AUTOMOTIVE SPICE® v3.0 HIS-SCOPE*

* under discussion (as of October 2015)

Process attributes and capability Levels

	LEVEL	PROCESS ATTRIBUTES	PERFORMANCE DESCRIPTION
5	Innovating	PA 5.1 Process Innovation PA 5.2 Process Optimization	The previously described predictable process is now continually improved to respond to organizational change.
4	Predictable	PA 4.1 Quantitative Analysis PA 4.2 Quantitative Control	The previously described established process now operates predictively within defined limits to achieve its process outcomes. Quantitative management needs are identified, measurement data are collected and analyzed to identify assignable causes of variation. Corrective action is taken to address assignable causes of variation.
3	Established	PA 3.1 Process Definition PA 3.2 Process Deployment	The previously described managed process is now implemented using a defined process that is capable of achieving its process outcomes.
2	Managed	PA 2.1 Performance Management Pa 2.2 Work Product Management	The previously described performed process is now implemented in a managed fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained.
1	Performed	PA 1.1 Process Performance	The implemented process achieves its process purpose.
0	Incomplete		The process is not implemented, or fails to achieve its process purpose

Generic practices

LEVEL 5 – Innovating process

LEVEL 4 – Predictable process

LEVEL 3 – Established process

PA 3.1 Process definition process attribute

The process definition process attribute is a measure of the extent to which a standard process is maintained to support the deployment of the defined process.

GP 3.1.1 Define and maintain the standard process that will support the deployment of the defined process.
GP 3.1.2 Determine the sequence and interaction between processes so that they work as an integrated system of processes.
GP 3.1.3 Identify the roles and competencies, responsibilities, and authorities for performing the standard process.
GP 3.1.4 Identify the required infrastructure and work environment for performing the standard process
GP 3.1.5 Determine suitable methods and measures to monitor the effectiveness and suitability of the standard process.

PA 3.2 Process deployment attribute

The process deployment process attribute is a measure of the extent to which the standard process is deployed as a defined process to achieve its process outcomes.

GP 3.2.1 Deploy a defined process that satisfies the context specific requirements of the use of the standard process.
GP 3.2.2 Assign and communicate roles, responsibilities and authorities for performing the defined process.
GP 3.2.3 Ensure necessary competencies for performing the defined process.
GP 3.2.4 Provide resources and information to support the performance of the defined process.
GP 3.2.5 Provide adequate process infrastructure to support the performance of the defined process.
GP 3.2.6 Collect and analyze data about performance of the process to demonstrate its suitability and effectiveness.

LEVEL 2 – Managed process

PA 2.1 Performance management process attribute

The performance management process attribute is a measure of the extent to which the performance of the process is managed.

GP 2.1.1 Identify the objectives for the performance of the process.
GP 2.1.2 Plan the performance of the process to fulfill the identified objectives.
GP 2.1.3 Monitor the performance of the process against the plans.
GP 2.1.4 Adjust the performance of the process.
GP 2.1.5 Define responsibilities and authorities for performing the process.
GP 2.1.6 Identify, prepare, and make available resources to perform the process according to plan.
GP 2.1.7 Manage the interfaces between involved parties.

PA 2.2 Work product management process attribute

The work product management process attribute is a measure of the extent to which the work products produced by the process are appropriately managed.

GP 2.2.1 Define the requirements for the work products.
GP 2.2.2 Define the requirements for documentation and control of the work products.
GP 2.2.3 Identify, document and control the work products.
GP 2.2.4 Review and adjust work products to meet the defined requirements.

LEVEL 1 – Performed process

PA 1.1 Process performance process attribute

The process performance attribute is a measure of the extent to which the process purpose is achieved.

GP 1.1.1 Achieve the process outcomes

Management Process Group

MAN.3 – Project Management

BP1 Define the scope of work.
BP2 Define project life cycle.
BP3 Evaluate feasibility of the project.
BP4 Define, monitor and adjust project activities.
BP5 Determine, monitor und adjust project estimates and resources.
BP6 Ensure required skills, knowledge, and experience.
BP7 Identify, monitor and adjust project interfaces and agreed commitments.
BP8 Define, monitor and adjust project schedule.
BP9 Ensure consistency.
BP10 Review and report progress of the project.

Aquisition Process Group

ACQ.4 – Supplier Monitoring

BP1 Agree on and maintain joint processes, joint interfaces, and information to be exchanged.
BP2 Exchange all agreed information.
BP3 Review technical development with the supplier.
BP4 Review progress of the supplier.
BP5 Act to correct deviations.

System level

SYS.2 – System Requirements Analysis — element

BP1 Specify system requirements.
BP2 Structure system requirements.
BP3 Analyze system requirements.
BP4 Analyze the impact on the operating environment.
BP5 Develop verification criteria.
BP6 Establish bidirectional traceability.
BP7 Ensure consistency.
BP8 Communicate agreed system requirements.

SYS.5 – System Qualification Test — item

BP1 Develop system qualification test strategy including regression test strategy.
BP2 Develop specification for system qualification test.
BP3 Select test cases.
BP4 Test integrated system.
BP5 Establish bidirectional traceability.
BP6 Ensure consistency.
BP7 Summarize and communicate results.

SYS.3 – System Architectural Design — element

BP1 Develop system architectural design.
BP2 Allocate System Requirements.
BP3 Define interfaces of system elements.
BP4 Describe dynamic behavior.
BP5 Evaluate alternative system architectures.
BP6 Establish bidirectional traceability.
BP7 Ensure consistency.
BP8 Communicate agreed system architectural design.

SYS.4 – System Integration and Integration Test — item

BP1 Develop system integration strategy.
BP2 Develop system integration test strategy including regression test strategy.
BP3 Develop specification for system integration test.
BP4 Integrate system items.
BP5 Select test cases.
BP6 Perform system integration test.
BP7 Establish bidirectional traceability.
BP8 Ensure consistency.
BP9 Summarize and communicate results.

System Engineering Process Group

Domain level

Hardware Engineering

SWE.1 – Software Requirements Analysis — element

BP1 Specify software requirements.
BP2 Structure software requirements.
BP3 Analyze software requirements.
BP4 Analyze the impact on the operating environment.
BP5 Develop verification criteria.
BP6 Establish bidirectional traceability.
BP7 Ensure consistency.
BP8 Communicate agreed software requirements.

SWE.2 – Software Architectural Design — component element

BP1 Develop software architectural design.
BP2 Allocate software requirements.
BP3 Define interfaces of software elements.
BP4 Describe dynamic behavior.
BP5 Define resource consumption objectives.
BP6 Evaluate alternative software architectures.
BP7 Establish bidirectional traceability.
BP8 Ensure consistency.
BP9 Communicate agreed software architectural design.

SWE.3 – Software Detailed Design and Unit Construction — component element unit

BP1 Develop software detailed design.
BP2 Define interfaces of software units.
BP3 Describe dynamic behavior.
BP4 Evaluate software detailed design.
BP5 Establish bidirectional traceability.
BP6 Ensure consistency.
BP7 Communicate agreed software detailed design.
BP8 Develop software units.

Mechanical Engineering

SWE.6 – Software Qualification Test — item

BP1 Develop software qualification test strategy including regression test strategy.
BP2 Develop specification for software qualification test.
BP3 Select test cases.
BP4 Test integrated software.
BP5 Establish bidirectional traceability.
BP6 Ensure consistency.
BP7 Summarize and communicate results.

SWE.5 – Software Integration and Integration Test — item

BP1 Develop software integration strategy.
BP2 Develop software integration test strategy including regression test strategy.
BP3 Develop specification for software integration test.
BP4 Integrate software units and software items.
BP5 Select test cases.
BP6 Perform software integration test.
BP7 Establish bidirectional traceability.
BP8 Ensure consistency.
BP9 Summarize and communicate results.

SWE.4 – Software Unit Verification — item unit

BP1 Develop software unit verification strategy including regression strategy.
BP2 Develop criteria for unit verification.
BP3 Perform static verification of software units.
BP4 Test software units.
BP5 Establish bidirectional traceability.
BP6 Ensure consistency.
BP7 Summarize and communicate results.

Software Engineering Process Group

Supporting Process Group

SUP.1 – Quality Assurance

BP1 Develop a project quality assurance strategy.
BP2 Assure quality of work products.
BP3 Assure quality of process activities.
BP4 Summarize and communicate quality assurance activities and results.
BP5 Ensure resolution of non-conformances.
BP6 Implement an escalation mechanism.

SUP.8 – Configuration Management

BP1 Develop a configuration management strategy.
BP2 Identify configuration items.
BP3 Establish a configuration management system.
BP4 Establish branch management strategy.
BP5 Control modifications and releases.
BP6 Establish baselines.
BP7 Report configuration status.
BP8 Verify the information about configured items.
BP9 Manage the storage of configuration items and baselines.

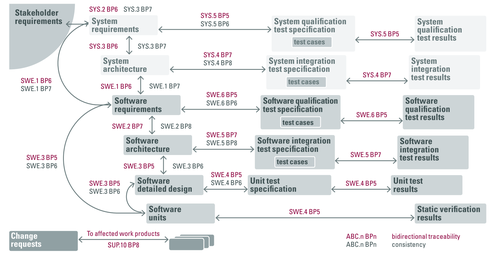
SUP.9 – Problem Resolution Management

BP1 Develop a problem resolution management strategy.
BP2 Identify and record the problem.
BP3 Record the status of problems.
BP4 Diagnose the cause and determine the impact of the problem.
BP5 Authorize urgent resolution action.
BP6 Raise alert notifications.
BP7 Initiate problem resolution.
BP8 Track problems to closure.
BP9 Analyze problem trends.

SUP.10 – Change Request Management

BP1 Develop a change request management strategy.
BP2 Identify and record the change requests.
BP3 Record the status of change requests.
BP4 Analyze and assess change requests.
BP5 Approve change requests before implementation.
BP6 Review the implementation of change requests.
BP7 Track change requests to closure.
BP8 Establish bidirectional traceability.

Bidirectional traceability and consistency



Automotive SPICE® as a basis for functional safety

By implementing Automotive SPICE®, a large part of the ISO 26262 requirements can also be fulfilled. The tables below display the Automotive SPICE® support for an ISO 26262 implementation.

Automotive SPICE® extended HIS-Scope		ISO 26262
SYS.1 Requirements Elicitation		Item definition (detailed level)
SYS.2 System Requirements Analysis		Functional safety concept
		Specification of the technical safety requirements
		Specification and management of safety requirements
SYS.3 System Architectural Design		System design
SWE.1 Software Requirements Analysis		Specification of software safety requirements
SWE.2 Software Architectural Design		Software architectural design
SWE.3 Software Detailed Design and Unit Construction		Software unit design & implementation
SWE.4 Software Unit Verification		Software unit testing
SWE.5 Software Integration and Integration Test		Software integration & testing
SWE.6 Software Qualification Test		Verification of software safety requirements
SYS.4 System Integration and Integration Test		Item integration and testing
SYS.5 System Qualification Testing		–
ACQ.4 Supplier Monitoring		Interfaces within distributed developments
SPL.2 Product Release		Release for production
MAN.3 Project Management		Safety management during the concept phase and the product development
		Item definition (top level)
		Initiation of the safety lifecycle
		Initiation of product development at the system level
		Initiation of product development at the hardware level
		Initiation of product development at the software level
MAN.5 Risk Management		–
SUP.1 Quality Assurance		Safety management during the concept phase and the product development
		Functional safety assessment
SUP.2 Verification		Verification
SUP.4 Joint Review		–
SUP.7 Documentation		Documentation
SUP.8 Configuration Management		Configuration management
SUP.9 Problem Resolution Management		–
SUP.10 Change Management		Change management
REU.2 Reuse Program Management		–

strong support · medium support · weak support

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VDA QMC AUTOMOTIVE SPICE®

ISBN-13 978-3-945547-17-5

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