



News and changes within Automotive SPICE® 4.1 (Draft)

Presentation at the EuroSPI Tech Day 2026, 3. 9. 2026

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Automotive SPICE® 4.1

- Update of the PAM was planned for Summer 2026
- Preview was published in April 2026 to support the review of the 3rd revised version of the VDA Guidelines
- ASPICE PAM 4.1 should be a minor update → no major changes in the way we would assess a project
- 3rd Revision of the VDA Guidelines (Yellow Book) has several changes most notable two additional chapters have been added:
 - AI assistance in development
 - Maintenance

DISCLAIMER: The changes and updates were analyzed based on the Preview Version of Automotive SPICE® PAM 4.1 and the Yellow Book of the Automotive SPICE® Guidelines (3rd revised edition)



What stays unchanged in Automotive SPICE® 4.1

- Same overall architecture: 32 processes in 11 process groups
- Same capability model: Levels 0–5 and nine process attributes (PA 1.1–PA 5.2)
- No processes added or removed; assessment scope and basic assessment logic remain stable
- Most changes are editorial or structural clarifications rather than new assessment expectations
- No (major) impact for assessors



Most relevant process-level changes

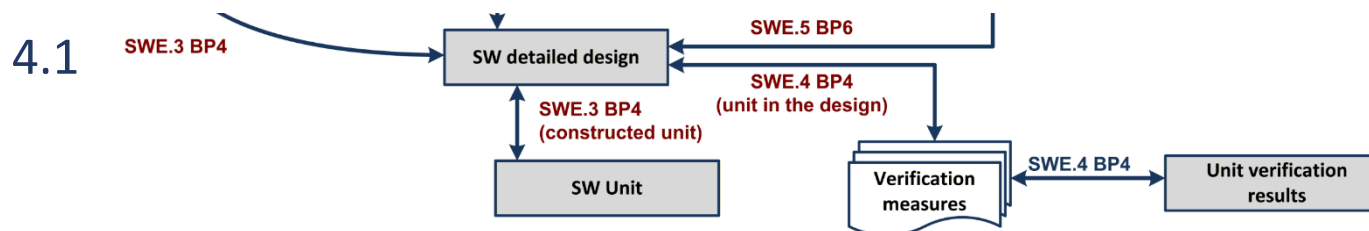
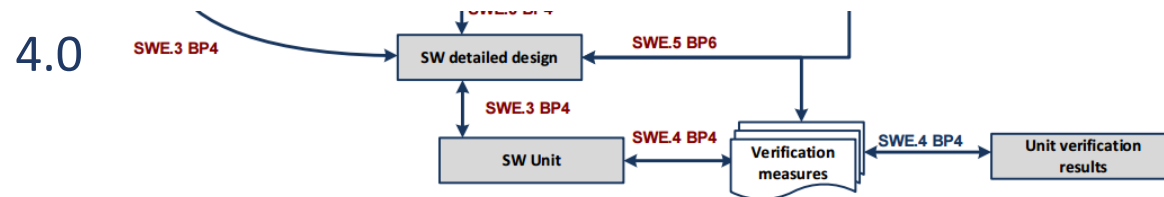
- **SYS.1 Requirements Elicitation:** explicit stakeholder identification added
 - New outcome: relevant stakeholders are identified; BP1 now combines identification and elicitation
 - SYS.1.BP1: Obtain stakeholder expectations and requests → SYS.1.BP1: Identify stakeholders and obtain their expectations and requests
- **MLE.2 Machine Learning Architecture:** dedicated resource-consumption objective practice removed
 - MLE.2.BP5 removed; remaining practices renumbered, resource consumption retained as a technical design aspect
- **HWE.2 Hardware Design:** outcomes consolidated; production-test-related content merged; Outcome 4 and 5 from ASPICE 4.0 merged to Outcome 4 in ASPICE 4.1
- **REU.2** renamed from “Management of Products for Reuse” to “Reuse of Products”



Traceability and verification are clarified

- SWE.3, SWE.4, SWE.5, SWE.6 and SYS.5 split combined traceability outcomes into more explicit outcomes

SWE.3.BP4: Ensure consistency and establish bidirectional traceability. ~~Ensure consistency and establish bidirectional traceability between the software detailed design and the software architecture. Ensure consistency and establish bidirectional traceability between the developed software units and the software detailed design. Ensure consistency and establish traceability between the software detailed design and the software requirements.~~





Terminology changes

- Primary life cycle processes category” → “Primary processes category” (same for Supporting and Organizational categories — “life cycle” dropped).
- Terminology was refined for “Release”, “Software element” and “Software unit”

Term	Version 4.0	Version 4.1
Release	“A physical product delivered to a customer ...”	“A product delivered to a customer ...” (“physical” dropped)
Software element	“Refers to software component or software unit.”	“A software element is subject to integration within the software. Can represent a SOFTWARE COMPONENT or SOFTWARE UNIT.”
Software unit	Longer wording referencing “a representation of a software element ... part of a software component at the lowest level”.	Simplified: decomposition of a software component in a conceptual model; “decided not to be further subdivided”.



Information Item Characteristics

- No Information Items were added or removed from the catalogue
- Structure changed
- SYS.1 now outputs Information Item 14-50 “Stakeholder groups”
- Selected Information Item names were cleaned up:
 - 15-13 “Assessment/audit report” → “Assessment/audit result”
 - 18-80 “Improvement opportunity” → “Process improvement opportunity”

04-05	Software detailed design	Internal structure and behavior of software elements. Identifies: • Control flows • Format of input/output data • Algorithms • Data structures • Variables Includes: • Justifying rationale for the chosen design • Interfaces • Explanatory annotations • Elements of semi-formal language, for example UML, SysML Examples and references: • Expression in formal or semi-formal language may be used in model based developed design.
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New guideline chapter: AI assistance in development

- Automotive SPICE® defines what a process shall achieve — not how the work must be performed → no restriction or recommendation on the use of AI engineering tools
- AI-assisted creation or update of work products is a tool / implementation decision at the “how” level
- Assessment still focuses on objective evidence that the relevant practices and intended outcomes are fulfilled
- AI output must not be accepted blindly: verification and correction remain necessary because output quality can vary



Assessing AI-assisted development

- The organization should define clear criteria for handling AI-related risks — e.g., manual review, testing or other controls
- Assessors should explicitly consider AI-tool usage when evaluating and rating the implemented process
- Potential cross-process impact: SUP.8 Configuration Management, SUP.1 Quality Assurance and PA 2.2 Work Product Management
 - Typical evidence: prompts treated as configuration items where relevant; approved-tool lists; versioned models/settings stored as their behaviour can change



New guideline chapter: Maintenance

- The guidance covers both preparation for later maintenance during development and assessment of maintenance activities after release
- Before SOP, assessors should look for evidence that the project has prepared its results for handover and long-term maintainability
- Avoid “assessing into a vague future”: rate concrete preparations and current process performance rather than assumptions about a future maintenance organization
- Relevant areas span project management, agreements, documentation, configuration management, architecture/design, construction, verification and validation



Maintenance readiness: handover, documentation & configuration

Handover & stakeholders: recognize the future maintenance team; prepare skills/knowledge transfer, contacts, escalation paths and supplier/customer commitments

Project documentation: make requirements, architecture, design, code/models, risks and decisions understandable beyond the original team, location and culture

Configuration management: preserve coherent baselines and the relationships between requirements, design, code, tests, variants and released configurations

Toolchain reproducibility: document compilers, build/test/release systems, settings, licenses, work-arounds and dependencies so environments can be re-established

Data-intensive / ML projects: decide what data must be retained to enable later re-training and release-oriented V&V



Maintenance readiness: architecture, FOSS & V&V

Architecture & design: consider maintainability characteristics such as modularity, reusability, analyzability, modifiability and testability

Document design rationale, limitations, trade-offs, accepted risks and variation points so later changes can be made safely

FOSS: assess update availability, community/vendor continuity, license changes, vulnerability handling and the organization's ability to maintain or replace components

Verification & validation: test not only today's requirements but also update/patch mechanisms (e.g. OTA), backend/cloud integration etc.

Keep reusable test assets, knowledge and — where relevant — data sets so future maintainers can reproduce, adapt and extend the verification environment



Summary

- Automotive SPICE® 4.1 is a minor evolution of 4.0 — the overall model and assessment approach remain stable.
- For assessors only minor/no impact when performing assessments.
- The 3rd revised Automotive SPICE® Guidelines (yellow book) add explicit guidance for AI-assisted development and maintenance.
- No dedicated Automotive SPICE 4.1 Upgrade course will be required.



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