Automotive SPICE® v3.0
What’s changed?

Bernhard Sechser
Method Park Consulting GmbH

October 6th, 2015
Agenda

- **About “me”**
- **Automotive SPICE® PAM v3.0**
  - creates the symmetry in the “V” model
  - combines PRM and PAM
  - allows the “Plug-In” concept
  - ensures a consistent usage of terms
  - differs between “Traceability” and “Consistency”
  - sharpens “Evaluation”, “Verification” and “Test”
- **New SPICE standard ISO/IEC 330xx**
  - replaces some “old” parts of ISO/IEC 15504
  - includes a revised Measurement Framework
- **Who is affected?**
  - Impact on Project Teams and Assessors
  - Timeline
- **Information and Support**

Source: The following slides contain information from the Automotive SPICE® Process Reference Model / Process Assessment Model Version 3.0, published July 16th, 2015, © VDA Quality Management Center
About “me”

Bernhard Sechser
Principal Consultant SPICE & Safety
@ Method Park Consulting GmbH

More than 12 years practical experience
@ Continental Automotive as
- Software & System Developer
- Quality Manager
- Processes & Tools Responsible

More than 6 years experience @ Method Park as
- Trainer, Coach, Consultant & Safety Manager

Functional Safety Expert on ISO 26262
intacs™ Principal Assessor & Instructor for Automotive SPICE®
intacs™ Advisory Board Member & Head of intacs™ Regional Representatives
VW trained Software Quality Improvement Leader (SQIL)
Agenda

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Automotive SPICE® Process Reference Model
The Symmetry in the “V” Model

Probable new HIS Scope, but not confirmed yet

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
## Combination of PRM and PAM

<table>
<thead>
<tr>
<th>Process reference model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process ID</td>
<td>The individual processes are described in terms of process name, process purpose, and process outcomes to define the Automotive SPICE process reference model. Additionally a process identifier is provided.</td>
</tr>
<tr>
<td>Process name</td>
<td></td>
</tr>
<tr>
<td>Process purpose</td>
<td></td>
</tr>
<tr>
<td>Process outcomes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process performance indicators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base practices</td>
<td>A set of base practices for the process providing a definition of the tasks and activities needed to accomplish the process purpose and fulfill the process outcomes.</td>
</tr>
</tbody>
</table>
| Output work products          | A number of output work products associated with each process.  

*NOTE: Refer to Annex B for the characteristics associated with each work product.*

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
The “Plug-In” Concept

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC

SYS = System Engineering
SWE = Software Engineering
HWE = Hardware Engineering
MEE = Mechanical Engineering

= developed by VDA, part of Automotive SPICE® 3.0
= not developed by VDA, not part of Automotive SPICE® 3.0 (but by intacs™ Working Groups)
Consistent Usage of Terms – “Element”, “Component”, “Unit” and “Item”

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
Consistent Usage of Terms – “Agree” and “Summarize and Communicate”

BP: „communicate agreed...“

SYS.2 System Requirements Analysis

SYS.3 System Architectural Design

SWE.1 Software Requirements Analysis

SWE.2 Software Architectural Design

SWE.3 Software Detailed Design and Unit Construction

BP: „summarize and communicate...“

SYS.5 System Qualification Test

SYS.4 System Integration and Integration Test

SWE.6 Software Qualification Test

SWE.5 Software Integration and Integration Test

SWE.4 Software Unit Verification

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
Consistent Usage of Terms – “Strategy” and “Plan”

Affected Processes:

SYS.4 System Integration and Integration Test
SYS.5 System Qualification Test
SWE.4 Software Unit Verification
SWE.5 Software Integration and Integration Test
SWE.6 Software Qualification Test
SUP.1 Quality Assurance
SUP.8 Configuration Management
SUP.9 Problem Resolution Management
SUP.10 Change Request Management

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
“Bidirectional Traceability” and “Consistency”
“Evaluation”, “Verification Criteria”, “Compliance” and “Test”
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Relation between the “three generations”

ISO/IEC TR 15504

ISO/IEC 15504

ISO/IEC 330xx

Core Elements Division : 3300n
33001 Concepts & Terminology
33002 Requirements for Performing Process Assessment
33003 Requirements for Process measurement Frameworks : NEW
33004 Requirements for Process Models

Guidance : 3301n
TR 33010 Guide on performing assessments
TR 33011 Guide on defining a documented assessment process for assessment
TR 33012 Guide for process capability determination
TR 33013 Guide for constructing process reference models, process assessment models and organisational maturity models for assessments
TR 33014 Guide for process improvement

Process Assessment Body of Knowledge : 33015
33015 Process Assessment Body of Knowledge
33017 Process Improvement Body of Knowledge

Measurement Frameworks : 3302n
33020 Measurement Framework for assessment of process capability and

Documented Assessment Processes : 3303n
TR 33030 Exemplar documented assessment process

Process Reference Models : 3304n
33050-1 Common management
33050-2 Quality management
33050-3 Service management
T3 33050-4 Process reference model for information security management

Process Assessment Models : 3306n
TR 33060 Process Assessment Model for System Life Cycles Processes
TR 33061 Process Assessment Model for Software Life Cycle Processes
33062 Process Assessment Model for IT Service Management Processes
TR 33063 Process Assessment Model for Software Testing
TR 33064 Safety Extension
33070-1 Common management
33070-2 Quality management
33070-3 Service management
T3 33070-4 Process assessment model for information security management

Organisational Maturity Models : 3308n
TR 33080 OM&I for Software Engineering
Process Assessment Model Relationship

Measurement framework (ISO/IEC 33020)
- Capability levels
- Process attributes
  - Rating
  - Scale
  - Rating method
  - Aggregation method
- Process capability level model

Process assessment model (Automotive SPICE)
- Process capability indicators
- Process performance indicators

Process reference model (Automotive SPICE)
- Domain and scopes
- Process purposes
- Process outcomes

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
Relationship between assessment indicators and process capability

Legend:
- Capability Level (CL)
- Base Practice (BP)
- Work Product (WP)
- Work Product Characteristic (WPC)
- Generic Practice (GP)
- Generic Resource (GR)

Measurement framework (ISO/IEC 33020)
- Capability levels
- Process attributes
- Rating
  - Scale
  - Rating method
  - Aggregation method
- Process capability level model

Process assessment model (Automotive SPICE)
- Process capability indicators
- Process performance indicators

Source: Automotive SPICE® PAM v3.0, July 16th, 2015, © VDA QMC
Measurement framework for the assessment of process capability and organizational maturity

**Changes:**

- PA 4.1 Quantitative analysis process attribute *1
- PA 4.2 Quantitative control process attribute *1
- PA 5.1 Process innovation process attribute *1
- PA 5.2 Process innovation implementation process attribute *1
  *1 including revised process attribute outcomes

- Optional refinement of the ordinal scale *2
- Three different rating methods *2
- Different aggregation methods *2
  *2 depending on the class of the assessment
The ordinal scale may be further refined for the measures P and L as defined below.

**P+** Partially achieved:

There is some evidence of an approach to, and some achievement of, the defined process attribute in the assessed process. Some aspects of achievement of the process attribute may be unpredictable.

**P-** Partially achieved:

There is some evidence of an approach to, and some achievement of, the defined process attribute in the assessed process. Many aspects of achievement of the process attribute may be unpredictable.

**L+** Largely achieved:

There is evidence of a systematic approach to, and significant achievement of, the defined process attribute in the assessed process. Some weaknesses related to this process attribute may exist in the assessed process.

**L-** Largely achieved:

There is evidence of a systematic approach to, and significant achievement of, the defined process attribute in the assessed process. Many weaknesses related to this process attribute may exist in the assessed process.

The corresponding percentages shall be:

- **P-** Partially achieved - >15% to ≤ 32.5% achievement
- **P+** Partially achieved+ >32.5% to ≤ 50% achievement
- **L-** Largely achieved- >50% to ≤ 67.5% achievement
- **L+** Largely achieved+ >67.5% to ≤ 85% achievement

Source: ISO/IEC 33020:2015
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Who is affected?

Project Teams and Companies/Organizations
- New structure of engineering processes
- Textual changes in all process descriptions
- Compliance to PAM(s)
- Sponsor decision

→ Minor effects on projects

Assessors and Instructors
- Knowledge update
- Assessment competence
- Evaluation and mapping of evidences
- Training updates and timeline

→ Major effects on assessments
Timeline for Certification and Qualification

**Preliminary target dates**

**Automotive SPICE(R) PAM v3.0 Release**
- 16/7/2015

**VDA Blue-Gold-Book with PAM Guidelines**
- 30/9/2016

**End of Transition Period**
- 30/9/2017

**2015**
- Jan
- Apr
- Jul
- Okt
- Jan 2016
- Apr
- Jul
- Okt
- Jan 2017
- Apr
- Jul
- Okt

**2017**

- Jan
- Apr
- Jul
- Okt

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**intacs PAM v3.0 Upgrade Course**
- Start: Oct 2016

**Updated intacs Assessor Courses**
- Start: Oct 2016

**Assessments with PAM v2.x accepted by VDA-QMC**
- End: Sept 2017

**Assessments with PAM v3.0 accepted by VDA-QMC**
- Start: July 2015
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Topic: Automotive SPICE® v3.0

Speaker: Bernhard Sechser (Method Park)

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<th>City</th>
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<td>Munich</td>
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</tr>
<tr>
<td>Stuttgart</td>
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More information and registration:

https://www.methodpark.de/talk-im-park.html
Free 1-day-workshop with all important changes

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<td>November 4(^{th}), 2015</td>
<td>Dr. Holger Höhn</td>
</tr>
<tr>
<td>Erlangen</td>
<td>November 23(^{th}), 2015</td>
<td>Dr. Holger Höhn</td>
</tr>
<tr>
<td>Dortmund</td>
<td>January 12(^{th}), 2016</td>
<td>Bernhard Sechser</td>
</tr>
<tr>
<td>Hamburg</td>
<td>January 28(^{th}), 2016</td>
<td>Dr. Jürgen Schmied</td>
</tr>
<tr>
<td>Stuttgart</td>
<td>March 1(^{st}), 2016</td>
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More information and registration:

[https://www.methodpark.de/workshop-automotive-spice.html](https://www.methodpark.de/workshop-automotive-spice.html)
Is Automotive SPICE® your topic?

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• intacs™ Certified Provisional Assessor (Automotive SPICE®)
• intacs™ Certified Competent Assessor (Automotive SPICE®)
• Automotive SPICE® – Introduction
• Automotive SPICE® v3.0 – What’s changed
• Automotive SPICE® – HIS-Processes v2.5 and v3.0
• Automotive SPICE® und Safety – for Users
• Automotive SPICE® und Safety – Joint Approach

More information:

https://www.methodpark.de/reifegradmodelle.html
Automotive SPICE® v3.0 Reference Model for Stages

More information: request@methodpark.com
AGENDA

22.10.2015 München

10.00 - 10.20  Status Variantenmanagement Zertifizierung

10.20 - 11.20  Dr. Oliver Alt [LieberLieber Software]
               Variantenmanagement mit Feature-Modellen

11.30 - 11.45  Vorbereitung Open Space und Gruppen

ab 11.45       Mittagessen

12.30 - 13.30  Gruppendifiskussionen zur Problemstellung

13.30 - 14.00  Lösungswege

14.15 - 15.15  Samit Mehta [IBM]
               Reuse assets across product lines using a mix of three levels of architecture

15.15 - 16.30  Open Space

16.40 - 17.00  Zusammenfassung und Ausblick

ab 17.00       Networking
Thank You
for your attention.

Bernhard Sechser
Principal Consultant SPICE & Safety

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