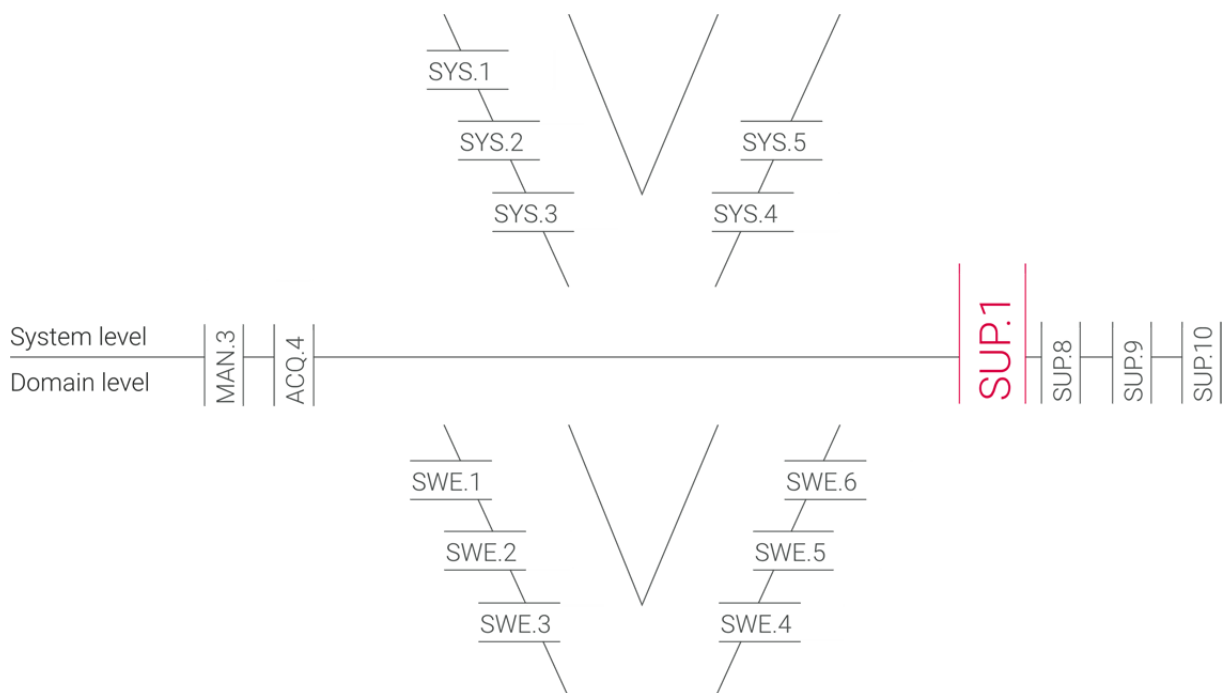


QUALITY ASSURANCE – SUP.1

in Automotive SPICE®

an introduction

Dr. Klaus Hoermann



Learn Automotive SPICE® with Kugler Maag Cie GmbH

1st version – January 2020



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About this white paper

This white paper extends the materials I've covered in my Automotive SPICE[®] tutorial for Beginners on YouTube.

<https://youtu.be/oLXSvxGms8E>

<https://kuglermaag.com/sup1>

Both the YouTube tutorial and this document cover the core concepts and they are not complete by any means. This publication has been prepared for general guidance only. Please do not act according to any information given in this document without receiving specific professional consultancy. The publisher, KUGLER MAAG CIE GmbH, shall not be liable for any damages resulting from any use of the information contained in this report.

If you want to learn everything Automotive SPICE[®] has to offer and become an Automotive SPICE[®] expert, check out our ASPICE Training:

<https://www.kuglermaag.com/training/automotive-spice.html>



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About the author



Hi! I'm Klaus and I started with SPICE back in 1998. Since then I have done hundreds of assessments and trainings. It is my passion to bring hard-to-understand models to life so that normal people can understand them.

I am one of the founders of Kugler Maag Cie and work there as a principal and partner.



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Short summary of the YouTube tutorial

<https://youtu.be/oLXSvxGms8E>

The Quality Assurance process in Automotive SPICE® (also known as SUP.1) helps your organization to provide "independent" assurance that quality objectives are met, and deviations are resolved.

To ensure this, your independent Quality Assurance engineers work closely with the developers. If the quality goals are not met, they will ensure that corrective action is taken. If necessary, they can escalate to management through an independent reporting channel.

The following are the most important aspects of Quality Assurance in Automotive SPICE®

- **You must have a great Quality Assurance strategy.** A good strategy makes it clear to all involved which quality objectives you are aiming for and how you want to achieve them. Collect the right quality objectives and make sure your quality checks are aligned with these objectives. This allows you to concentrate your efforts on what is really important for your business and do it right. That's what counts!
- **You must set up effective Quality Assurance methods.** Have an independent Quality Assurance engineer to support the project. The Quality Assurance engineer helps the project team to plan and perform their reviews and tests. The Quality Assurance engineer checks whether the project team is carrying out these activities correctly and on time.



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- **You must effectively solve your quality problems.** The Quality Assurance engineer will talk to the person responsible for the quality problem and agree on a corrective action and a due date. When the due date is over, the Quality Assurance engineer checks whether the corrective action has been completed. If not, he'll remind the person, set a new due date, check again, and so on. The Quality Assurance engineer would escalate to the next level of management if someone is not willing to cooperate.

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Quality Assurance – the process according to Automotive SPICE®

The purpose of the Quality Assurance Process is to provide independent and objective assurance that work products and processes comply with predefined provisions and plans and that non-conformances are resolved and further prevented.

BP1: Develop a project quality assurance strategy. Develop a strategy in order to ensure that work product and process quality assurance is performed at project level independently and objectively without conflicts of interest.

NOTE 1: Aspects of independence may be financial and/or organizational structure.

NOTE 2: Quality assurance may be coordinated with, and make use of, the results of other processes such as verification, validation, joint review, audit and problem management.

NOTE 3: Process quality assurance may include process assessments and audits, problem analysis, regular check of methods, tools, documents and the adherence to defined processes, reports and lessons learned that improve processes for future projects.

NOTE 4: Work product quality assurance may include reviews, problem analysis, reports and lessons learned that improve the work products for further use.



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BP2: Assure quality of work products. Perform the activities according to the quality assurance strategy and the project schedule to ensure that the work products meet the defined work product requirements and document the results.

NOTE 5: Relevant work product requirements may include requirements from applicable standards.

NOTE 6: Non-conformances detected in work products may be entered into the problem resolution management process (SUP.9) to document, analyze, resolve, track to closure and prevent the problems.

BP3: Assure quality of process activities. Perform the activities according to the quality assurance strategy and the project schedule to ensure that the processes meet their defined goals and document the results.

NOTE 7: Relevant process goals may include goals from applicable standards.

NOTE 8: Problems detected in the process definition or implementation may be entered into a process improvement process (PIM.3) to describe, record, analyze, resolve, track to closure and prevent the problems.

BP4: Summarize and communicate quality assurance activities and results. Regularly report performance, deviations, and trends of quality assurance activities to relevant parties for information and action according to the quality assurance strategy.



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BP5: Ensure resolution of non-conformances. Deviations or non-conformance found in process and product quality assurance activities should be analyzed, tracked, corrected, and further prevented.

BP6: Implement an escalation mechanism. Establish and maintain an escalation mechanism according to the quality assurance strategy that ensures that quality assurance may escalate problems to appropriate levels of management and other relevant stakeholders to resolve them.

Output Work Products: Quality plan, Communication Record, Problem record, Quality Record, Review Record, Corrective action register, Quality criteria



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Advanced tutorial about Quality Assurance

What is the benefit of Quality Assurance?

Quality Assurance provides an independent view into the project, how it is run and how the processes are executed, and work product are created. Consistent process and work product audits identify quality issues and offers the ability to respond to them as soon as they are identified. Finding the issues early reduces the number of errors found in late project phases, reducing expensive rework and effort.

What is the content of the Quality Assurance Process?

- A project-specific Quality Assurance strategy is developed and implemented. (BP1)
- There needs to be an organizational structure of Quality Assurance independent of the development organization. (BP1) An escalation mechanism (BP6) needs to be established.
- The activities according to the strategy are carried out in order to ensure both the quality of the produced work products (BP2) and the processes. (BP3)
- Results of quality assurance activities are summarized and regularly reported. (BP4)
- Non-conformances found are assigned to the responsible people for action and are tracked to closure. Action should be taken to prevent that these non-conformances happen again. (BP5)



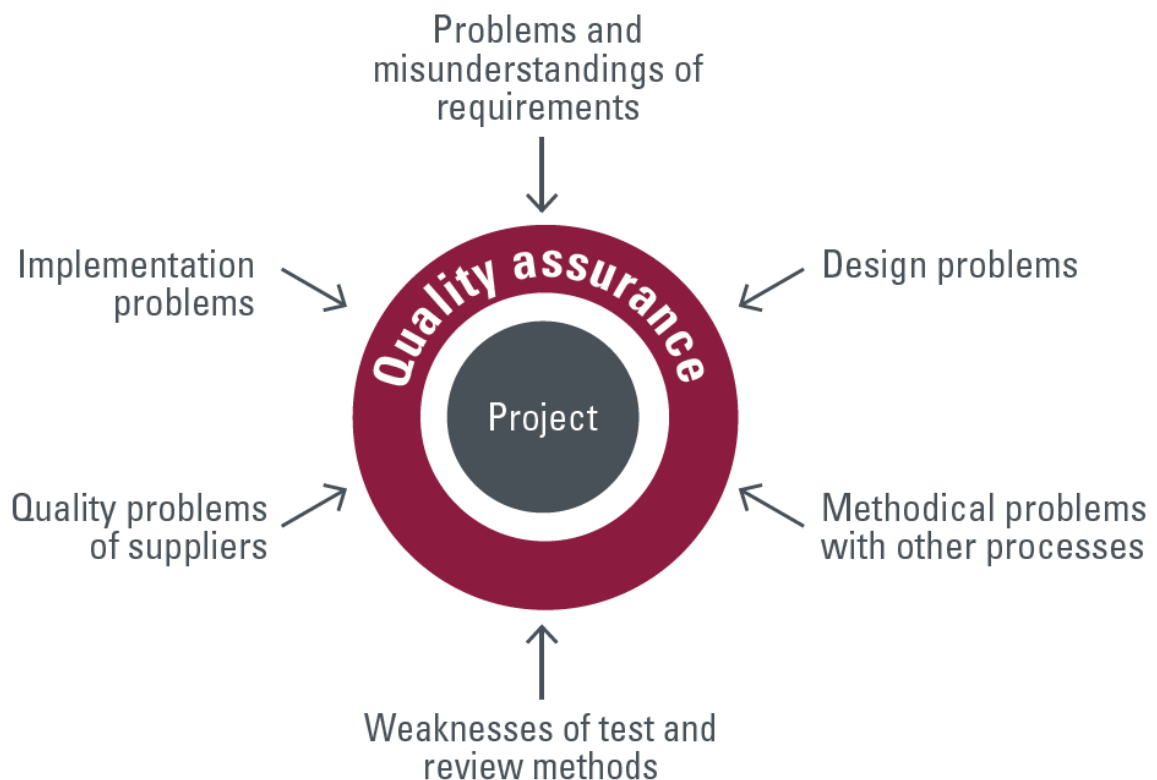
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Securing the project against problems

Experiences, problems and hints:

- Quality Assurance is a concept that covers the entire development process, from initiation, development, and through post-production. It is put in place to provide assurance (to clients, senior management, and other stakeholders) that the development processes have been adhered to and the work products conform to specifications.
- The project manager and the development team, not the Quality Assurance engineer, are responsible for the quality within the project. The Quality Assurance engineer supports the project team,



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e.g., by setting up an effective Quality Assurance strategy and making sure that this strategy is actually followed. This includes the checks described in BP2 and BP3.

- Quality Assurance must be independent and performed objectively, without conflicts of interest.
- Quality Assurance engineers are sometimes responsible for several projects, which often leads to conflicts and a lack of Quality Assurance support in these projects.
- The implementation of Quality Assurance for work products is mainly the responsibility of the developers, e.g., reviews and tests of work products. The Quality Assurance engineer would check whether these activities have been done correctly and completely. Results are reported and in case of problems escalation to management would be initiated.
- It is critically important to establish and document quality criteria by which to judge work product quality against. This helps clarify that doing a review or a test is important, but actually the point is to determine if what was reviewed or tested is actually »good enough« to deliver. To determine this, specific criteria must be established and utilized (e.g., in review checklists).



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