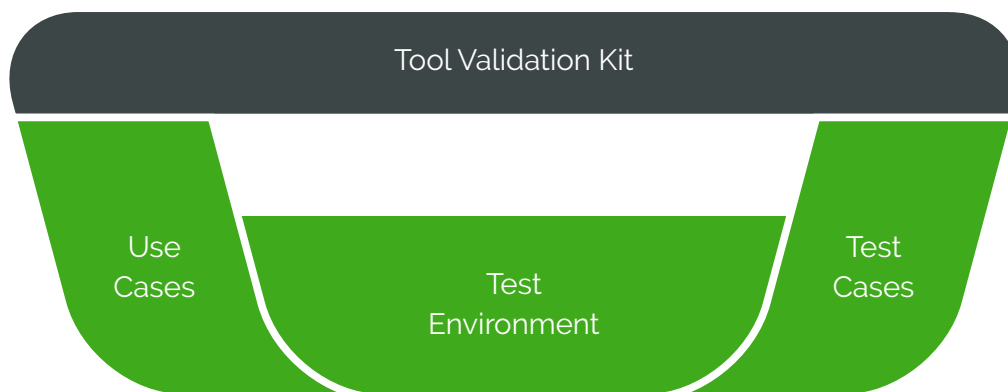
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Validation Solution for Automotive Use Cases

Codebeamer's Tool Validation Kit helps simplify and accelerate tool qualification and validation in regulated product development. Learn more at:

<https://intland.com/codebeamer/validation-kits/>

