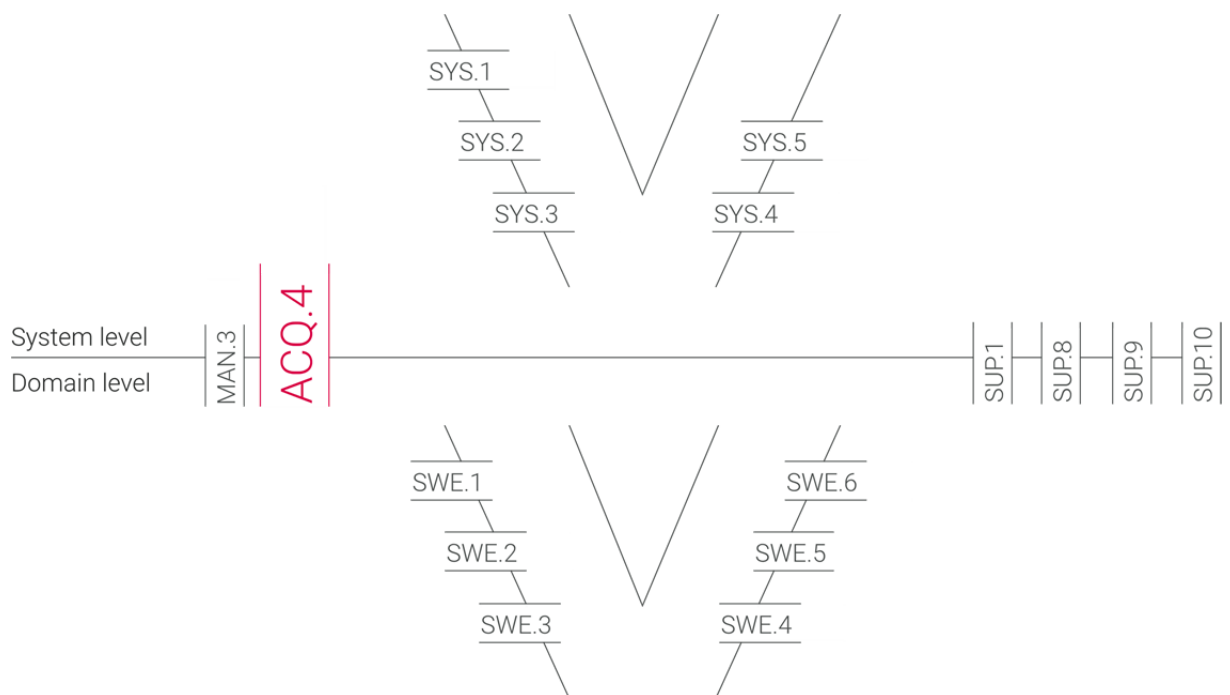


SUPPLIER MONITORING – ACQ.4

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/nl1AhEhNeb8>

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.

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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/nI1AhEhNeb8>

The Supplier Monitoring process in Automotive SPICE® (also known as ACQ.4) helps your organization to track and assess the performance of the supplier against agreed requirements.

Why is this process important? Building cars involves many complicated supply chains. OEMs have suppliers who in turn have sub-suppliers who in turn have sub-sub-suppliers. There is so much that can go wrong along these chains. I've seen a lot of bad examples like failed deadlines of subcontractor that had delayed the OEM's start of production. Or quality problems at a subcontractor causing huge cost of non-quality for the OEM. And I can tell you that nothing in a supply chain works automatically. This requires hard and systematic management at all levels of the chain. And this is what this process is about. Actually, "Supplier Management" would be a more appropriate name for ACQ.4.

By the way, what are "suppliers" in this context? There is no official, binding definition for what kind of suppliers we use this process: we focus on suppliers who develop a component of our product, typically a software component or a combination of hardware and software, such as a sensor. The component should be developed according to our specification, as this requires considerable management effort. In contrast, the purchase of Commercial of the Shelf Products does not require much management.



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The following are the most important aspects of Supplier Monitoring in Automotive SPICE®:

- **Define the way of cooperation.** You should establish a written agreement on the co-operation. In project management terminology, this is usually called a "Supplier Statement of Work". Here you define interfaces, responsibilities, meetings, joint activities, common processes, reporting, and so on. I consider this to be particularly important:
 1. What are your requirements for the supplier development process?
In particular, what kind of Automotive SPICE requirements do you request from the supplier?
 2. When and in what format will you provide the supplier with your requirements?
 3. How does the requirements review and acceptance by the supplier work?
 4. How do you deal with conflicts if the supplier does not accept requirements?
 5. What tests are performed after the supplier has implemented the requirements?
 6. Which tests are carried out by the supplier and which by you as customer?
 7. What kind of support do you expect from the supplier after the tests are completed so that their product works in your environment?



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- **Provide appropriate resources to manage the supplier.** It is a common mistake to severely underestimate the capabilities required to manage a supplier. You can't imagine how often I see organizations thinking that this is a piece of cake. Or that they think that talking to the supplier from time to time would be enough. No!!! You need an experienced person who will invest a reasonable amount of time to manage the supplier. For large cooperation this can be a full-time person who deals with the supplier on a daily basis. Especially for Farshore suppliers with cultural and language barriers, the effort can be many times greater compared to a local supplier next door. I've seen how supplier managers dealing with farshore suppliers were implementing short incremental development cycles. On day 1 they discussed the requirements. On day 3 they checked the software delivery and determined the deviations from the requirements. And on day 4, they started all over again.
- **Establish effective means to monitor the supplier's progress.**
There are two methods:
 1. There is the technical meeting where you can discuss and clarify requirements, technical questions, problems, and quality issues. You maintain a list of open items and manage the points until closure.
 2. And then there is the management part, where you check progress against the schedule, check effort and costs (if it is a time and material contract), and also deal with change requests, forecasts, and risks.



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Supplier Monitoring – the process according to Automotive SPICE®

The purpose of the Supplier Monitoring Process is to track and assess the performance of the supplier against agreed requirements.

BP1: Agree on and maintain joint processes, joint interfaces, and information to be exchanged. Establish and maintain an agreement on information to be exchanged and on joint processes and joint interfaces, responsibilities, type and frequency of joint activities, communications, meetings, status reports and reviews.

NOTE1: Joint processes and interfaces usually include project management, requirements management, change management, configuration management, problem resolution, quality assurance and customer acceptance.

NOTE 2: Joint activities to be performed should be mutually agreed between the customer and the supplier.

NOTE 3: The term customer in this process refers to the assessed party. The term supplier refers to the supplier of the assessed party.

BP2: Exchange all agreed information. Use the defined joint interfaces between customer and supplier for the exchange of all agreed information.

NOTE 4: Agreed information should include all relevant work products.



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BP3: Review technical development with the supplier. Review development with the supplier on the agreed regular basis, covering technical aspects, problems and risks and also track open items to closure.

BP4: Review progress of the supplier. Review progress of the supplier regarding schedule, quality, and cost on the agreed regular basis. Track open items to closure and perform risk mitigation activities.

BP5: Act to correct deviations. Take action when agreed objectives are not achieved to correct deviations from the agreed project plans and to prevent reoccurrence of problems identified. Negotiate changes to objectives and document them in the agreements.

Output Work Products: Commitment/agreement, Acceptance record, Communication record, Meeting support record, Progress status record, Change request, Corrective action register, Review record, Analysis report



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Advanced tutorial about Supplier Monitoring

What is the benefit of Supplier Monitoring?

With continuous monitoring and control of the supplier relationship and deliverables the project is aware of the supplier performance and ability to deliver their product and to take corrective actions if required.

What is the content of the Supplier Monitoring Process?

- Common processes and interfaces are agreed upon and maintained (BP1).
- Relevant information is regularly exchanged between the customer and the supplier (BP2).
- The technical development is regularly checked with the supplier and technical aspects, problems and risks discussed (BP3).
- The progress of the supplier regarding dates, quality and costs is regularly checked. If necessary, risk mitigation measures are implemented. (BP4)
- Corrective actions are taken when objectives are not achieved. Changes to the agreements are approved and documented between the parties (BP5).



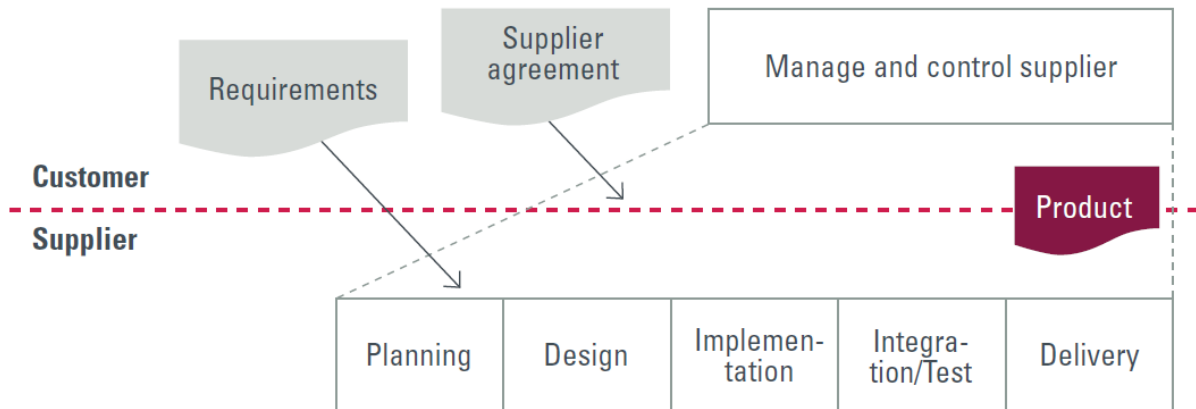
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Cooperation between customer and supplier

Experiences, problems and hints:

- ACQ.4 is required if development of a component is subcontracted, or a purchased component need to be adapted to project requirements.
- This can refer to both external and internal development of product components. Supplier control is also helpful and necessary for internal suppliers.
- The VDA Automotive SPICE Guidelines recommends that ACQ.4 be applied to COTS products as well. In our opinion this recommendation adds little value.
- Check with your OEM(s) to understand their requirements.
- Some organizations use supplier employees that are fully integrated in projects. In these cases, ACQ.4 does not apply. In an assessment, this situation should be assessed as part of project management (MAN.3). Whether ACQ.4 or MAN.3 is used to assess the cooperation is based on the actual nature of the cooperation and not on formal, legal aspects.



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- Supplier management can be very labor intensive and is often underestimated, especially for off shore suppliers. Often there needs to be a dedicated role »Supplier Manager«.
- Even if you impose Automotive SPICE compliance on your supplier, the project still needs to execute the ACQ.4 process where appropriate.

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