Automotive SPICE®
- VDA Guideline

Introduction & Key concepts

Introduction to IQI-India

IQI Consulting Services Pvt. Ltd. (IQI)

Knowledge Services

- Training and Qualification
  - CMMI®
  - Automotive SPICE®
  - Functional Safety
  - Project Management
  - Executive Management
  - Methods

Improvement Services

- Process Improvements
- Performance Improvement

Support Services

- Eng. Process Group Mgmt
- Quality Assurance
- Program Management

Appraisal Services

- CMMI® Appraisals
- Automotive SPICE® Assessments
- FS Compliance Check

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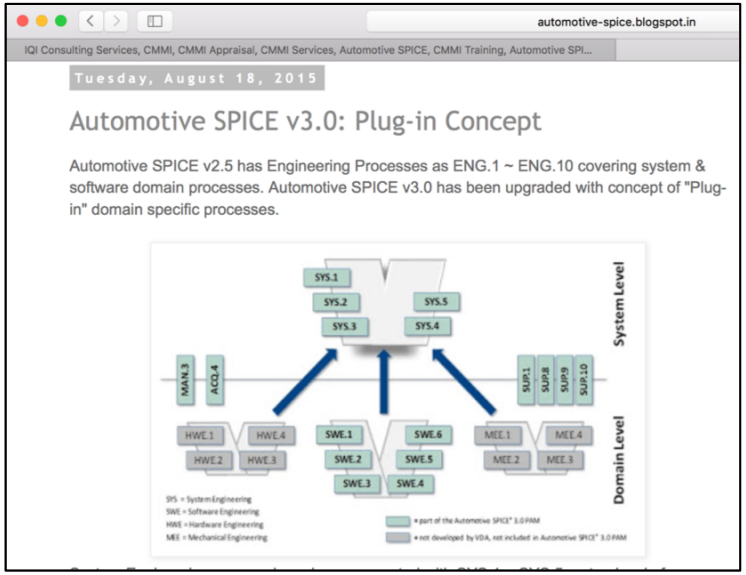


http://automotive-spice.blogspot.in

Ravindra Nath

Industry Experience:

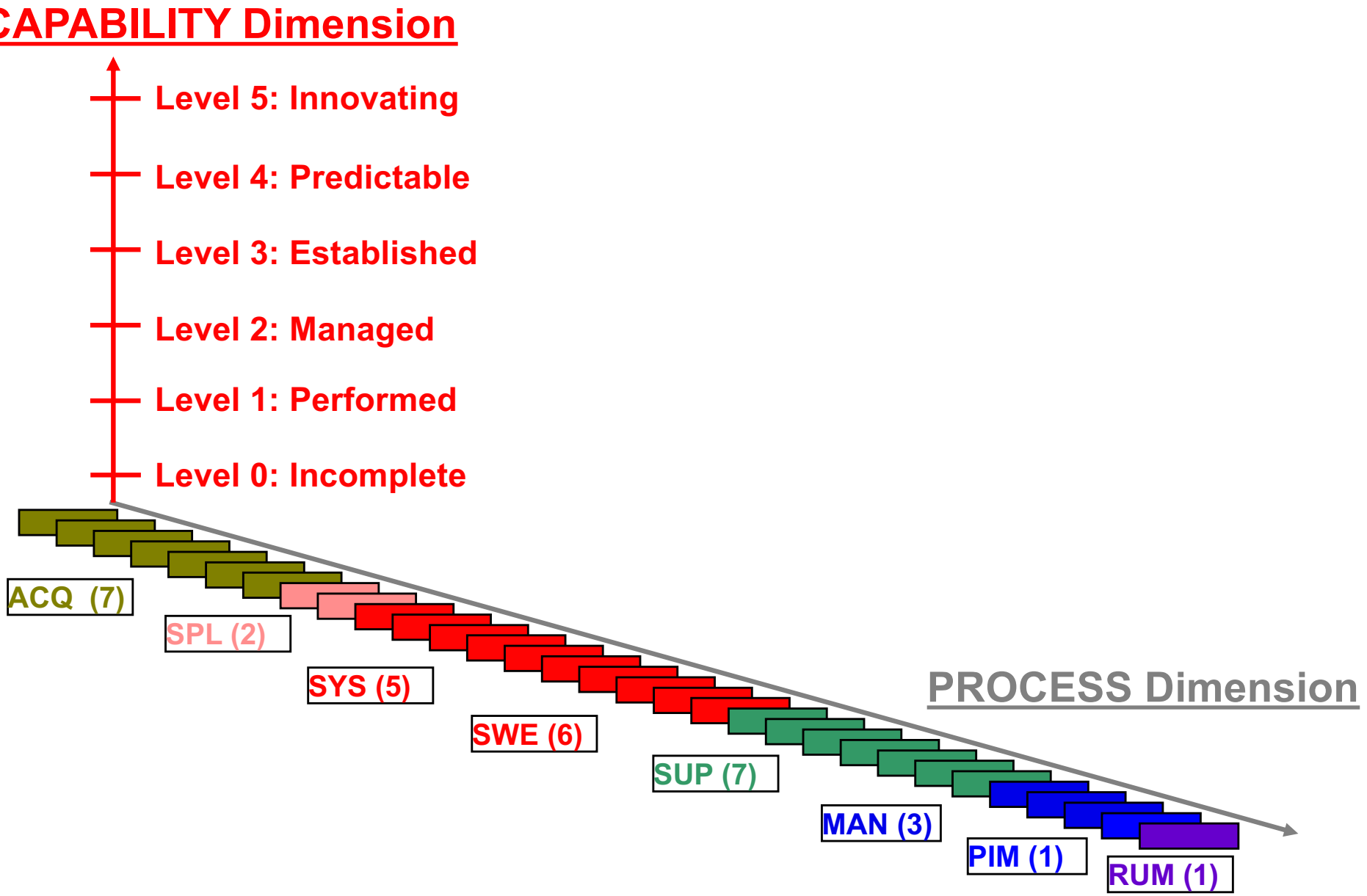
- More than 25 years of experience in IT and Automotive Industry
- Process implementation and improvement (including higher maturity organizations)
- Around 15 years of Process consulting (out of which 6 years for Japanese automotive supplier) experience
- Training & Assessment / appraisal

Qualification:

- intacs™ Certified Principal Assessor
- intacs™ Certified Instructor for Provisional & Competent Assessor
- CMMI-Institute Certified SCAMPI Lead Appraiser
- CMMI-Institute Certified CMMI® Instructor
- Functional Safety (ISO 26262) Trainer
- intacs™ Regional Representative

Automotive SPICE® v3.1 Overview

Automotive SPICE® Representation



Process Dimension (Processes)

PRIMARY LIFE CYCLE PROCESSES

ACQUISITION Process Group
- **ACQ.3** Contract Agreement
- **ACQ.4** Supplier Monitoring
- **ACQ.11** Technical Requirements
- **ACQ.12** Legal & Admin. Requirements
- **ACQ.13** Project Requirements
- **ACQ.14** Request for Proposals
- **ACQ.15** Supplier Qualification

SUPPLIER Process Group
- SPL.1 Supplier Tendering
- SPL.2 Product Release

SYSTEM ENGG. Process Group
- SYS.1 Requirement Elicitation
- SYS.2 System Requirements Analysis
- SYS.3 System Architectural Design
- SYS.4 System Integration & Int. Test
- SYS.5 System Qualification Test

SOFTWARE ENGG. Process Group
- SWE.1 Software Requirements Analysis
- SWE.2 Software Architecture Design
- SWE.3 Software DD & Unit Const.
- SWE.4 Software Unit Verification
- SWE.5 Software Integration & Int. Test
- SWE.6 Software Qualification Test

SUPPORT LIFE CYCLE PROCESSES

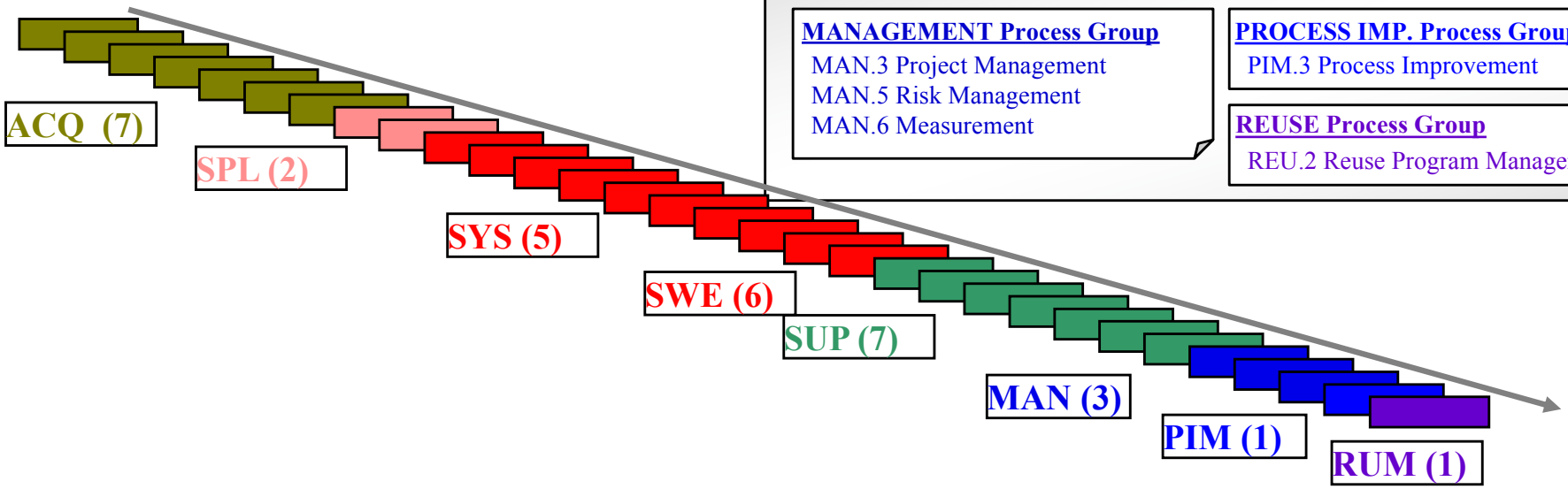
SUPPORT Process Group
- SUP.1 Quality Assurance
- SUP.2 Verification
- SUP.4 Joint Review
- SUP.7 Documentation
- SUP.8 Configuration Management
- SUP.9 Problem Resolution Management
- SUP.10 Change Request Management

ORGANIZATIONAL LIFE CYCLE PROCESSES

MANAGEMENT Process Group
- MAN.3 Project Management
- MAN.5 Risk Management
- MAN.6 Measurement

PROCESS IMP. Process Group
- PIM.3 Process Improvement

REUSE Process Group
- REU.2 Reuse Program Management



Elements of Processes

4.4.1. SWE.1 Software Requirements Analysis

Process ID	**SWE.1**
Process name	**Software Requirements Analysis**
Process purpose	The purpose of the Software Requirements Analysis Process is to transform the software related parts of the system requirements into a set of software requirements.
Process outcomes	As a result of successful implementation of this process: 1) the software requirements to be allocated to the software elements of the system and their interfaces are defined; 2) software requirements are categorized and analyzed for correctness and verifiability; 3) the impact of software requirements on the operating environment is analyzed; 4) prioritization for implementation is 5) the software requirements ar

Base practices

SWE.1.BP1: Specify software requirements. Use the system requirements and the system architecture and changes to system requirements and architecture to identify the required functions and capabilities of the software. Specify functional and non-functional software requirements in a software requirements specification. [OUTCOME 1, 5, 7]

NOTE 1: Application parameter influencing functions and capabilities are part of the system requirements.

NOTE 2: In case of software development only, the system requirements and the system architecture refer to a given operating environment (see also note 5). In that case, stakeholder requirements should be used as the basis for identifying the required functions and capabilities of the software as well as for identifying application parameters influencing software functions and capabilities.

SWE.1.BP2: Structure software requirements. Structure the software requirements in the software requirements specification by e.g.

- grouping to project relevant clusters

Output work products

13-04 Communication record	→	[OUTCOME 8]
13-19 Review record	→	[OUTCOME 6]
13-21 Change control record	→	[OUTCOME 5, 7]
13-22 Traceability record	→	[OUTCOME 1, 6]
15-01 Analysis report	→	[OUTCOME 2, 3, 4, 7]

Work Product & WP Characteristics

Output work products	13-04 Communication record	→	[OUTCOME 8]
	13-19 Review record	→	[OUTCOME 6]
	13-21 Change control record	→	[OUTCOME 5, 7]
	13-22 Traceability record	→	[OUTCOME 1, 6]
	15-01 Analysis report	→	[OUTCOME 2, 3, 4, 7]

13-19	Review record	• Provides the context information about the review: - what was reviewed - lists reviewers who attended - status of the review • Provides information about the coverage of the review: - check-lists - review criteria - requirements - compliance to standards • Records information about: - the readiness for the review - preparation time spent for the review - time spent in the review

Capability Dimension - Characteristics

Level 5: Innovating

Level 4: Predictable

Level 3: Established

Level 2: Managed

Level 1: Performed

Level 0: Incomplete

Level	Characteristics
5	**Optimization based on Quantitative Understanding** Root-cause based on process quantitative data Optimization with innovative technique.
4	**Managing Quantitatively** Process Measurement & interrelationships understood Statistical process control to manage projects.
3	**Organization Processes** Organization level standard processes. Project processes are derived using tailoring.
2	**Management in Place** Planning & monitoring of activities Work products quality & changes are controlled.
1	**Intuitive** Project result is based on individual Work products are developed
0	**Chaotic** Output of the process is not known Some work product may be available.

Capability Levels & Process Attributes

Capability Level		Description	Process Attributes
5	Innovating	The process is continuously improved to meet current and projected business goals	Process Innovation Process Inno. Impementation
4	Predictable	The process operates within defined limits to achieve its process outcomes	Process Measurement Process Control
3	Established	The process is implemented using defined process that is capable of achieving its process outcomes	Process Definition Process Deployment
2	Managed	The process is implemented in a managed fashion and its work products are established & maintained	Performance Management Work Product Management
1	Performed	The process is implemented and achieve its purpose	Process Performance
0	Incomplete	The process, if implemented fails to achieve its outcome	

Process Attribute Elements

Capability Level 2

5.3.2. PA 2.2 Work product management process attribute

The work product management process attribute is a measure of the extent to which the work products produced by the process are appropriately managed. As a result of full achievement of this process attribute:

a) Requirements for the work products of the process are defined;

b) Requirements for documentation and control of the work products are defined;

c) Work products are appropriately identified, documented, and controlled;

d) Work products are
necessary to meet

NOTE 1: Requirements fo
identification of
of work product

Generic practices

GP 2.2.1 Define the requirements for the work products. [ACHIEVEMENT a]

The requirements for the work products to be produced are defined. Requirements may include defining contents and structure.

Quality criteria of the work products are identified.

Appropriate review and approval criteria for the work products are defined.

GP 2.2.2 Define the requirements for documentation and control of

Generic resources

Requirement management method/toolset [ACHIEVEMENT a, b, c]

Configuration management system [ACHIEVEMENT b, c]

Documentation elaboration and support tool [ACHIEVEMENT b, c]

Document identification and control procedure [ACHIEVEMENT b, c]

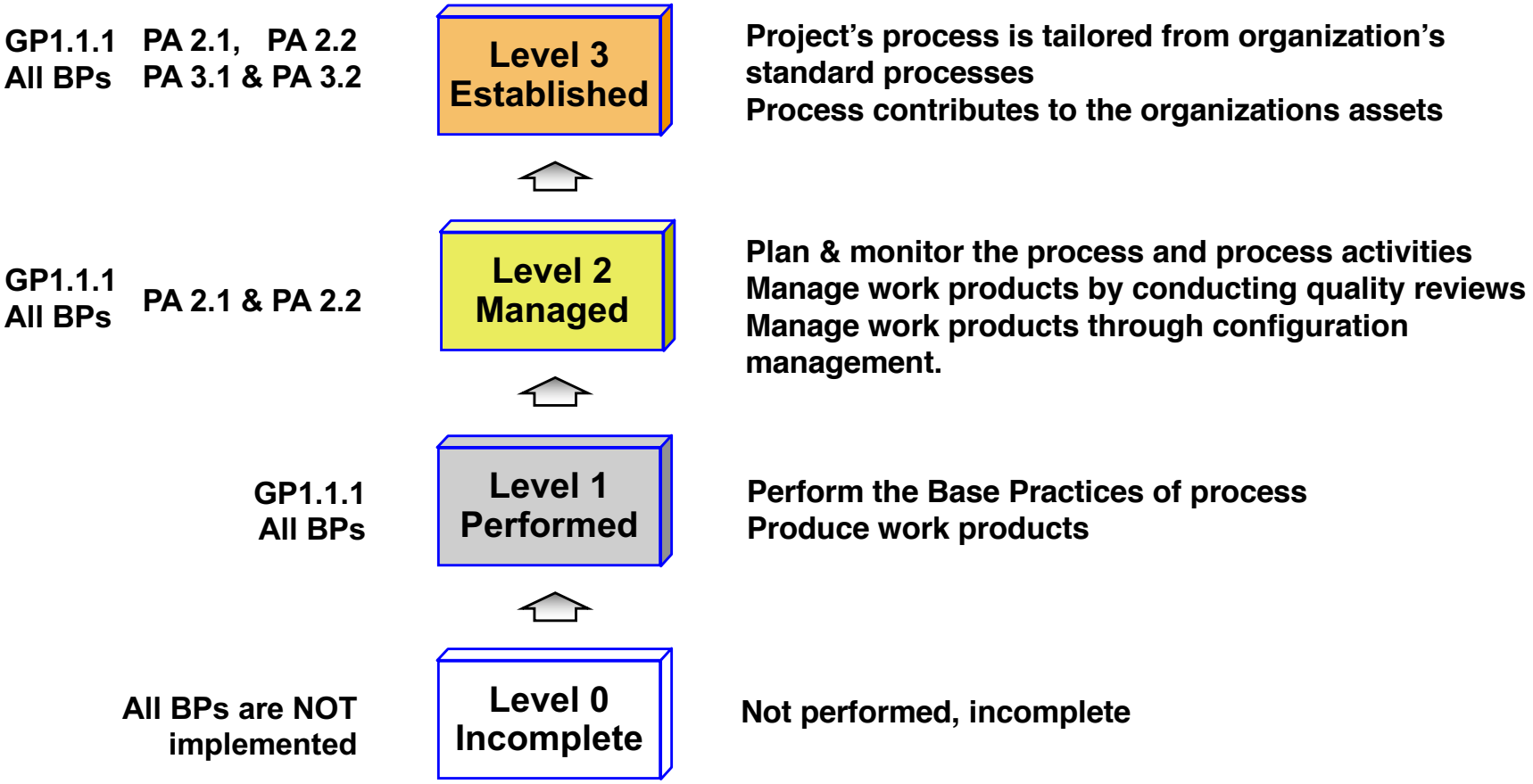
Work product review methods and experiences [ACHIEVEMENT d]

Review management method/toolset [ACHIEVEMENT d]

Intranets, extranets and/or other communication mechanisms

Automotive SPICE®
Achieving CL-3

Achieving Capability Levels for a Process



Configuration Management - Level 1

Base Practices

BP1: Develop a configuration management strategy.

BP2: Identify configuration items.

BP3: Establish a configuration management system.

BP4: Establish branch management strategy. .

BP5: Control modifications and releases.

BP6: Establish baselines.

BP7: Report configuration status.

BP8: Verify the information about configured items.

BP9: Manage the storage of configuration items and baselines

Level 1: Performed process

PA 1.1 Process Performance

GP1.1.1: Achieve the process outcomes

Configuration Management - Level 2

Base Practices

BP1: Develop a configuration management strategy.

BP2: Identify configuration items.

BP3: Establish a configuration management system.

BP4: Establish branch management strategy. .

BP5: Control modifications and releases.

BP6: Establish baselines.

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Level 1: Performed process

PA 1.1 Process Performance

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Level 2: Managed process

PA 2.1 Performance Management

GP 2.1.1: Identify the objectives

GP 2.1.2: Plan the performance

GP 2.1.3: Monitor the performance

GP 2.1.4: Adjust the performance

GP 2.1.5: Define responsibilities and authorities

GP 2.1.6: Identify and make available resources

GP 2.1.7: Manage the interfaces

PA 2.2 Work product Management

GP 2.2.1: Define the requirements of work products

GP 2.2.2: Define the requirements for documentation and control

GP 2.2.3: Identify, document and control

GP 2.2.4: Review and adjust work products

Configuration Management - Level 3

Base Practices

BP1: Develop a configuration management strategy.

BP2: Identify configuration items.

BP3: Establish a configuration management system.

BP4: Establish branch management strategy. .

BP5: Control modifications and releases.

BP6: Establish baselines.

BP7: Report configuration status.

BP8: Verify the information about configured items.

BP9: Manage the storage of configuration items and baselines

Level 1: Performed process

PA 1.1 Process Performance

GP1.1.1: Achieve the process outcomes

Level 2: Managed process

PA 2.1 Performance Management

GP 2.1.1: Identify the objectives
GP 2.1.2: Plan the performance
GP 2.1.3: Monitor the performance
GP 2.1.4: Adjust the performance
GP 2.1.5: Define responsibilities and authorities
GP 2.1.6: Identify and make available resources
GP 2.1.7: Manage the interfaces

PA 2.2 Work product Management

GP 2.2.1: Define the requirements of work products
GP 2.2.2: Define the requirements for documentation and control
GP 2.2.3: Identify, document and control
GP 2.2.4: Review and adjust work products

Level 3: Established process

PA 3.1 Process Definition

GP 3.1.1: Define the standard process
GP 3.1.2: Determine sequence and interaction
GP 3.1.3: Identify the roles and competencies
GP 3.1.4: Identify the required infrastructure
GP 3.1.5: Determine suitable method to monitor

PA 3.2 Process Deployment

GP 3.2.1: Deploy a defined process
GP3.2.2: Assign & communicate roles, responsibilities
GP 3.2.3: Ensure necessary competencies
GP 3.2.4: Provide resource and information
GP 3.2.5: Provide adequate process infrastructure
GP 3.2.6: Collect & analyze data about performance

Automotive SPICE®
[VDA] Guideline

Automotive SPICE ® Guideline

Why was it required?

- Diverging assessment result

- Assessment Purpose

Process Improvement
• SYS.2 : 20% completed • SYS.5 : All BP performed but only 20% of requirement covered Conclusion can be drawn that the process will be fully capable (F) in principle, if applied as is in another development. There is will be no need to derive any improvement.

Process-related Product Risk
• SYS.2 : 20% completed • SYS.5 : All BP performed but only 20% of requirement covered Assessor would like to consider the completeness of SYS.5 output with respect to stakeholder requirements. This may lead to decision of rating Largely (L) for PA1.1 although SYS.5 is fully achieved with respect to locally available input.

Automotive SPICE ® Guideline

Why was it required?

- Diverging assessment result

- Process Context

Category A: Parts of product / delivery
• Internal process improvement • supplier capability determination or benchmarking

Category B: Entire product / delivery
• Process-related product risk of the delivery in terms of evaluating the current delivery status • Internal process improvement • supplier capability determination or benchmarking

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VDA Scope

1	ACQ.4	Supplier Monitoring
2	SYS.2	System Requirements Analysis
3	SYS.3	System Architectural Design
4	SYS.4	System Integration and Integration Test
5	SYS.5	System Qualification Test
6	SWE.1	Software Requirements Analysis
7	SWE.2	Software Architecture Design
8	SWE.3	Software DD & Unit Construction
9	SWE.4	Software Unit Verification
10	SWE.5	Software Integration and Integration Test
11	SWE.6	Software Qualification Test
12	SUP.1	Quality assurance
13	SUP.8	Configuration Management
14	SUP.9	Problem Resolution Management
15	SUP.10	Change Request Management
16	MAN.3	Project Management

Note:
Process set correlates with the former HIS Scope. The addition process was necessary to reflect the structural changes in the engineering processes.

Rule [RL] & Recommendation [RC]: Statistics

Type	[RL]	[RC]
Total	**280**	**212**
Key Concept & Overall : Generic - Tractability & Consistency - Summarize & Communicate - Verification criteria - Strategy & plan - Model based development - Agile development - Distributed development - Management of third-party-software - Management of platform & legacy software - Application parameter	40	43
PA 1.1: Process Specific - VDA Scope (ACQ.4; SYS.2 ~ SYS.5; SWE.1 ~ SWE.6; SUP.1, SUP.8 ~ SUP.10, MAN.3)	177	144
CL-2 & CL-3 - PA 2.1, PA 2.2, PA 3.1 & PA 3.2	63	25

Terminology for Rating Rule [RL]

#	Wording	Explanation
1	If …, PAx.y must not be rated F. If …, the indicator … must not be rated F.	Any rating other than F might be depending on the impact of the detected weakness.
2	If …, the indicator … must not be rated higher than N / P / L	
3	If …, the indicator … must not be downrated	The found issue shall not lead to downrating.
4	If …, the incator … shall be downrated. If …, the corresponding indicators … shall be downrated.	The indicator (s) shall be downrated for at least one step of the rating scale. It is decision of the assessor, if further downrating is necessary to reflect the identified weakness.
…	…	
10	…	

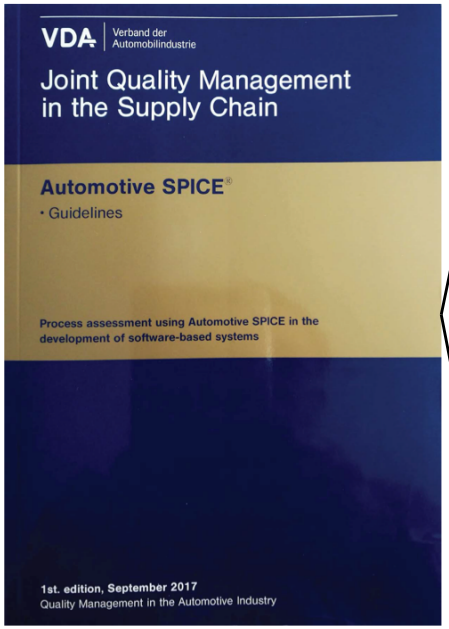
In general, the term "**downrate**" means that the initial raring of the indicator without applying the rule shall be reduced.

Terminology for Rating Recommendation [RC]

#	Wording	Explanation
1	If …, the indicator … should not be rated F.	Any rating other than F should be chosen depending on the impact of the detected weakness.
2	If …, the indicator … should not be rated higher than N / P / L	-
3	If …, the indicator … should not be downrated	The found issue should not lead to downrating.
4	If …, the indicator … should be downrated.	The indicator (s) should be downrated for at least one step of the rating scale.
…	…	
10	If …, the indicator A is downrated / rated N / P / L due to …, this should be in line with the rating of the indicator …	“to be inline” does not mean that the rating should be the same. It should be checked, whether both rating have been performed based on the same insight.

Automotive SPICE ® Guideline

Structure of Blue-Gold Book



Part1: Interpretation and rating guidelines

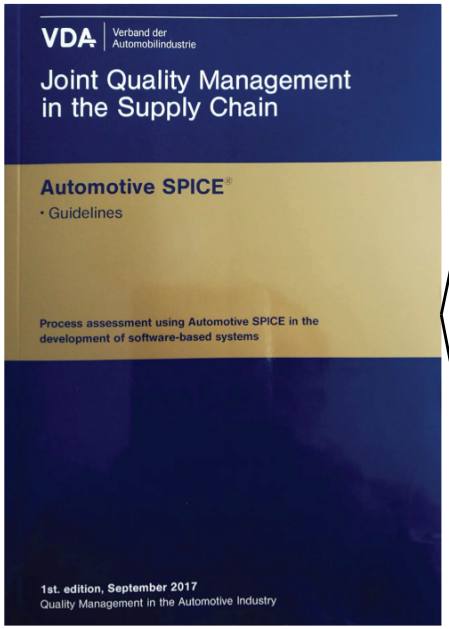
1. Application of interpretation and rating guidelines
2. Key concepts and overall guidelines
3. Rating guidelines on process performance (level 1)
4. Rating guidelines on process capability level 2
5. Rating guidelines on process capability level 3

Part 2: Guidelines for performing the assessment

6. Documented assessment process
7. Improvement process
8. Recommendations for performing an assessment
9. Requirement relating to assessor qualification

Automotive SPICE ® Guideline

Structure of Blue-Gold Book



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Part 1: Interpretation and rating guidelines

- Define following clearly to enable the comparison between assessment results:
  - Assessment purpose
  - Process context
  - Assessment scope
    Consider appropriate process instances - see next slide.

Part 1: Interpretation and rating guidelines

- **Defining instances when setting up the assessment scope**
  - Setting up instances doesn't change the Assessment scope & process context

- **For Example:**
  - Two different version of organization processes:
    - A raring of process instance "SWE.x with QMS v1.0"
    - A raring of process instance "SWE.x with QMS v2.0"

  - Different SW development strategy:
    - A raring of process instance "SWE.3 / Model-based development"
    - A raring of process instance "SWE.3 / Manual coding"

  - Different sub-project use different project management approach:
    - A raring of process instance "MAN.3 / SW Level"
    - A raring of process instance "MAN.3 / Overall Project"."

Automotive SPICE ® Guideline

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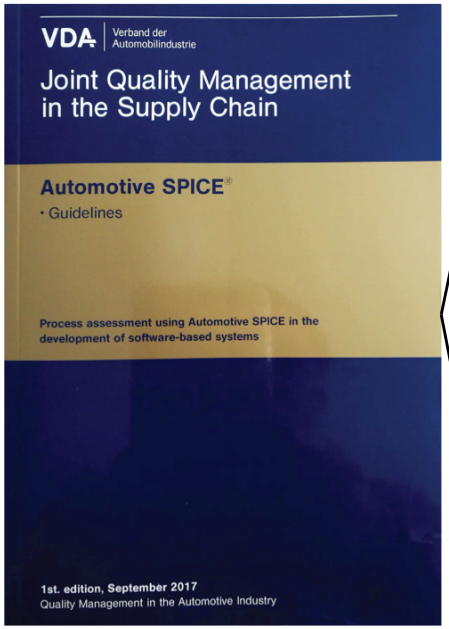

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Part 1: Interpretation and rating guidelines

2. Key concepts and overall guidelines

Rules [RL] or Recommendation [RC] has been defined for flowing specific terms used in base practices:

- **Traceability and consistency [TAC]**
- **Summarize and communicate [SAC]**
- **Verification criteria [VEC]**
- **Strategy and plan [SAP]**

- Let's discuss few rules from two key concepts, i.e., TAC & VEC

Traceability & Consistency

Granularity of traceability

- single stakeholder requirement
- single system requirement
- single system architecture element
- single software requirement
- single software architecture component
- single software detailed design element
- single software unit
- single verification criterion
- single test case
- single test result
- single change request

Traceability - Rating Recommendation

ID	Description	Recommendation
TAC.RC.1	If the granularity is not at least on the lowest level.	**Downrated**
TAC.RC.2	If there is no documented evidence for the traceability between related work products on the required granularity.	**Downrated**
TAC.RC.3	If the project is not using an automatized tool. - But sample based check confirmed appropriateness.	**No impact**

Consistency - Rating Rule

ID	Description	Rule
TAC.RL.1	If there is no documented evidence for the consistency between related work products on the required granularity.	**Downrated**
Traceability for Redundant Path: **e.g., SYS.2 ⇔ SWE.1 & SYS.3 ⇔ SWE.1**		
TAC.RL.2	If traceability and consistency is only established for one path and not for the other redundant path	**No impact**
TAC.RL.3	If only one path is explicitly established and the other path can't be derived.	**Downrated**

Verification criteria

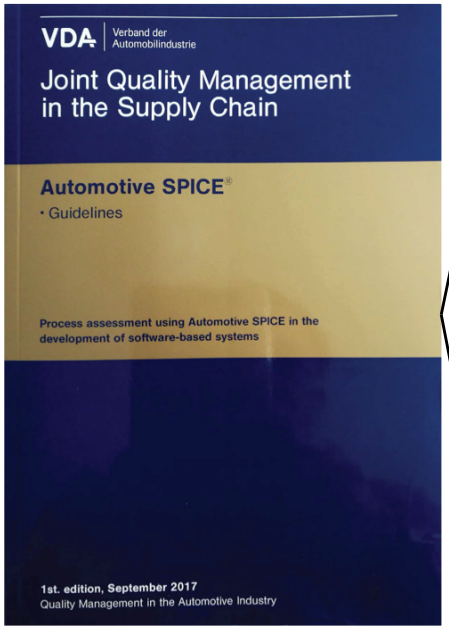
The verification criteria shall cover the following aspects:

a) Identification of the requirement to be verified
b) Verification method
c) Verification environment
d) Preconditions and special conditions
e) Constraints
f) Success criteria

ID	Description	Rule
VEC.RL.1	If one of the aspects a), b) or f) is missing in the verification criteria.	**$\not\succ$ P**
VEC.RL1	If the corresponding requirements or corresponding work products (e.g. test plan) contain all aspects above and - there are no additional verification criteria defined.	**No impact**

Automotive SPICE ® Guideline

Structure of Blue-Gold Book



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Part 1: Interpretation and rating guidelines

3. Rating guidelines on process performance (level 1)

Rules [RL], Recommendation [RC] & interrelationship between BPs has been defined for the processes within VDA Scope:

- **ACQ.4**
- **SYS.2 ~ SYS.5**
- **SWE.1 ~ SWE.6**
- **SUP.1, SUP.8 ~ SUP.10**
- **MAN.3**

- Let's discuss few rules from three processes, i.e., SYS.2, SWE.4 & MAN.3

SYS.2 System Requirement Analysis

BP.1 Specify system requirements

Following may be addressed:

a) Functions that are implemented in mechanics, hardware or software or cover a combination of these elements
b) Parameters influencing the system behaviour
c) Processing of signals from other systems
d) Non-functional Requirements

ID	Description	Rule
SYS.2.RL.1	If unclear or inconsistent requirements are not clarified with the individual stakeholders	**Downrated**
SYS.2.RL.2	If the system requirements specification is not reflecting the latest changes	**Downrated to L**
SYS.2.RL.3	If system requirements are not derived from customer requirements but from platform requirements according to a reuse strategy	**No impact**

SYS.2 System Requirement Analysis

BP.3 Analyze system requirements:

ID	Description	Rule
SYS.2.RL.6	If the system requirements and their interdependencies are not evaluated in terms of correctness, technical feasibility and verifiability	**Not to be rated F**
SYS.2.RC.2	If the analysis of impact on cost and schedule is covered by the estimation of work packages in the project planning	**No impact**

SYS.2 System Requirement Analysis

BP.4 Analyze the impact on the operating environment

Consider following aspects:

a) Interfaces : Mounting, Energy flow, material flow, signals & signal quality, Noise, vibration
b) Environment: Temperature, Humidity, Exhaust, EMC
c) Performance: Interface response time
d) Resources: Energy flow, material flow, memory usage

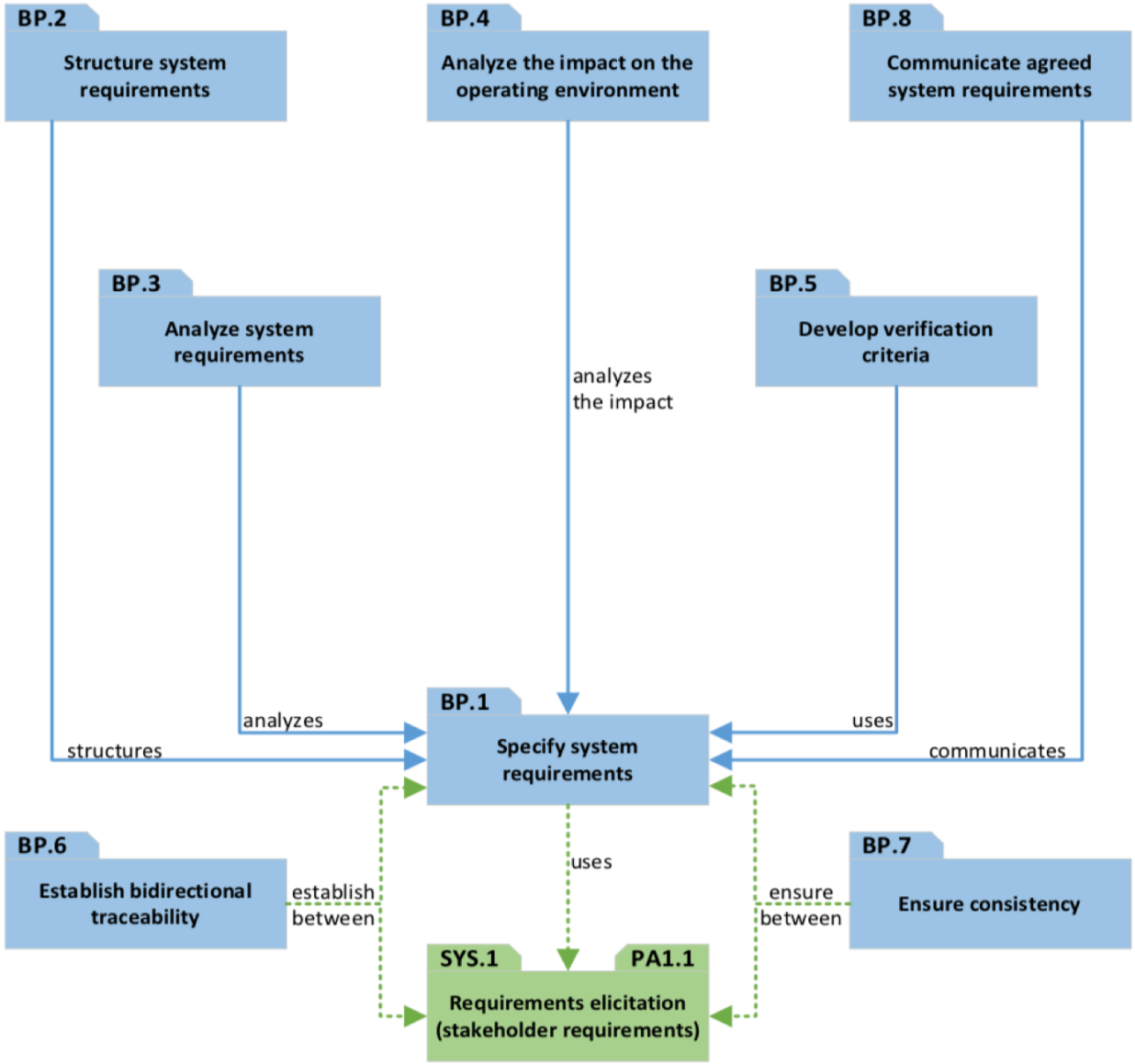
ID	Description	Recommendation
SYS.2.RC.3	If the analysis of the impact on the operating environment is not considering aspects from the list above or other aspects that are relevant.	**Downrated**
SYS.2.RC.4	Insufficient reserves of memory, processor time and/or peripheral resources are signs for inappropriate analysis of technical feasibility or inappropriate analysis.	**Downrated**

SYS.2 System Requirement Analysis

BP.5 Develop verification criteria

ID	Description	Rule
SYS.2.RL.7	If verification criteria are not documented as a separate work product but provable contained in the requirement or test specification	**Must not be downrated**
SYS.2.RL.8	If verification criteria are not present according to the progress of the project	**Downrated**

SYS.2 - Rating Consistency



[SYS.2.RL.11]
If the specification of system requirements (**BP1**) is downrated Then, PA 1.1 shall be downrated
As all indicators (BP2, BP3, BP4, BP5, BP6, BP7 and BP8) are affected.

SWE.4 Software unit verification

BP.1 Develop software unit verification strategy including regression strategy

Following may be addressed:

a) A definition of the verification object
b) A definition how specific requirements regarding verification and testing are covered
c) A definition of the methods for test case and test data development derived from the detailed design & non-functional requirements
d) A definition of the methods and tools for static verification and for reviews
e) A definition of the test environment regarding each test method
f) A definition of the test coverage
g) A definition of entry and exit criteria for the software unit verification
h) A documentation of sufficient test coverage of each test level
i) An approach for the handling of failed tests, failed static verifications

ID	Description	Rule
SWE.4.RL.1	If the software unit verification strategy does not cover the aspects above.	**Must not be rated F**
SYS.2.RL.2	If the software unit verification strategy does not cover aspect b), c) or d)	**Must not be rated P**

SWE.4 Software unit verification

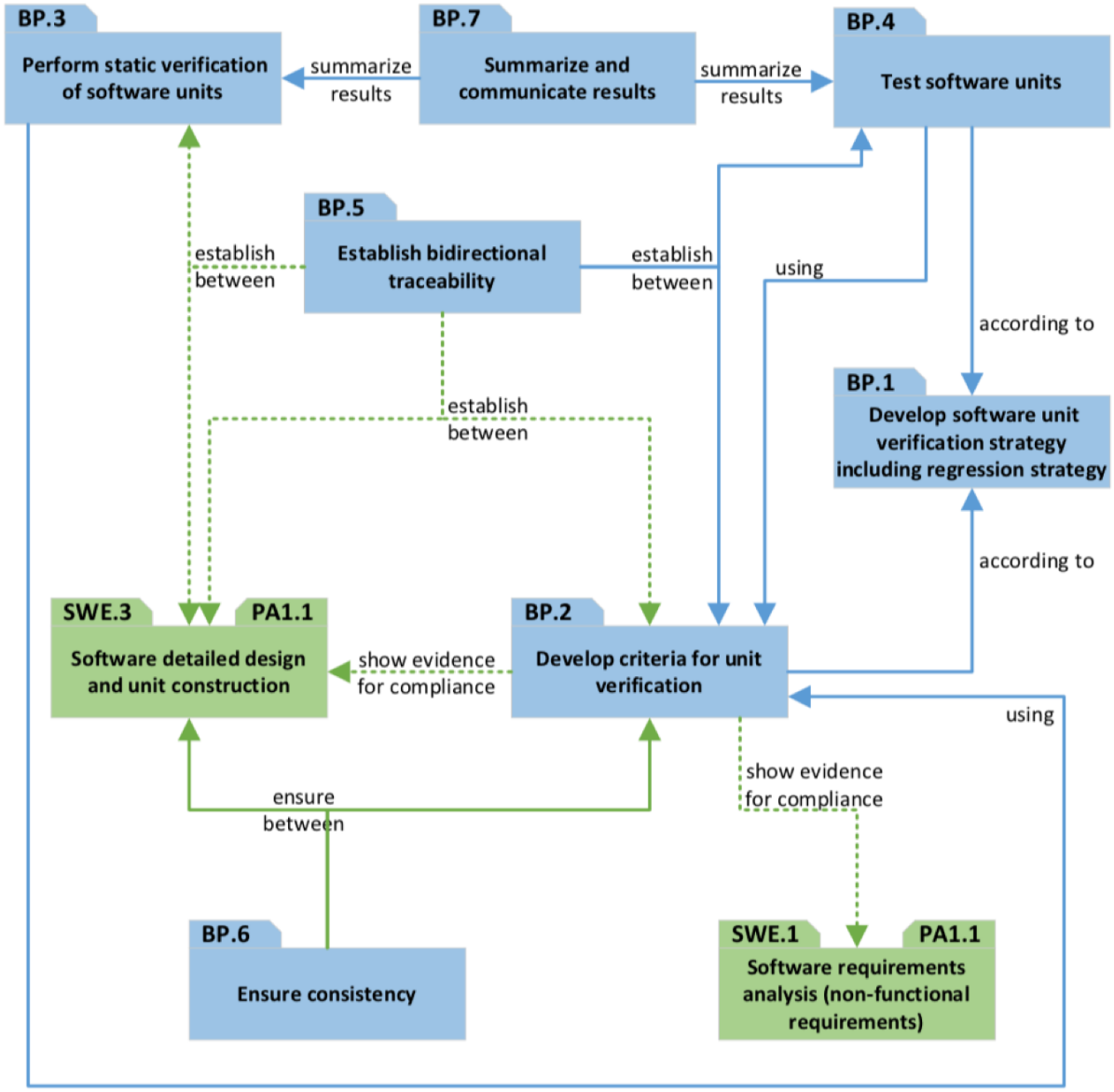
BP.3 Perform static verification of software units
BP.4 Test software units

The expectations for a successful implementation:

a) Verification logs supplying a meaningful summary of the logged data as an adequate evidence for each verification result

ID	Description	Rule
SWE.4.RL.3	If the verification logs of static verification do not cover the aspect above.	**BP3 must not be rated F**
SWE.4.RL.4	If the verification logs of unit test do not cover the aspect above	**BP4 must not be rated F**
SWE.4.RL.5	If the verification results of static verification contain only a pure passed/failed information without a supporting verification log	**BP3 must not be rated higher than P**
SWE.4.RL.6	If the verification results of unit test contain only a pure passed/failed information without a supporting verification log	**BP4 must not be rated higher than P**

SWE.4 - Rating Consistency



MAN.3 Project Management

BP.1 Define the scope of work

The scope of work has to cover the content, the boundaries, and the constraints of the project. Describing the product only is not sufficient.

ID	Description	Rule
MAN.3.RL.1	If the scope of work (BP1) is a product description only	**Must not be rated higher than L.**
MAN.3.RC.1	If the scope of work (BP1) does not address the responsibilities of all affected parties regarding the project and product	**Should not be rated higher than L**
MAN.3.RL.1	If the scope of work (BP1) is not appropriately documented at project start	**Must not be rated higher than L.**

MAN.3 Project Management

BP.8 Define, monitor and adjust project schedule.
BP.9 Ensure consistency

ID	Description	Rule
MAN.3.RL.5	If the schedule is not based on the defined activities (BP4) and estimations (BP5)	**Must not be rated higher than P**

MAN.3 Project Management

BP.8 Define, monitor and adjust project schedule.

ID	Description	Rule
MAN.3.RL.6	If the schedule does not contain all of the following - a start and end date, - duration, - effort, - degree of fulfillment (for monitoring), - resources, - dependencies	**Must not be rated higher than L**
MAN.3.RL.7	If any of the following: - start and end date, - effort - degree of fulfillment (actual) is missing	**Must not be rated higher than P**
MAN.3.RL.9	If the degree of fulfilment tracked in the schedule is not up to date.	**Downrated**
MAN.3.RL.10	If the critical path is not determined	**Downrated**

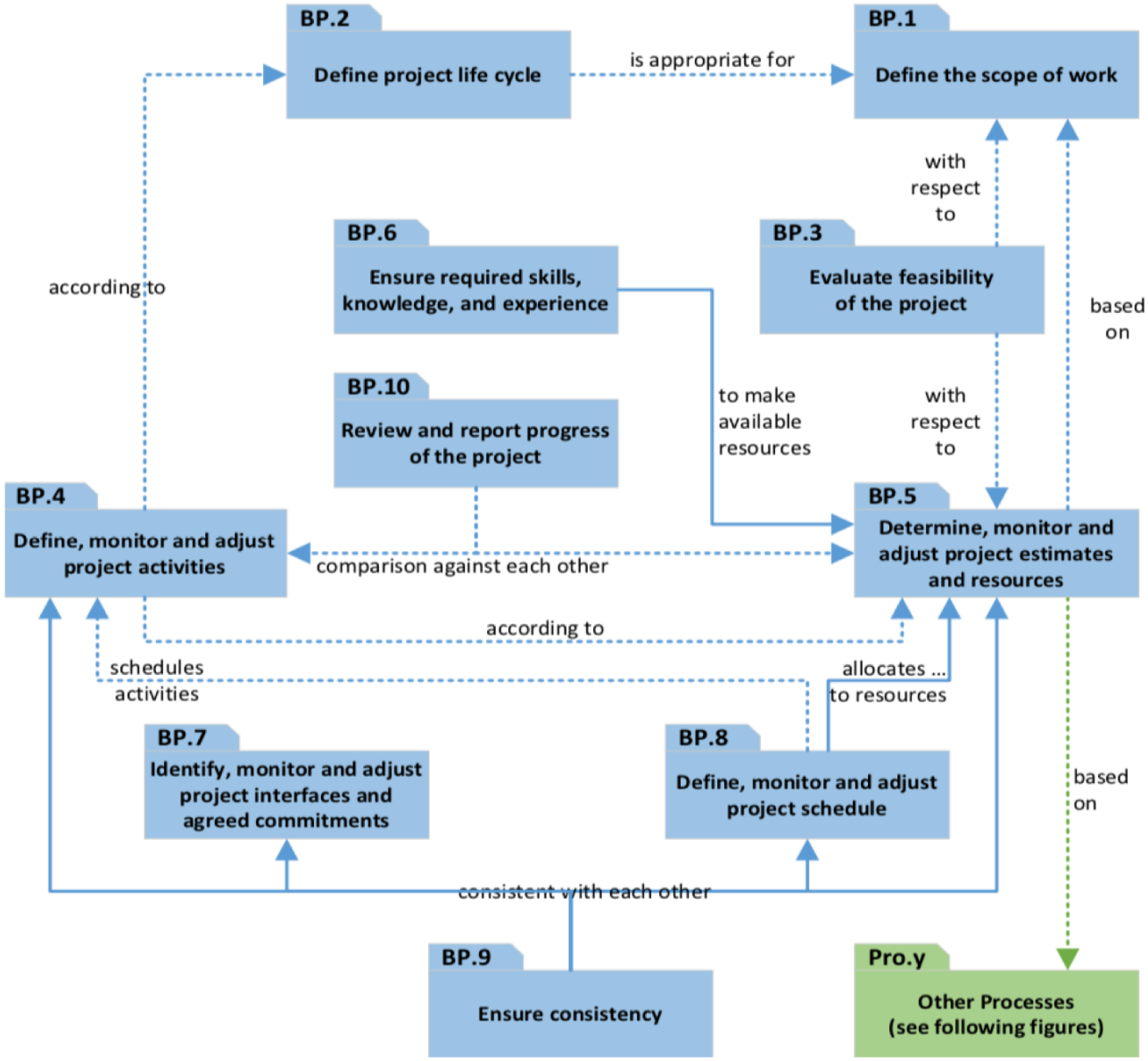
MAN.3 Project Management

BP.10 Review and report progress of the project.

Sometimes progress is not aligned with resource consumption or chronology, e.g. progress of 20% but already 80% of the allocated budget consumed one week before a planned delivery.

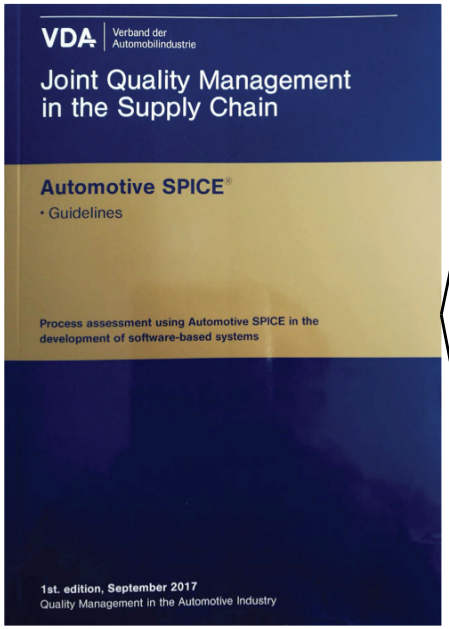
ID	Description	Rule
MAN.3.RL.10	If monitoring does not assess the correlation of actual consumption of resources, meeting of deadlines and fulfillment of activities.	**Must not be rated higher than P**

MAN.3 - Rating Consistency



Automotive SPICE ® Guideline

Structure of Blue-Gold Book



Part1: Interpretation and rating guidelines

1. Application of interpretation and rating guidelines
2. Key concepts and overall guidelines
3. Rating guidelines on process performance (level 1)
4. **Rating guidelines on process capability level 2**
5. Rating guidelines on process capability level 3

Part 2: Guidelines for performing the assessment

6. Documented assessment process
7. Improvement process
8. Recommendations for performing an assessment
9. Requirement relating to assessor qualification

4. Rating guidelines on process capability level 2

[GP 2.1.1]

- Process Performance Objectives are defined:
  a) Requirements regarding necessary activities & tasks in order to fulfill the process purpose are considered. This may include:
     - Milestones and/or due dates to be kept
     - Effort
     - Process cycle time or frequency
     - Metrics
     - Usage of qualified human & defined infrastructure resources
     - Quality criteria regarding the process
  b) Assumptions and constraints are considered, e.g.:
     - Adherence to internal standards
     - Adherence to customer standards, norms, or laws
  c) Stakeholder requirements have to be considered

Rule ID	Description	Rule
CL2.RL.1	If process objectives do not cover all aspect of a)	**$\not\succ$ P**
CL2.RL.2	If process objectives do not cover all aspect of b)	**Downrated**
CL2.RL.3	If process objectives do not include KPIs but consider a) & b)	**No impact**

4. Rating guidelines on process capability level 2

[GP 2.1.2]

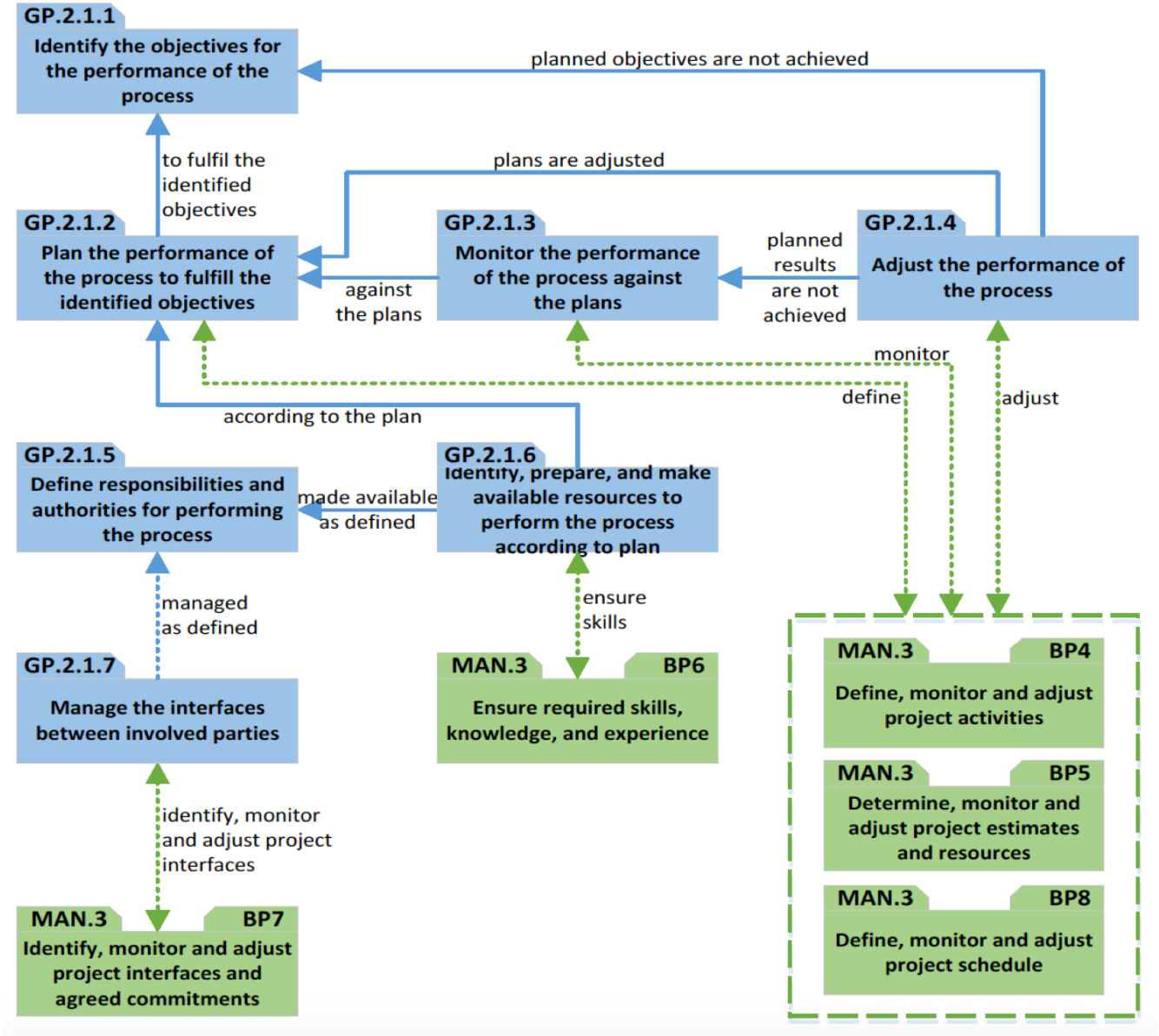
- Following aspects must be covered while developing proper plan:
  a) All requirement activities are defined
  b) Estimates for the defined process performance attributes (e.g., effort, duration, size of work products, etc.). Requirements regarding necessary activities & tasks in order to fulfill the process purpose are considered.
  c) Sequence of requirement activities is defined
  d) A schedule including key milestones in line with stakeholder requirements are defined
  e) The planning / schedule must:
     - Either include due date, effort, assigned resources, and responsibility (engineering activities)
     - Or as percentage or absolute number of full-time equivalent (MAN.3, SUP.1)
  f) Work product reviews
  g) Evidence of planning must available:
     - As part of the project plan
     - As process sceptic document
     - As backlog, task board, Kanban board.
     - As part of an open item link list.

4. Rating guidelines on process capability level 2

[GP 2.1.2]

Rule ID	Description	Rule
CL2.RL.5	If planning does not cover all aspect	**Downrated**
CL2.RL.6	If planning does not cover the aspects d) and e)	**$\not>$ P**
CL2.RL.7	If required activities are not separately planned, but cover aspects e) & g)	**No impact**
CL2.RL8	If supporting activities are not planned explicit activities, but are planned as percentage or absolute hours.	**No impact**

Rating consistency between GP2.1.x



4. Rating guidelines on process capability level 2

[GP 2.2.1]

- Work product requirements include:
  a) Criteria defining content & structure.
     - Information regarding the structure such layout, history, table of content
     - Instruction for usage of templates & tools
  b) Appropriate review and approval criteria, e.g.:
     - Definition where work product needs to be reviewed
     - Definition regarding review method, coverage
  c) Quality criteria (templates, or e.g., derived from ISO/IEC 25010)

Rule ID	Description	Rule
CL2.RL.29	If work product requirements do not include all aspects	**Downrated**
CL2.RL.30	If no template or checklist exists, but all aspects above are documented	**No impact**
CL2.RL.31	If standard work product templates provided by organization process, but project has defined project specific solution	**No impact**

4. Rating guidelines on process capability level 2

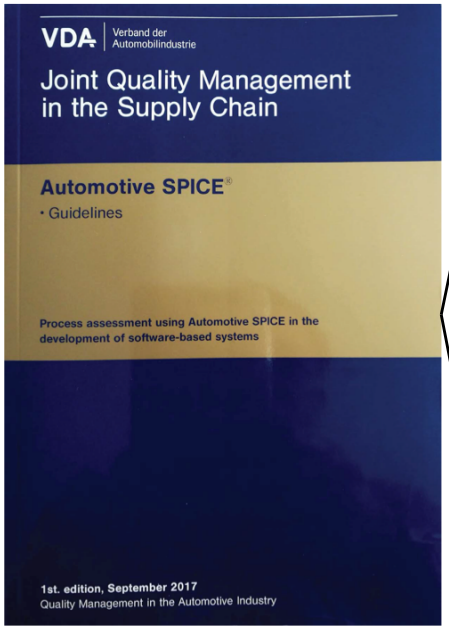
[GP 2.2.4]

- Work product review must demonstrate followings:
  - a) Review information
    1. Work product under review
    2. Date of review
    3. Name of reviewer(s),
    4. Review findings if they are not immediately solved.
    5. Review result (passed, failed, re-review required)
    6. Used review and approval criteria
  - b) Handling of review findings:
    1. A procedure for handing of review findings has to be defined
    2. Review findings have to be monitored & tacked.

Rule ID	Description	Rule
CL2.RL.35	If proof of work product reviews does not cover all aspects	**Downrated**
CL2.RL.30	If proof of work product review does not cover a.1) a.4) & a.6) for most relevant work products	**$\not>$ P**
CL2.RL.31	If work product review findings are not resolved for most relevant work products	**$\not>$ P**

Automotive SPICE ® Guideline

Structure of Blue-Gold Book



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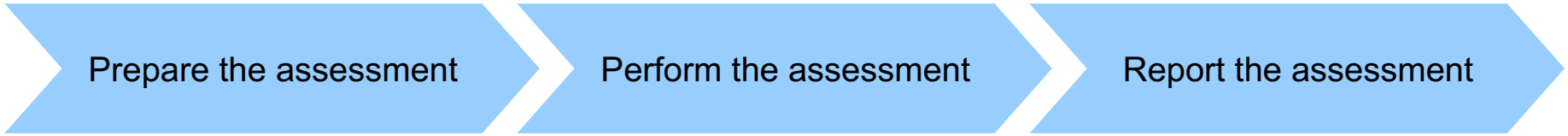
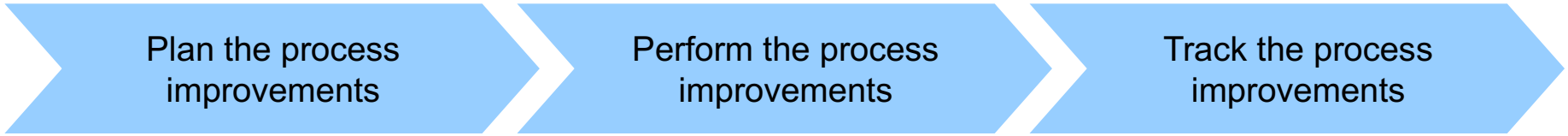
9. Requirement relating to assessor qualification

Part 2: Guidelines for performing the assessment

6. Documented Assessment Process

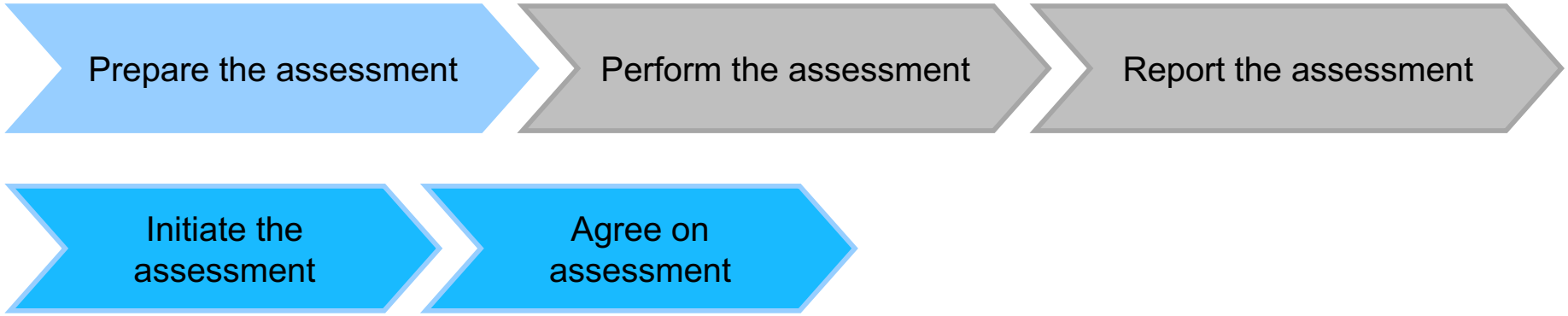


7. Improvement Process



Part 2: Guidelines for performing the assessment

6. Documented Assessment Process



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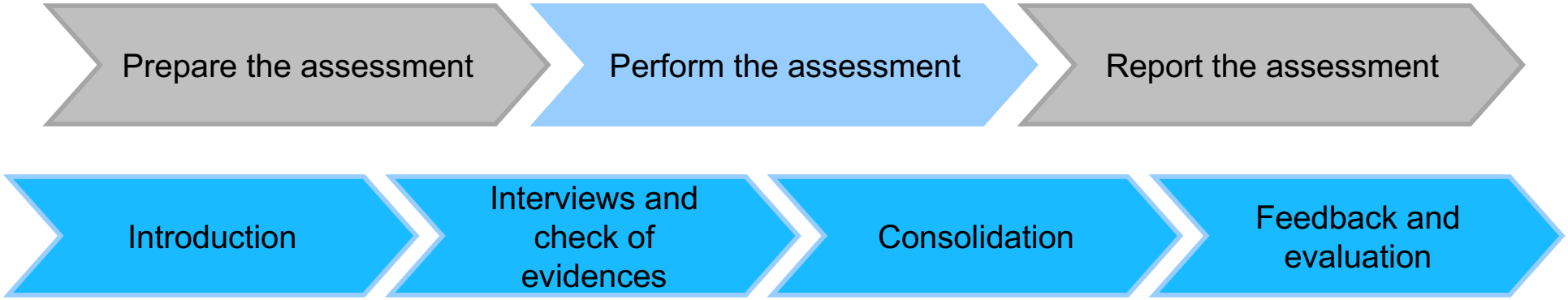

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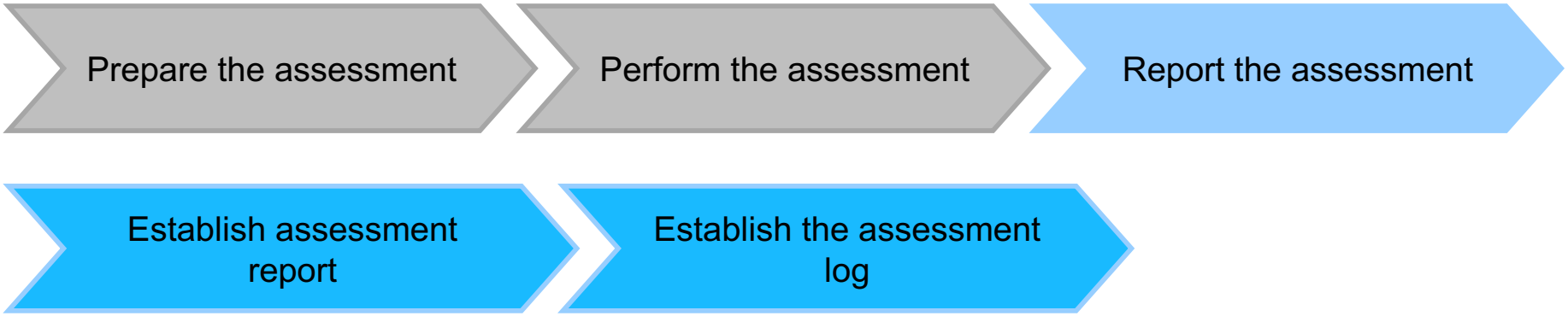

Part 2: Guidelines for performing the assessment

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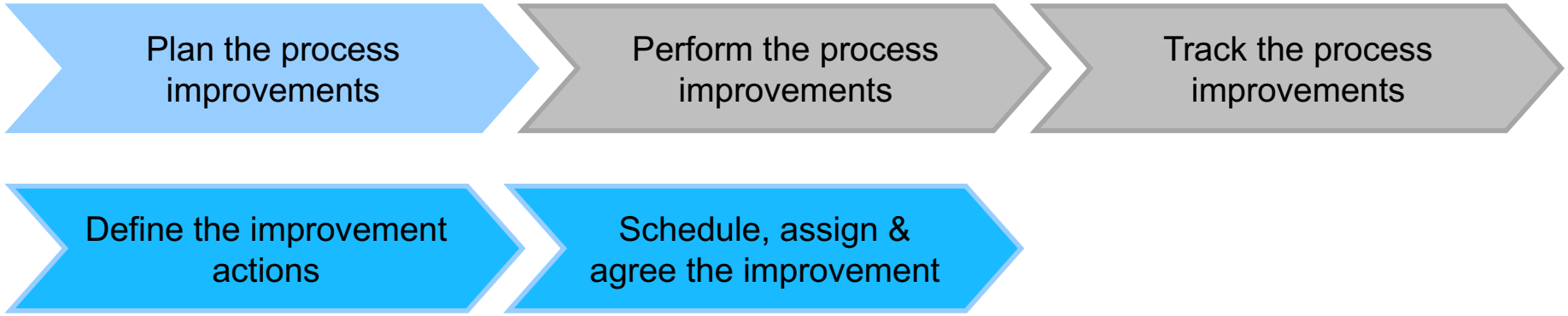

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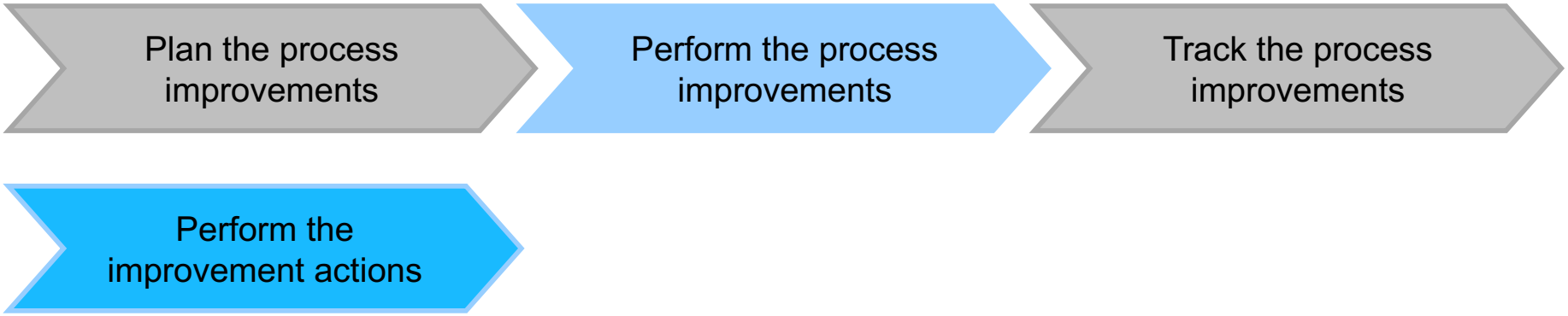
7. Improvement Process



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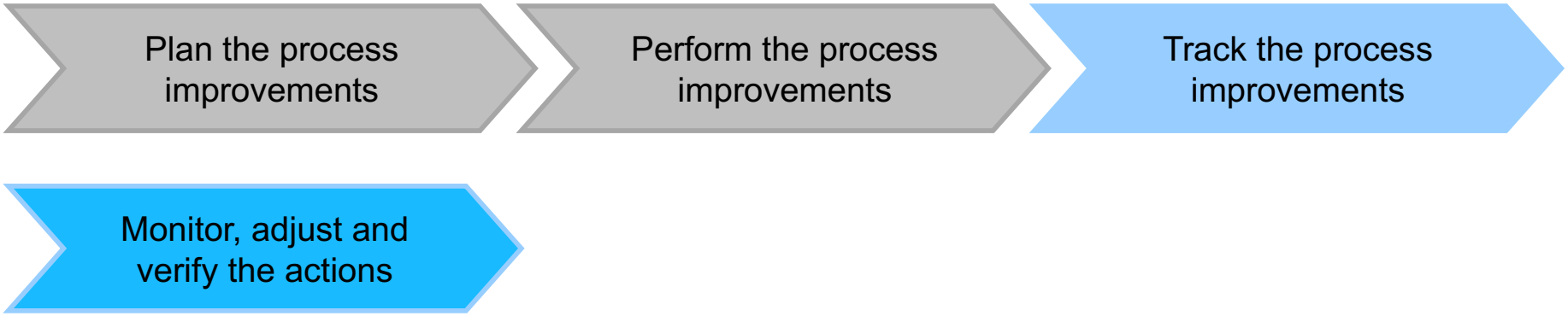


Part 2: Guidelines for performing the assessment

8. Recommendations for performing an assessment

This chapter provides guidance to Chapter 6 Documented assessment process

1. Assessment results	
Confidentiality	As a general rule, assessment results & the information obtained must be treated as confidential by all.
Handling Assessment result	Ownership of the result is defined in assessment input / agreement. - By default, sponsor is the owner of the result. - Assessment result & any relevant part of the it should be make available to all involved in assed project & individual involved in process improvement.

Part 2: Guidelines for performing the assessment

8. Recommendations for performing an assessment

This chapter provides guidance to Chapter 6 Documented assessment process

2. Validity of assessments		
	Areas of validity	Predominantly, assessment is conducted on single project based on process scope. Hence the applicability of result should consider following: - Restricted to development location - Transferrable to limited degree (ECU AUTOSAR Domains (powertrain, chassis, body) - Restricted to the location where assessment was done (Distributed development.
	Period of validity - for project based (CL) assessment	12 months regarding the project which has been assessed. Following restriction also applies: - Transfer of development wok to different location - Re-organization - Changes to development processes

Part 2: Guidelines for performing the assessment

8. Recommendations for performing an assessment

This chapter provides guidance to Chapter 6 Documented assessment process

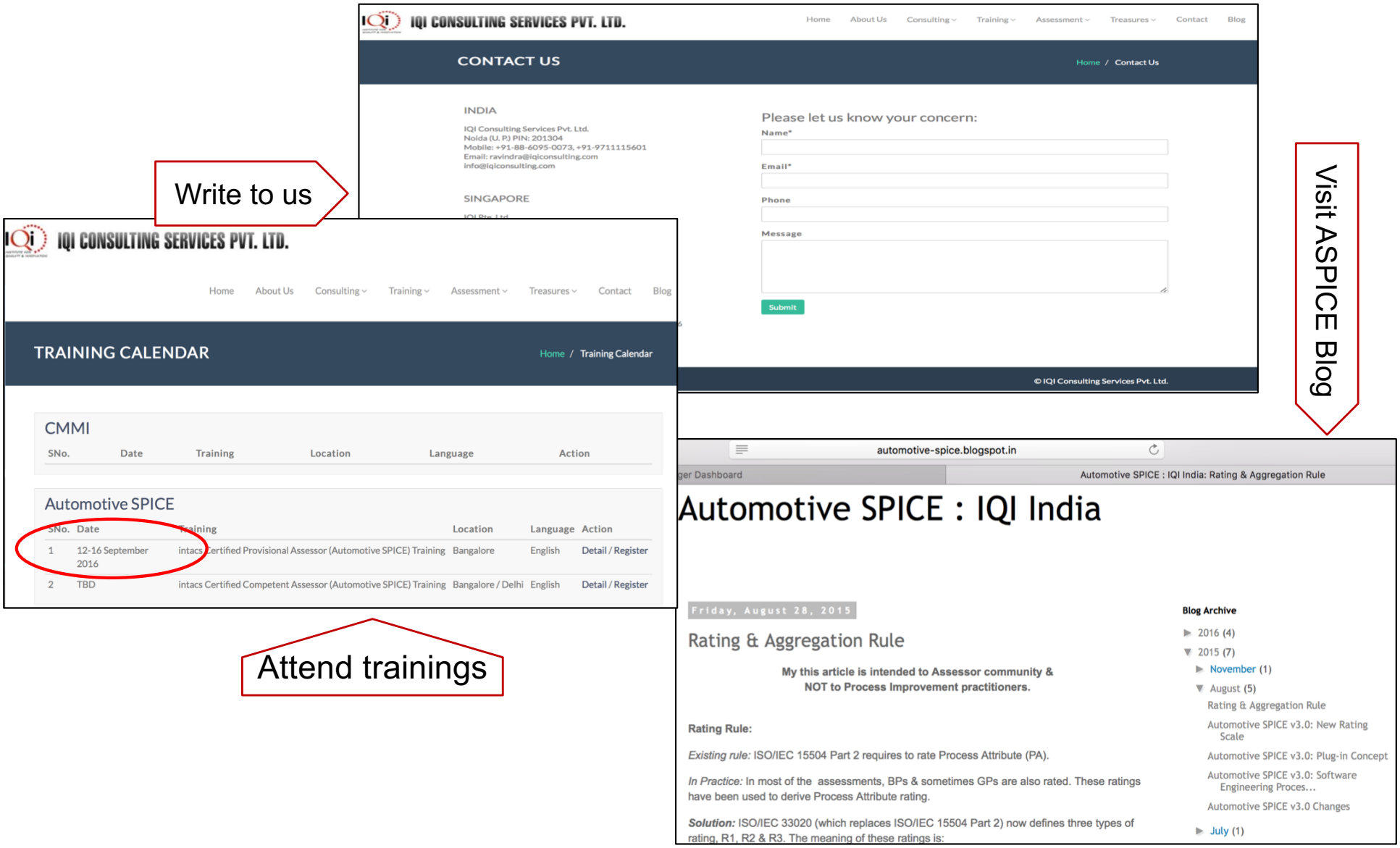
3. Performing an assessment		
	Assessment scheduling	Following should be considered: - Scope, Process context, complexity of project - Previous assessment result - Cultural aspect & language
	Individuals involved in assessment	Observer can be present at an interview - Number of interviewee should be kept as small as possible - Interviews must not by impaired by observers - Lead assessor decides whether observes may be present or not.
	Composition of assessment team	Interview in assessment should be carried out by two assessors. - Independence of assessor should be ensured to avoid any conflict of interest. - Lead assessor has final authority for selection of assessor.

Part 2: Guidelines for performing the assessment

9. Requirements relating to assessor qualification

1.	Requirements for lead assessors	Assessor who has demonstrated the competencies to conduct an assessment - Competent or Principal SPICE Assessor license issued by VDA QMC
2.	Requirements for non-lead assessors	Assessor who has demonstrated the competencies to conduct an assessment - Provisional, Competent or Principal SPICE Assessor license issued by VDA QMC

For more information …



Thank you for your attention …

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