

Best Practices in Implementing Traceability

Workshop 3 at EuroSPI 2019
19. September 2019



Giesecke & Devrient



BOSCH



EurAsia SPI²

2019 European System, Software & Service
Process Improvement & Innovation

Workshop Agenda

Morning

From	Topic
10:00	Welcome & Introduction
10:15	“Traceability between Customer Projects and Platform Projects”
11:00	Coffee break
11:30	“Quality Assurance and Traceability in Containerized Continuous Delivery Process” <ul style="list-style-type: none">- Alexander Poth, Volkswagen AG, Wolfsburg, Germany- Oyewale Adedayo Oyelami, Volkswagen AG, Wolfsburg, Germany
12:15	Identification of Workshop Topics
12:30	Lunch

Workshop Agenda

After lunch

From	Topic
16:00	Workshop Preparation
16:15	Working in Groups / Plenum
17:15	Presentation of Workgroup Results
17:45	Wrap up and Feedback
18:00	End

Traceability between Customer Projects and Platform Projects

- Bernhard Sechser, Process Fellows GmbH, Ebermannstadt, Germany
- Rainer Dreves, Continental, Nuremberg, Germany
- Ralf Mayer, Bosch Engineering GmbH, Abstatt, Germany

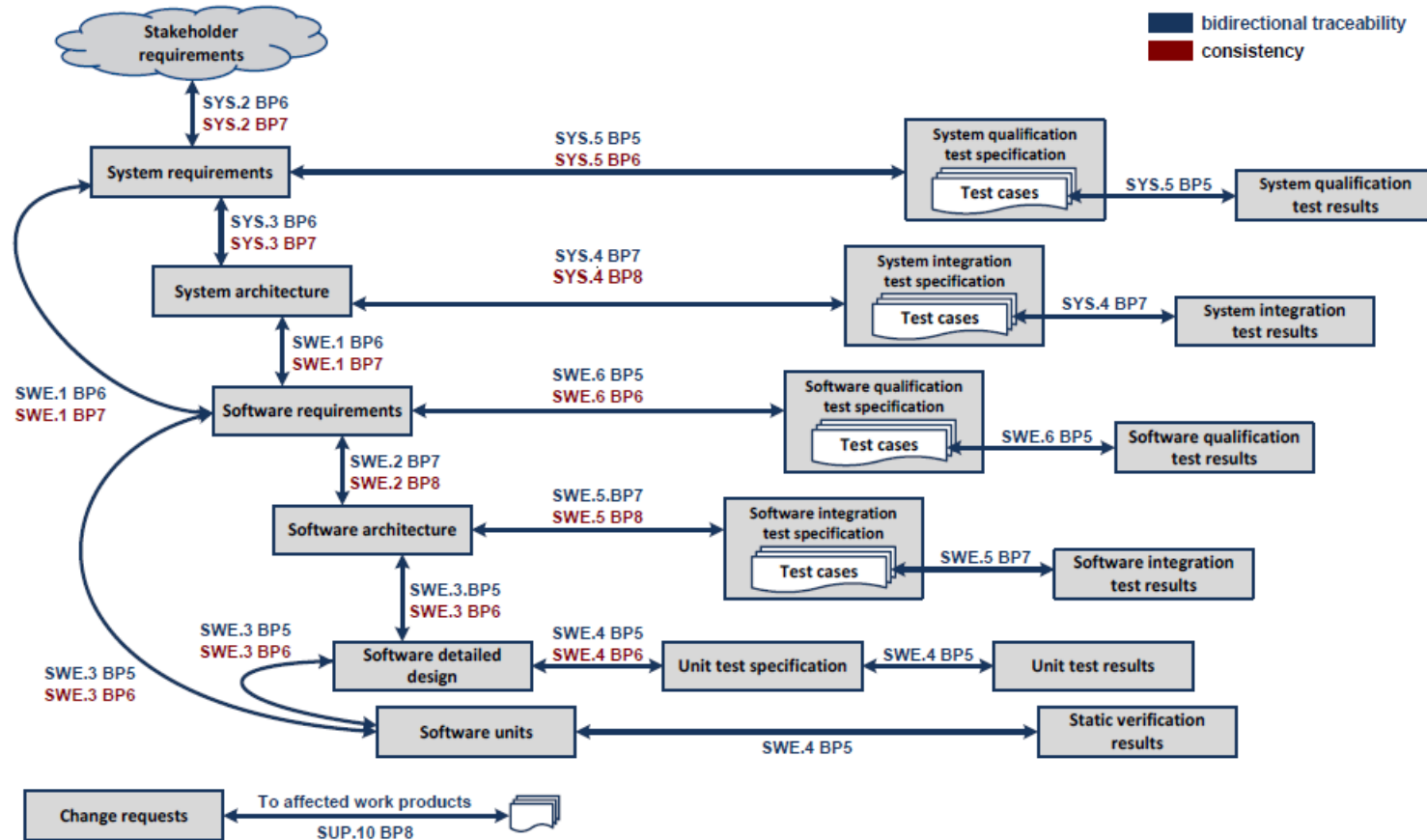
Contents

- Introduction
- Approaches for Reuse
- Mapping of Stakeholder Requirements to System Requirements
- Criteria and Conclusion

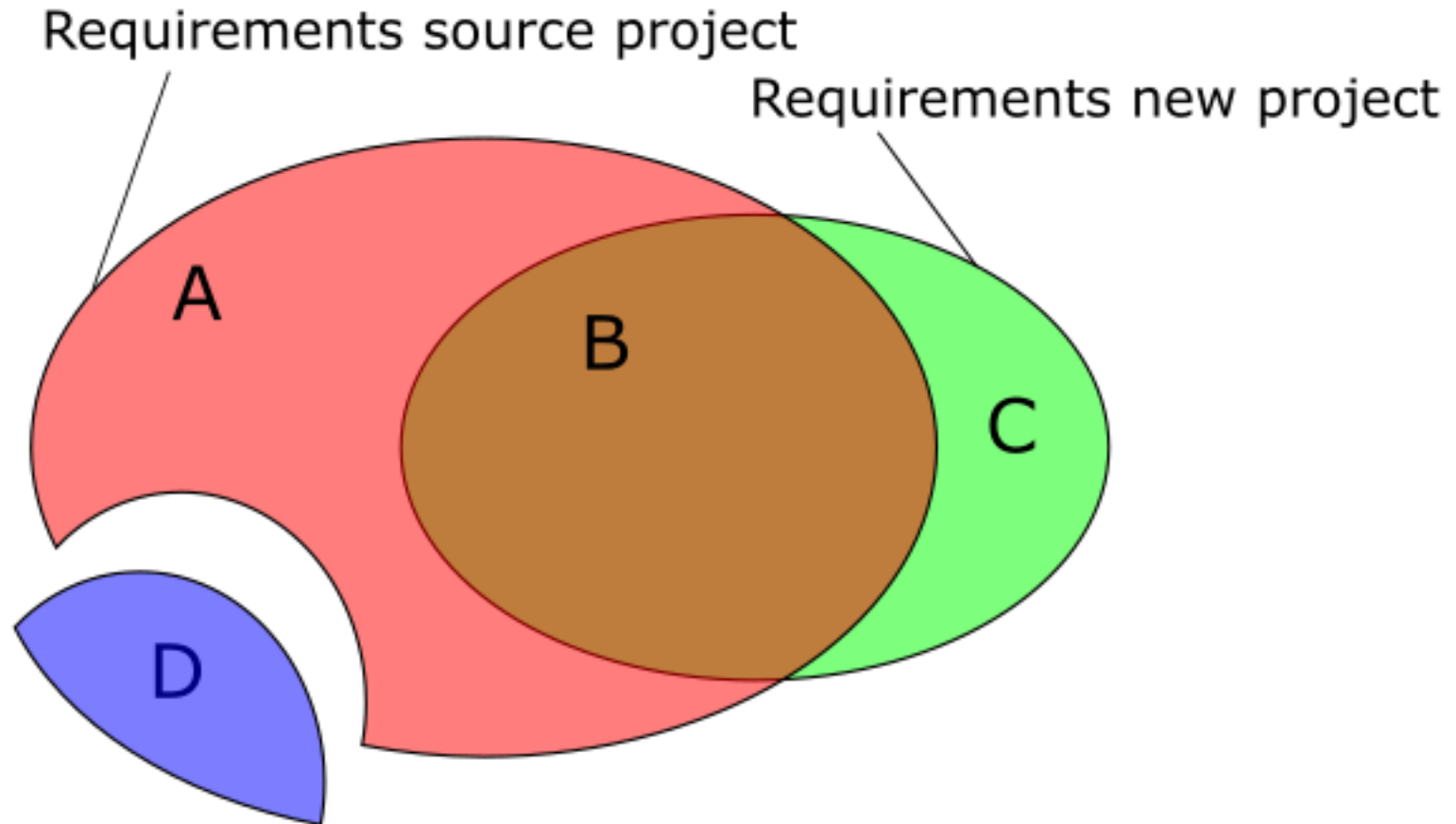
- Automotive SPICE®: 33 out of 127 base practices require
 - Establish bidirectional traceability
 - Ensure consistency
- These are more than 25% of all base practices, without which a completely systematic implementation within a project seems almost impossible.

Introduction

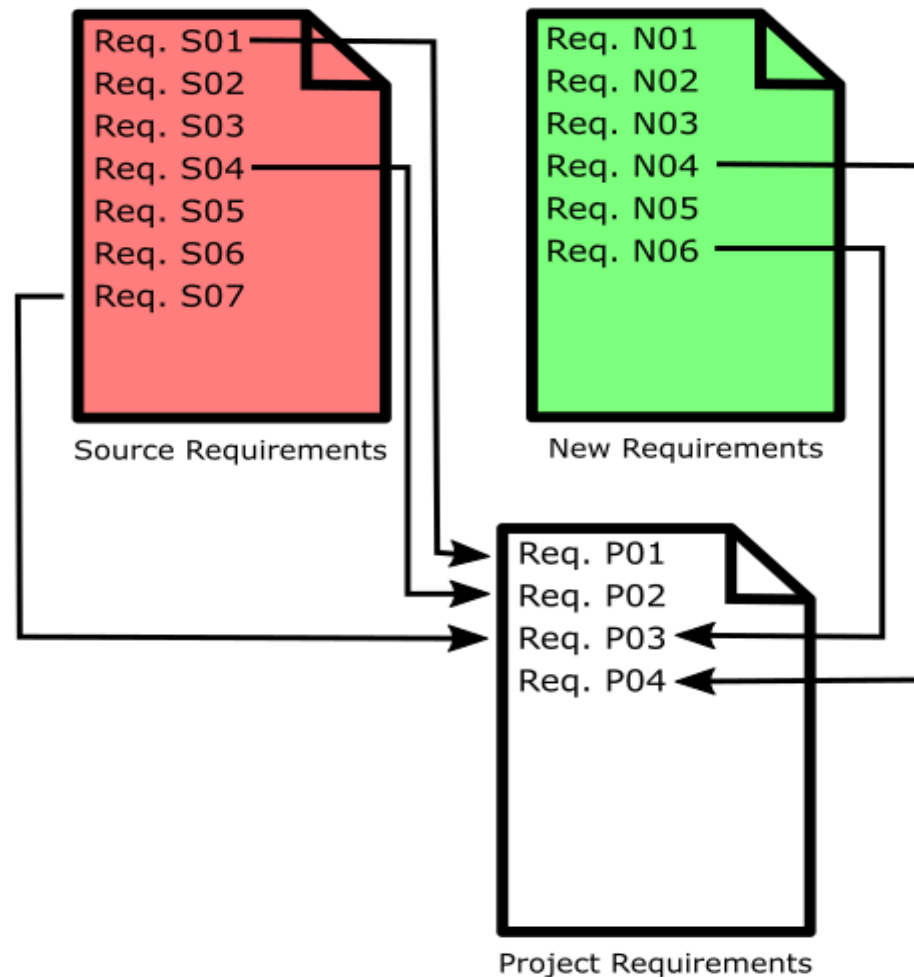
ASPICE Bidirectional Traceability and Consistency



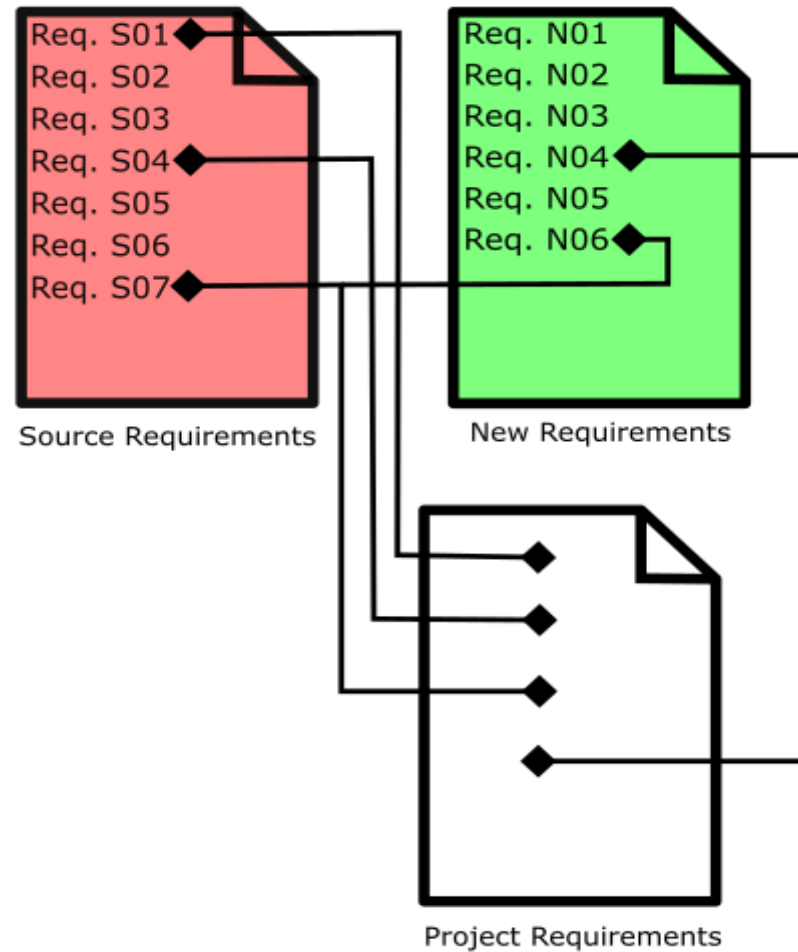
Approaches for Reuse Concept



Approaches for Reuse Clone and Own

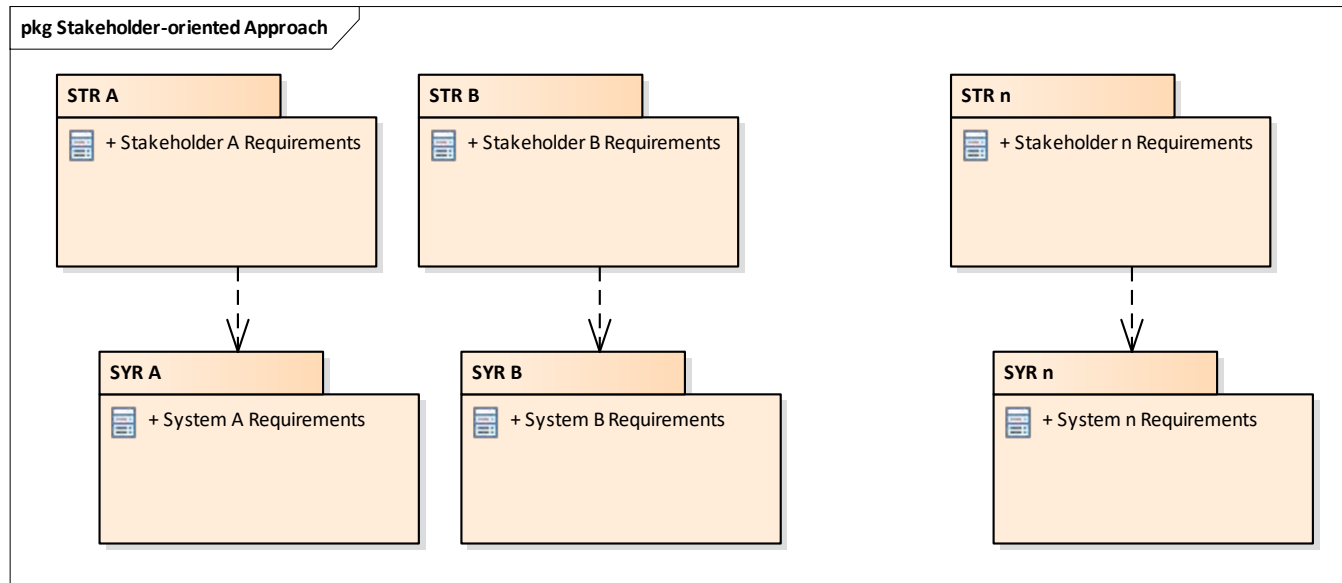


Approaches for Reuse Linking

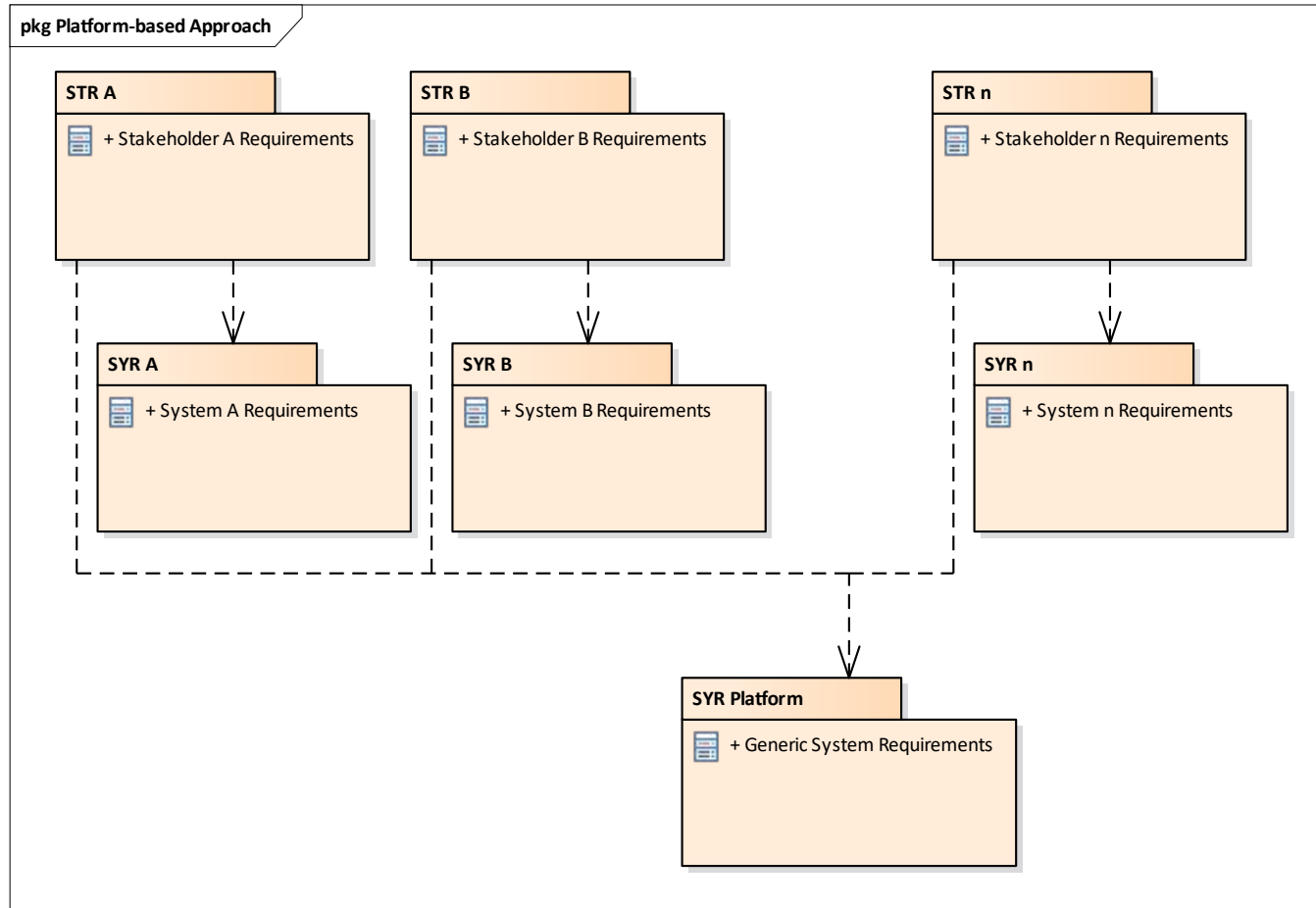


Mapping of Stakeholder to System Requirements

Stakeholder-oriented Approach



Mapping of Stakeholder to System Requirements Platform-based Approach



Mapping of Stakeholder to System Requirements

Best Practice for Mapping

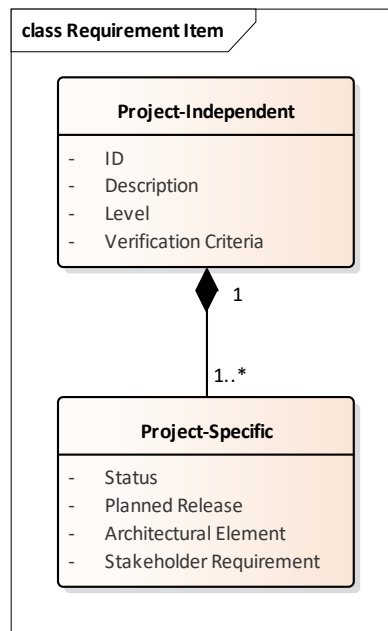
- Generic requirements should have atomic granularity to be usable for different projects.
- Requirements can be summarized to features.
- New requirements should be analyzed whether they are project-specific or new generic requirements.
- Describe requirements independent from solutions and customers.
- Only requirements that cannot be reused are project-specific requirements.
- For change requests addressing generic requirements, a cross project or project independent change control board should decide the change and the impact on other projects.

Mapping of Stakeholder to System Requirements

Creating a Platform

- For each new project the platform becomes more and more mature.
- Reusable components contain requirements, architectural elements, integration test cases and requirements test cases.
- For further applicable documents like environmental tests, a reuse is easier to establish.

Mapping of Stakeholder to System Requirements Requirement Items for Reuse



Approaches for Reuse

Criteria for Decision (1/3)

- **Novelty**
The project might have many new and unknown requirements. The area C in Figure 1 is large. The novelty has a weak impact to the decision for the reuse approach.
- **Complexity**
The complex structure and high interdependency of the requirements in a new project might be handled easier with Clone and Own, because a similar project is less probable.
- **Maintainability**
A single project is easier to maintain when the platform has not to be considered. Every work product belongs only to the single project.
- **Clearness**
A single project might be structured more clearly, because only the project's needs are considered without additional elements from the platform.

Approaches for Reuse

Criteria for Decision (2/3)

- Initial effort
The effort is only needed for setup of the new project and no additional effort has to be spend for using the platform.
- Overall effort
The overall effort of the new project depends on the maturity of the platform, changes of customer requirements, bug fixes, etc.
- Improving the platform
When the project is linked to the platform, the platform can be improved easier by taking over requirements from the project.
- Coordination
If everything is owned by the project, a coordination with the platform is not necessary. If the linking approach is used, bug fixes done in the platform can be taken over easier.

Approaches for Reuse

Criteria for Decision (3/3)

Criteria	Clone and Own	Linking
Novelty	O	O
Complexity	+	-
Maintainability	+	-
Clearness	+	-
Initial effort	+	-
Overall effort	?	?
Improving the platform	-	+
Coordination between project and platform		
- Changes in the project (e.g. new features)	+	-
- Changes in the platform (e.g. bug fixing)	-	+

Approaches for Reuse

Conclusion

- At the beginning of each single project it has to be evaluated which approach fits best.
- From a single project view the approach Clone and Own seems to have more benefits.
- The approach for Linking might have benefits, when the overall effort of all projects is considered.

We recommend that the management shall support a mid or long-term strategy for reuse.

Quality Assurance and Traceability in Containerized Continuous Delivery Process

- Oyewale Adedayo Oyelami, Volkswagen AG, Germany
- Alexander Poth, Volkswagen AG, Germany
- Johannes Hintsch, Magdeburg Research and Competence Cluster, Germany
- Andreas Riel, Grenoble Alps University, France

Workshop

Workshop

Topic Proposals

1. Motivation for traceability

1. What are the requirements for traceability management within a project?

2. Use cases for traceability

1. How to maintain traceability between changing items?
2. How to establish and maintain baselines between disciplines with their links?

3. Strategies for traceability

1. How much traceability will be needed?
2. How much traceability can be automated?
3. What are your solutions to manage traceability efficiently?

Workshop Agenda

After lunch

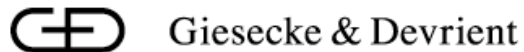
From	Topic
16:00	Interactive Workshop Preparation
16:15	Working in Groups / Plenum
17:15	Presentation of Workgroup Results
17:45	Wrap up and Feedback
18:00	End



Rainer Dreves, Conti Temic Microelectronic GmbH,
Sieboldstrasse 19, 90411 Nuremberg
rainer.dreves@continental-corporation.com



Ralf Mayer, Bosch Engineering GmbH,
Robert-Bosch-Allee 1, 74232 Abstatt
Ralf.Mayer@de.bosch.com



Lutz Haurert, Giesecke & Devrient GmbH
Zamdorferstr. 88, 81677 Munich
lutz.haurert@gi-de.com



Bernhard Sechser, Process Fellows GmbH,
Schlegelleithe 8, 91320 Ebermannstadt
Bernhard.Sechser@processfellows.de



Silvana Mergen, TDK-EPC AG & Co. KG
Beeskowdamm 3 - 11, 14167 Berlin
silvana.mergen@epcos.com

Thank you for your attention!

References



<http://soqrates.eurospi.net>

- SoQrates: Best Practices in Implementing Traceability: Introduction of Traceability in Safety and Security, EuroSPI2017, Ostrava.
- SoQrates: A practical View on Traceability: Definition and Implementation of a Model-based Approach, EuroSPI2016, Graz.
- SoQrates: A Method to Realize Traceability in Development Processes, EuroSPI2015, Ankara.
- Dreves, R., Hällmayer, F., Haunert, L., Sechser, B., and Rieß, A. (2016), A method to realize traceability in development processes. J Softw Evol Proc, 28:1011–1019. doi: 10.1002/smr.1828