20-21.07.2023

Łukasz Skuza, Dorota Pazera
Quality Assurance and Data Administration

IATF 16949 REQUIREMENTS

for engineering teams

APTIV

Training rules

Tests during training

Evaluation of the training

1 2 3 4 5 6

Test after evaluation

APTIV

Access to ISO 9001 and IATF 16949 standards

Access to ISO 9001 (and many others standards) is provided using ANSI portal.

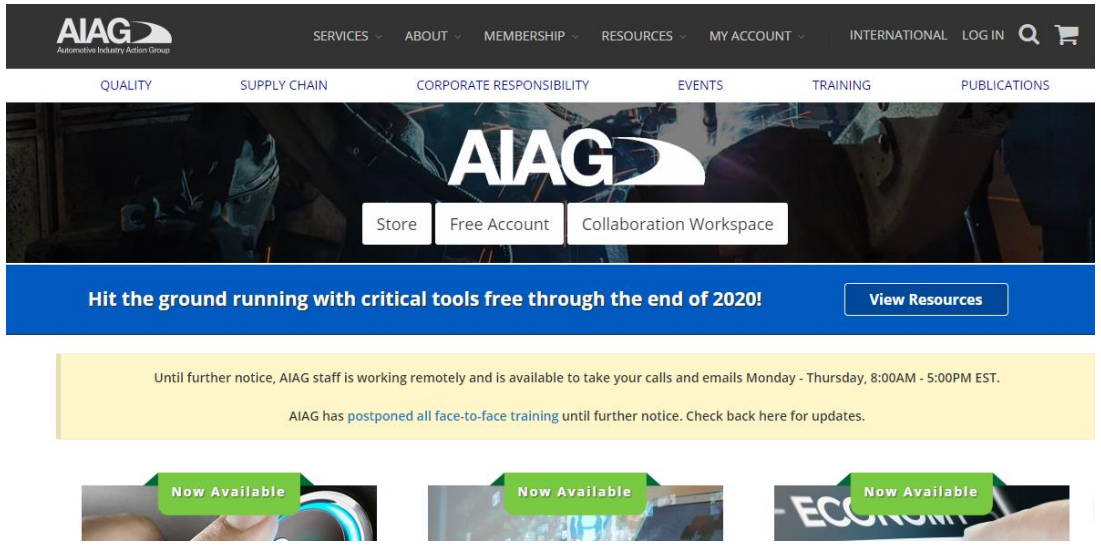
Aptiv Krakow Portal

Quality Assurance & Data Administration

Standards and external documentation

Combined text of ISO 9001 and IATF 16949 standards you can find HERE

Access to AIAG handbooks, so called *Core Tools* (PPAP, APQP, FMEA, SPC, MSA) and IATF 16949 using AIAG portal – INSTRUCTION.



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Scope of the training

By participating in the training:

- You will learn the most important requirements of the IATF 16949: 2016 standard.
- You will acquire the ability to interpret individual requirements and translate them into elements of the Quality Management System.
- You will understand the connection of IATF 16949: 2016 requirements with processes in the organization.
- You will understand the necessity to document the results of processes as required by IATF standard.

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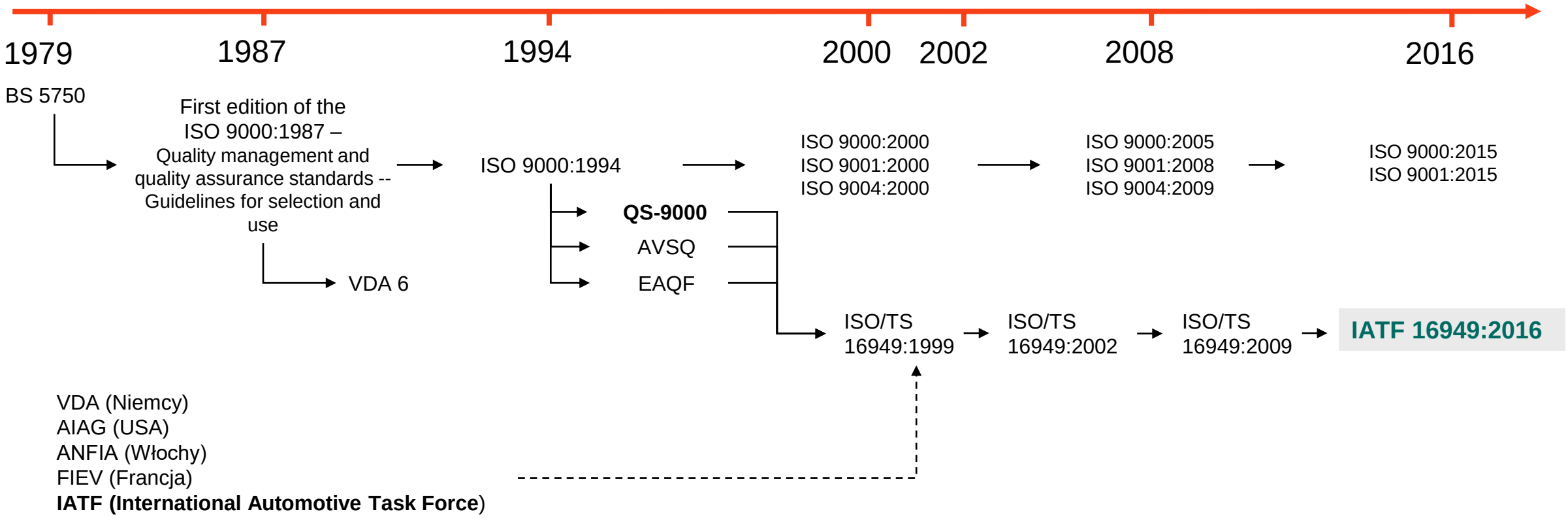
Introduction

APTIV

Development of quality management requirements in the automotive industry



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IATF 16949:2016 organization:

Standard IATF 16949 was developed by the International Automotive Task Force - a group of automotive manufacturers and their trade associations established to provide high-quality products to automotive customers around the world

IATF members:

- Ford Motor Company, General Motors Company, FCA US LLC (Stellantis), Iveco
- BMW Group, Volkswagen AG, Mercedes-Benz AG.
- Stellantis: FCA Italy Spa, PSA Group; Renault Group,
- Geely Group,
- AIAG (U.S.), ANFIA (Italy), FIEV (France), SMMT (U.K.) i VDA (Germany).

International Automotive Task Force

IATF 16949:2016 | Rules 5th Edition | IATF CB Communiqués | IATF Stakeholder Communiqués | OEM Requirements

Home > About IATF

About IATF

The IATF is an "ad hoc" group of automotive manufacturers and their respective National Automotive Industry Associations, formed to provide improved quality products to automotive customers worldwide. Specifically, the purposes for which the IATF was established are:

1. To develop a consensus regarding international fundamental quality system requirements, primarily for the participating companies' direct suppliers of production materials, product or service parts or finishing services (e.g. heat treating, painting and plating). These requirements will also be available for other interested parties in the automotive industry.
2. To develop policies and procedures for the common IATF third party registration scheme to ensure consistency worldwide.
3. To provide appropriate training to support IATF 16949 requirements and the IATF registration scheme.
4. To establish formal liaisons with appropriate bodies to support IATF objectives.

IATF members include the following vehicle manufacturers: BMW Group, Ford Motor Company, Geely Group, General Motors, IVECO Group, Jaguar Land Rover (JLR) Limited, Mercedes-Benz Group AG, Renault Group, Stellantis (ex FCA), Stellantis (ex PSA), Volkswagen AG and their respective National Automotive Industry Associations – AIAG (U.S.), ANFIA (Italy), FIEV (France), SMMT (U.K.) and VDA (Germany).

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ISO 9001:2015 + Suplement IATF 16949:2016 = Quality system requirements for automotive suppliers

REQUIREMENTS FOR QUALITY MANAGEMENT SYSTEM IN AUTOMOTIVE: IATF 16949:2016 SHOULD BE UNDERSTOOD AS A **SUPPLEMENT** TO STANDARD ISO 9001:2015 AND SHOULD BE USED IN CONNECTION WITH THIS STANDARD.

IATF 16949:2016 REQUIREMENTS

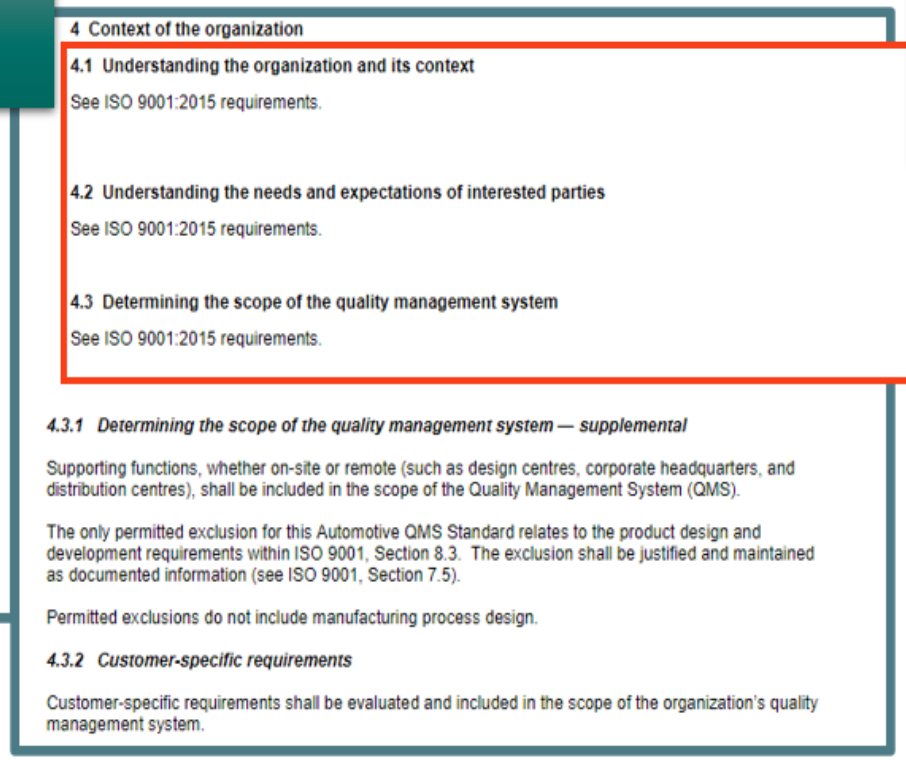
AUTOMOTIVE QUALITY MANAGEMENT SYSTEM STANDARD

IATF 16949

Quality management system requirements for automotive production and relevant service parts organizations

International Automotive Task Force

5th Edition
1 October 2016


4 Context of the organization

4.1 Understanding the organization and its context

See ISO 9001:2015 requirements.

4.2 Understanding the needs and expectations of interested parties

See ISO 9001:2015 requirements.

4.3 Determining the scope of the quality management system

See ISO 9001:2015 requirements.

4.3.1 Determining the scope of the quality management system — supplemental

Supporting functions, whether on-site or remote (such as design centres, corporate headquarters, and distribution centres), shall be included in the scope of the Quality Management System (QMS).

The only permitted exclusion for this Automotive QMS Standard relates to the product design and development requirements within ISO 9001, Section 8.3. The exclusion shall be justified and maintained as documented information (see ISO 9001, Section 7.5).

Permitted exclusions do not include manufacturing process design.

4.3.2 Customer-specific requirements

Customer-specific requirements shall be evaluated and included in the scope of the organization's quality management system.

REFERENCE TO ISO 9001:2015 REQUIREMENTS

INTERNATIONAL STANDARD

ISO 9001

Quality management systems — Requirements

Combined text of both standards HERE

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Requirements

IATF 16949:2016 STRUCTURE

IATF 16949:2016 REQUIREMENTS

AUTOMOTIVE
QUALITY MANAGEMENT
SYSTEM STANDARD

IATF 16949

Quality management system requirements for automotive production and relevant service parts organizations

International
Automotive
Task Force

1st Edition
1 October 2016

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REFERENCE TO ISO 9001:2015 REQUIREMENTS

INTERNATIONAL STANDARD

ISO 9001

Fifth edition
2015-09-15

Quality management systems — Requirements

Systèmes de management de la qualité — Exigences

Reference number
ISO 9001:2015(E)

© ISO 2015

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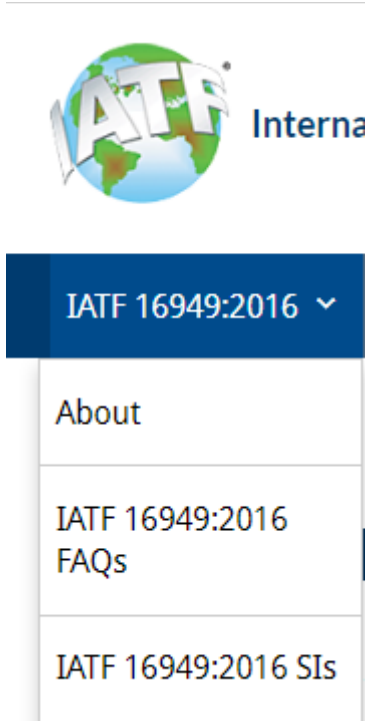
Questions, answers and interpretations – FAQ i SI

FAQ – clarification of an existing rule or requirement

SI – a change requirement, which, without taking it into account, is the basis for a finding of non-compliance.



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Questions, answers and interpretations – FAQ i SI

IATF - International Automotive Task Force

IATF 16949:2016 – Frequently Asked Questions (FAQs)

IATF 16949:2016 1st Edition was published in October 2016. In response to questions from the IATF recognized certification bodies and stakeholders, the following questions and answers were reviewed by the IATF. Unless otherwise indicated, Frequently Asked Questions are applicable upon publication.

An FAQ is an explanation of an existing requirement within IATF 16949:2016.

FAQ 1-11 issued in month of October 2017.
FAQ 12-20 issued in month of April 2018.
FAQ 21-22 issued in month of June 2018.
Revised FAQ 18 issued in month of October 2018.
Deleted FAQ 10 and FAQ 18 in month of November 2018.
FAQ 23-26 issued in month of March 2019.
FAQ 27-29 issued in month of August 2019.
FAQ 7 revised and reissued in the month of April 2021
FAQ 29 revised and reissued in the month of May 2022

IATF - International Automotive Task Force

IATF 16949:2016 – Sanctioned Interpretations

IATF 16949 1st Edition was published in October 2016 and was effective 1 January 2017. The following Sanctioned Interpretations were determined and approved by the IATF. Unless otherwise indicated, Sanctioned Interpretations are applicable upon publication.

SI 16 - 18 issued in October 2019, effective January 2020.
SI 4 revised and reissued in August 2020, effective September 2020
SI 19 issued in August 2020, effective October 2020
SI 20 issued in December 2020, effective January 2021
SI 10 revised and reissued in April 2021, effective June 2021
SI 3 revised and reissued July 2021, effective November 2021
SI 21-22 issued July 2021, effective November 2021
SI 10 revised and reissued in July 2021, effective August 2021
SI 23-25 issued May 2022, effective June 2022

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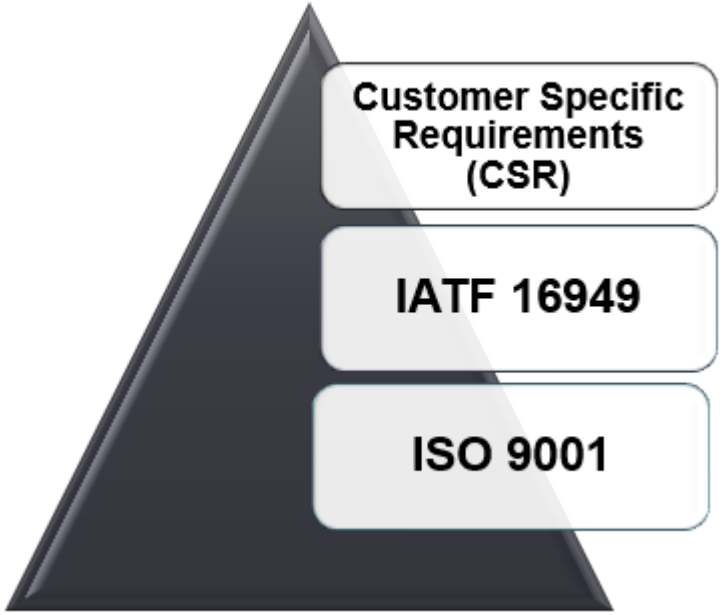
Customer Specific Requirements - CSR

CSR ARE SUPPLEMENTARY REQUIREMENTS OR INTERPRETATIONS RELATED TO THE IATF 16949 WHICH ALL SUPPLIERS IN THE AUTOMOTIVE INDUSTRY MUST TAKE INTO ACCOUNT WHEN DEVELOPING AND IMPLEMENTING QUALITY MANAGEMENT SYSTEM.



KUNDENSPEZIFISCHE ANFORDERUNGEN.
CUSTOMER SPECIFIC REQUIREMENTS.

QMT@bmw.de
September 2017
BMW GROUP THE NEXT 100 YEARS

SPEZIFISCHE ANFORDERUNGEN DER BMW GROUP.
SPECIFIC REQUIREMENTS OF THE BMW GROUP.

Kundenspezifische Anforderungen der BMW Group in Ergänzung zu den Anforderungen der IATF 16949:2016.

Customer specific requirements of the BMW Group in addition to the requirements of IATF 16949:2016.

Ausdrucke unterliegen nicht dem Änderungsdienst.

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BMW Group, Qualitätsmanagement, 80788 München, QMT@bmw.de

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Kundenspezifische Anforderungen - Version 2.0 - September 2017 – QMT@bmw.de Seite 2

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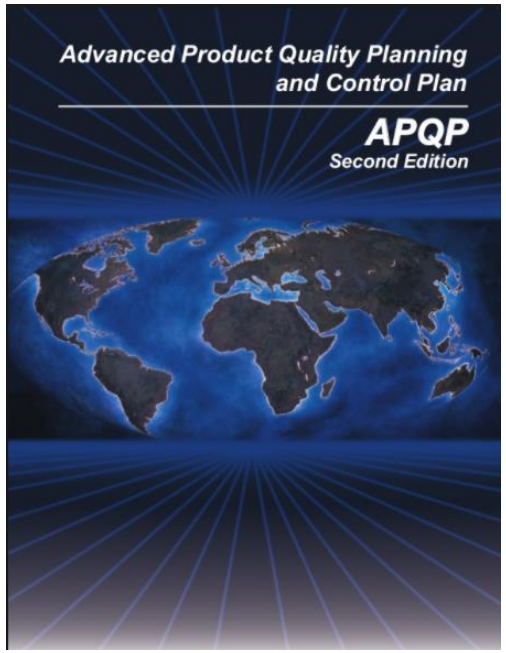
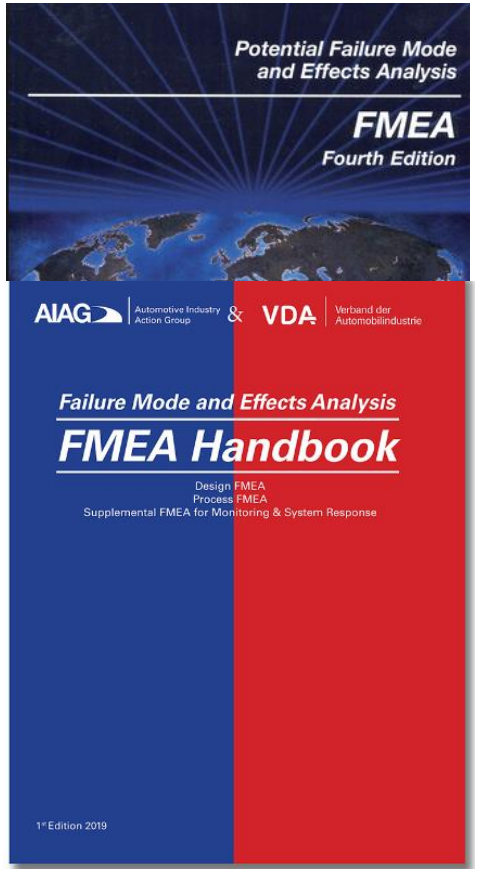
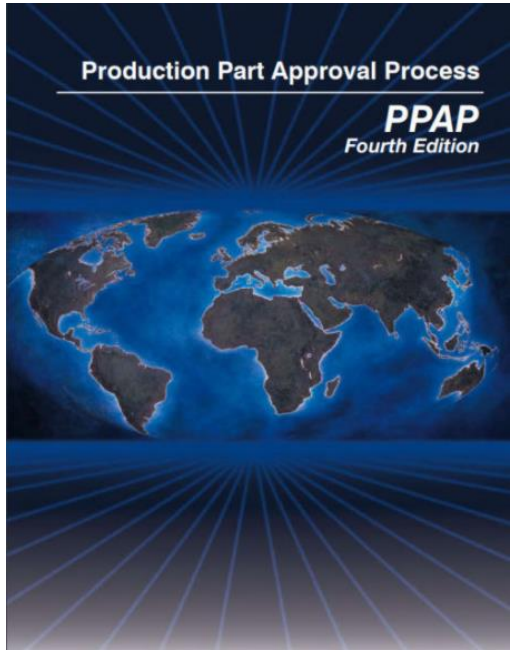
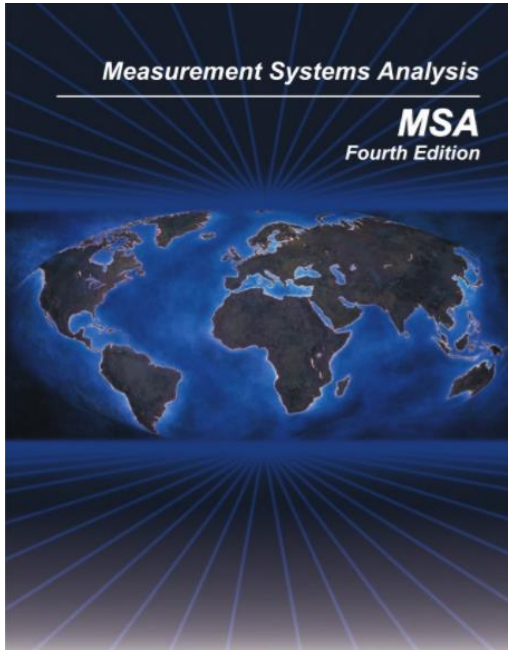
Core tools: AIAG (Automotive Industries Action Group)

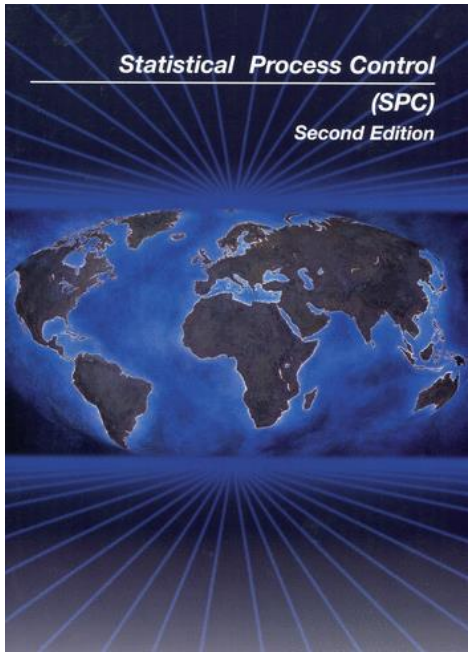
Instructions on how to obtain an AIAG account











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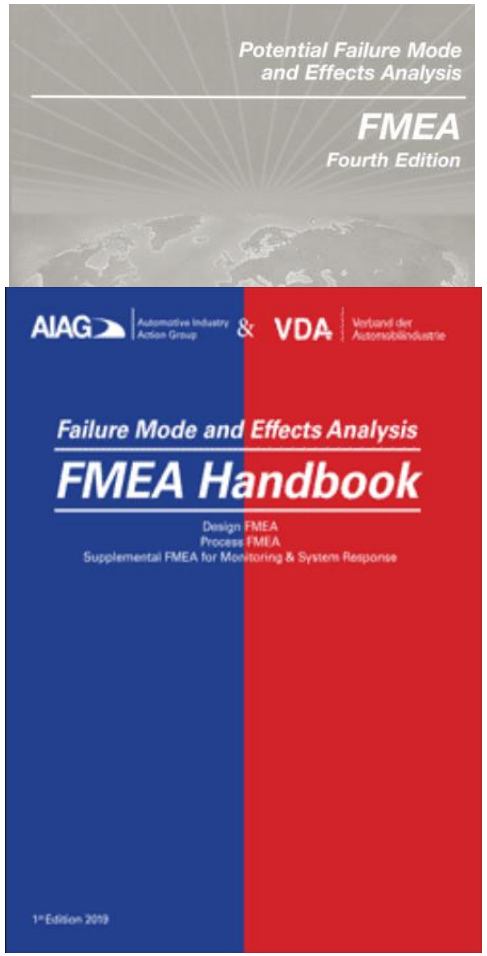
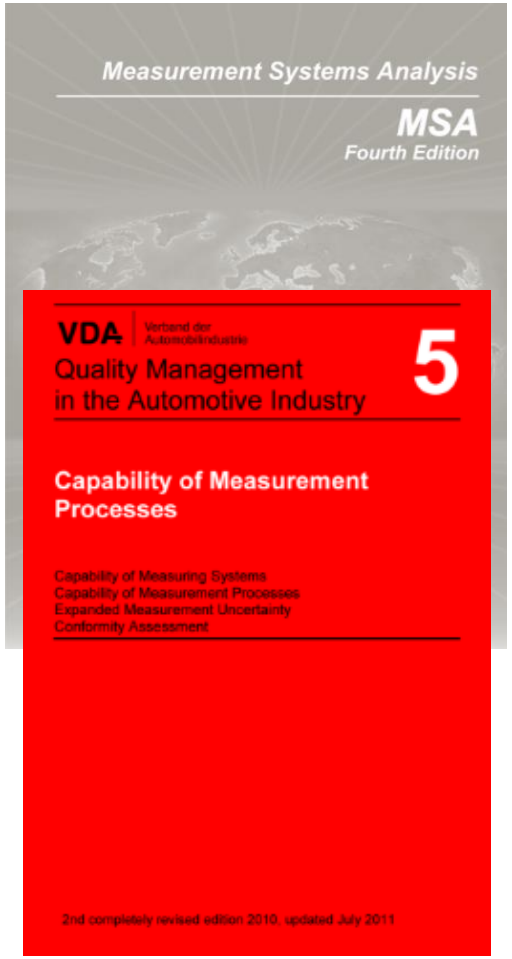
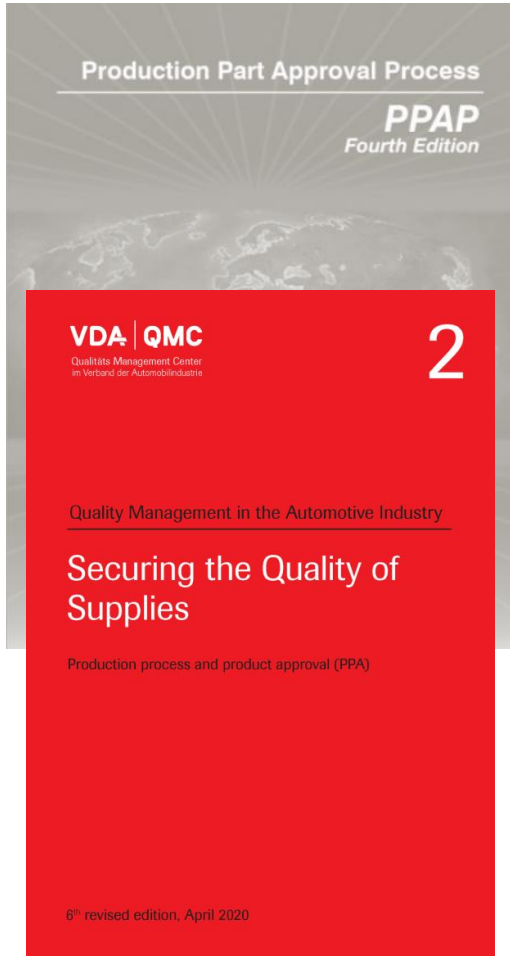
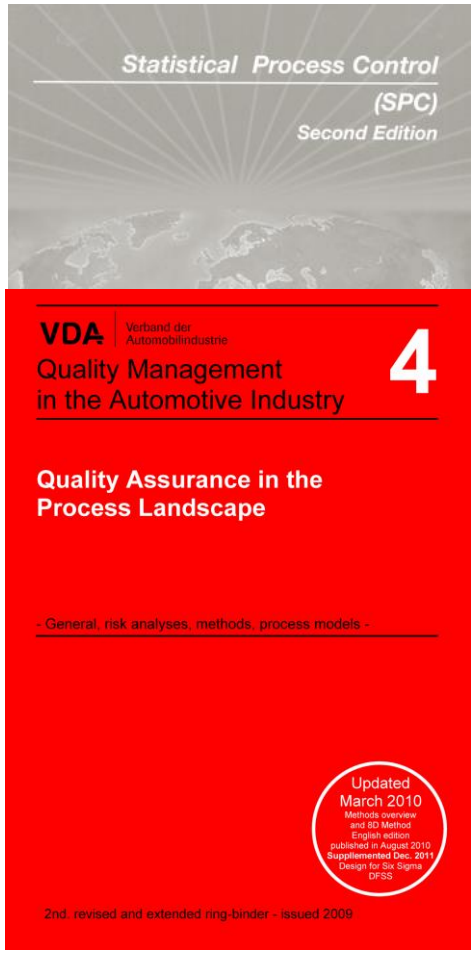
Core tools: AIAG vs VDA



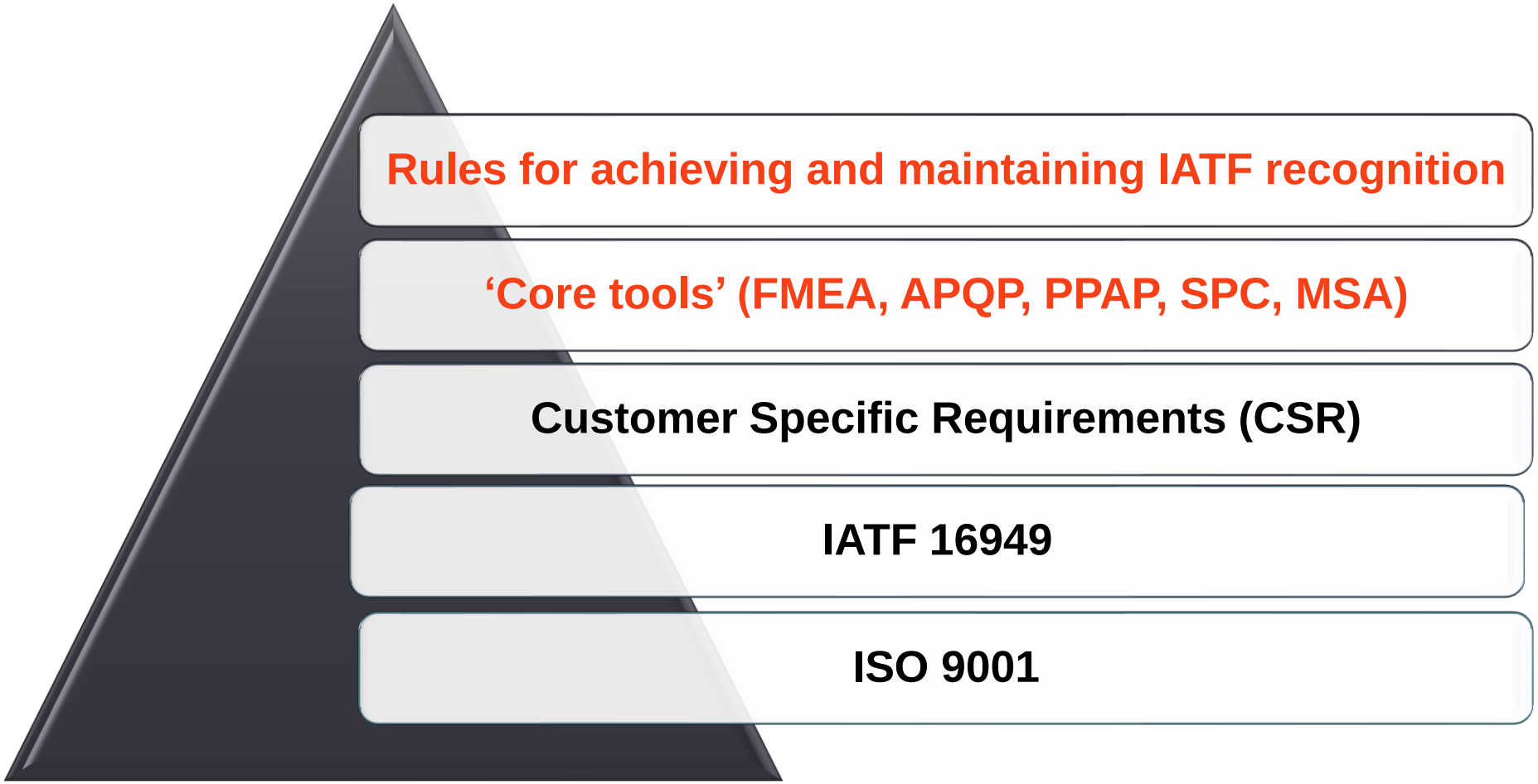






APTIV

Model of the automotive requirements



APTIV

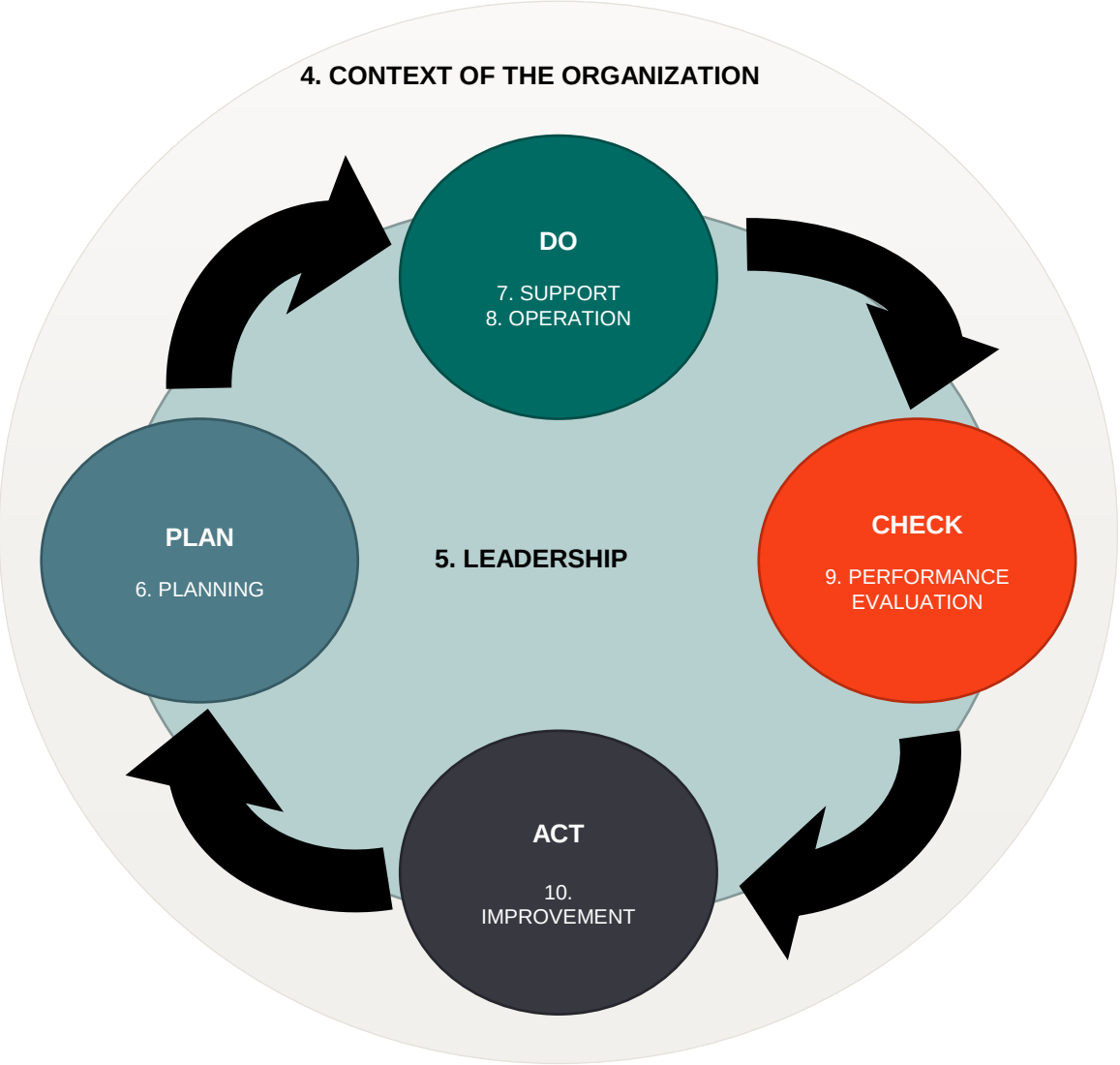
Requirements

IATF 16949:2016 STRUCTURE

QUALITY MANAGEMENT SYSTEM - REQUIREMENTS

1. SCOPE
2. NORMATIVE REFERENCES
3. TERMS AND DEFINITIONS
4. **CONTEXT OF THE ORGANIZATION**
5. **LEADERSHIP**
6. **PLANNING**
7. **SUPPORT**
8. **OPERATION**
9. **PERFORMANCE EVALUATION**
10. **IMPROVEMENT**

APPENDIX A: CONTROL PLAN



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General vocabulary:

Word **SHALL** - means requirement (a must have requirement).

Word **SHOULD** - means recommendation.

Word **MAY** means „allowed" – means admission.

Word **CAN** - means opportunity or ability.

Information marked with "NOTE" is indicative of an understanding or explanation of a related requirement.

The abbreviation that will often appear in the presentation is **QMS**, which stands for the Quality Management System.

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1.1 Scope – Automotive supplemental to ISO 9001:2015

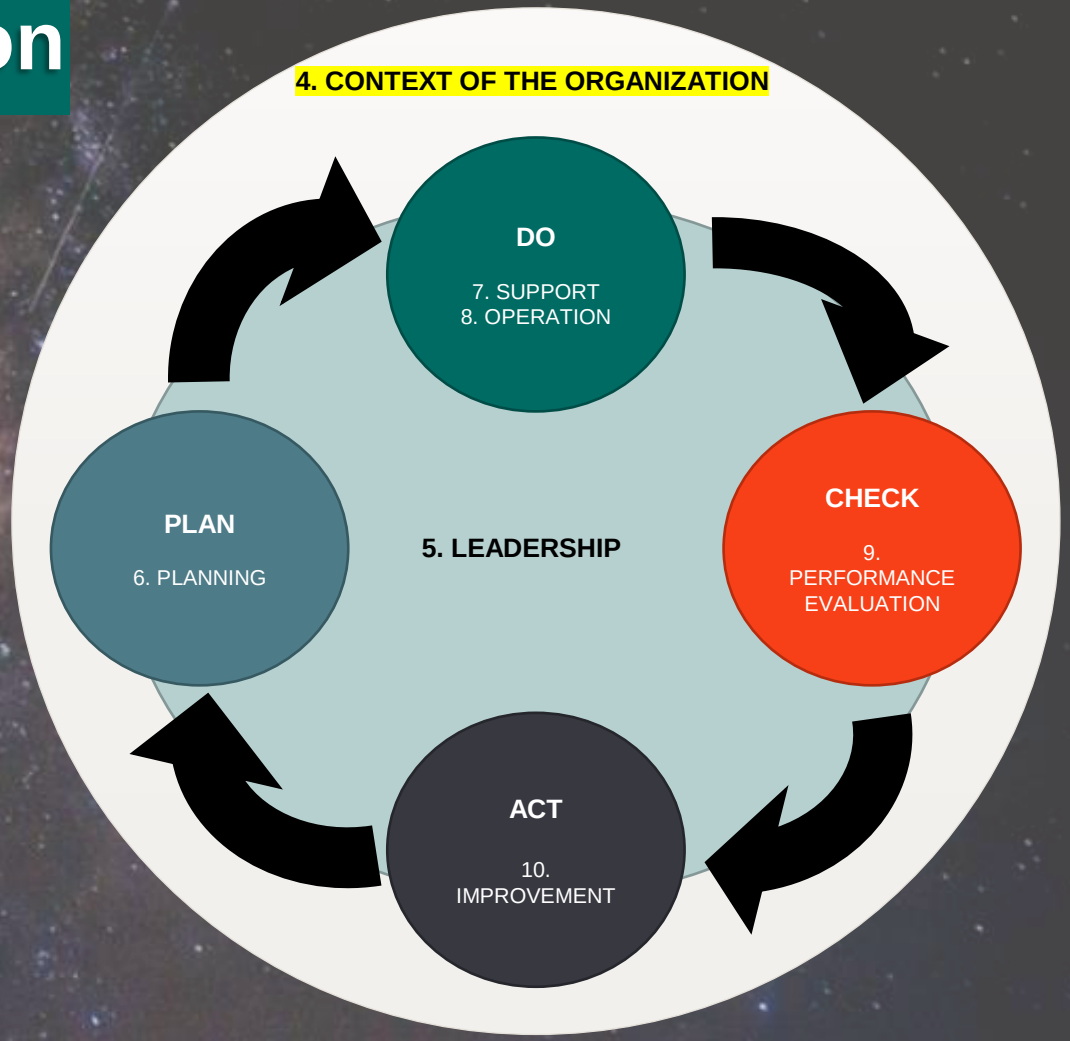
This automotive QMS standard defines the quality management systems requirements for the design and development, production and, when relevant, assembly, installation, and services of automotive-related products, including products with embedded software

This automotive QMS Standard is applicable to sites of the organization where manufacturing of customer-specified production-parts, service parts, and/or accessory parts occur.

This automotive QMS standard should be applied throughout the automotive supply chain.

APTIV

4. Context of the Organization



APTIV

4. Context of the Organization

4.1 Understanding the Organization and Its Context
4.2 Understanding the Needs and Expectations of Interested Parties
4.3 Determining the Scope of the Quality Management System
4.4 Quality Management System and its Processes

APTIV

4.1 Understanding the Organization and its Context

- The organization shall determine external and internal issues that are relevant to its QMS.
- EXTERNAL: legal requirements, technologies, competition, market, cultural, social and economic environment, international, national, regional, local.
- INTERNAL: related to the values, knowledge of the culture and performance of the organization.

The organization shall monitor and review information about these external and internal issues.

4.2 Understanding the Needs and Expectations of Interested Parties

The organization shall determine:

- a) the interested parties that are relevant to the QMS;
- b) the requirements of these interested parties that are relevant to the .

The organization shall monitor and review information about these interested parties and their relevant requirements

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Aptiv Krakow/ Aptiv implementation

Aptiv Krakow Portal

→ Quality

→ Context of the organization

Context of the Organization

INTERNAL ISSUES

Organizational strategy

- organizational structure (segment, BU, PL)
- vision, mission, policy,
- business plans and objectives

Employees

- safe and non-discriminatory work envinronment
- fair salaries / benefits

EXTERNAL ISSUES

Political and legal framework

- Legal / Government regulations
- Legal / Government decisions
- Permissions

Needs and Expectations of Interested Parties

INTERESTED PARTIES		NEEDS AND EXPECTATIONS OF INTERESTED PARTIES	MONITORING
INTERNAL	EMPLOYEES	1. Fair salary provided on time 2. Benefits 3. Equal Employment Opportunities, Diversity and Non-Discrimination Policy (compliance with ethics policy)	Employee's satisfaction survey
INTERNAL	APTIV SITES	1. Smooth transfer of project from flow 4 to flow 5 2. Efficient production control and logistic support	1. Complete documentation provided to the manufacturing location 2. Schedule monitoring, PUS attainment & coverage reports
	CUSTOMERS	1. Providing products according to the requirements 2. Meeting the quality, environmental and safety requirements (IATF 16949 / ISO 14001 / ISO 45001 / ISO/IEC 27001 / TISAX)	1. Quality metrics and customer scorecards / Regular checking of CSR (according to CSR matrix) 2. Current Certificates IATF 16949 / ISO 14001 / ISO 45001 / ISO/IEC 27001 / TISAX
	SUPPLIERS (component)	Cooperation according to the requirements	Feedback from the suppliers
	ACCREDITATION /CERTIFICATION BODY	1. Cooperation according to the requirements 2. Required audit documentation provided on time	Feedback from the certification body NC/OFI closed on time Current certificate
	PARTNERS (ex. universities)	Cooperation in the field of development of new technologies	Internships for students

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Context of the Organization

4.1 Context

- Context identifies internal and external issues

4.2 Interested parties

- Interested parties generate requirements

4.3 Scope of the QMS

- The requirements determine the scope of the QMS

4.4 Processes and its connections

- The scope determine processes and its connections

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4.3.2 Customer specific requirement

- Customer-specific requirements shall be evaluated and included in the scope of the organizations QMS.

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Aptiv Krakow/ Aptiv implementation

CSR are additional requirements of car manufacturers that all automotive suppliers must take into account when implementing and developing QMS.

CSR are sets of requirements based on the requirements of IATF 16949, with the extension of them.

What information does CSR's contain?

- APQP
- PPAP
- FMEA
- Special characteristics
- Documentation retention period
- Complaints management
- Records management
- Handling of a non-conforming product
- Problem solving methodology

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Aptiv Krakow/ Aptiv implementation

APTIV Krakow Portal

↓

Quality

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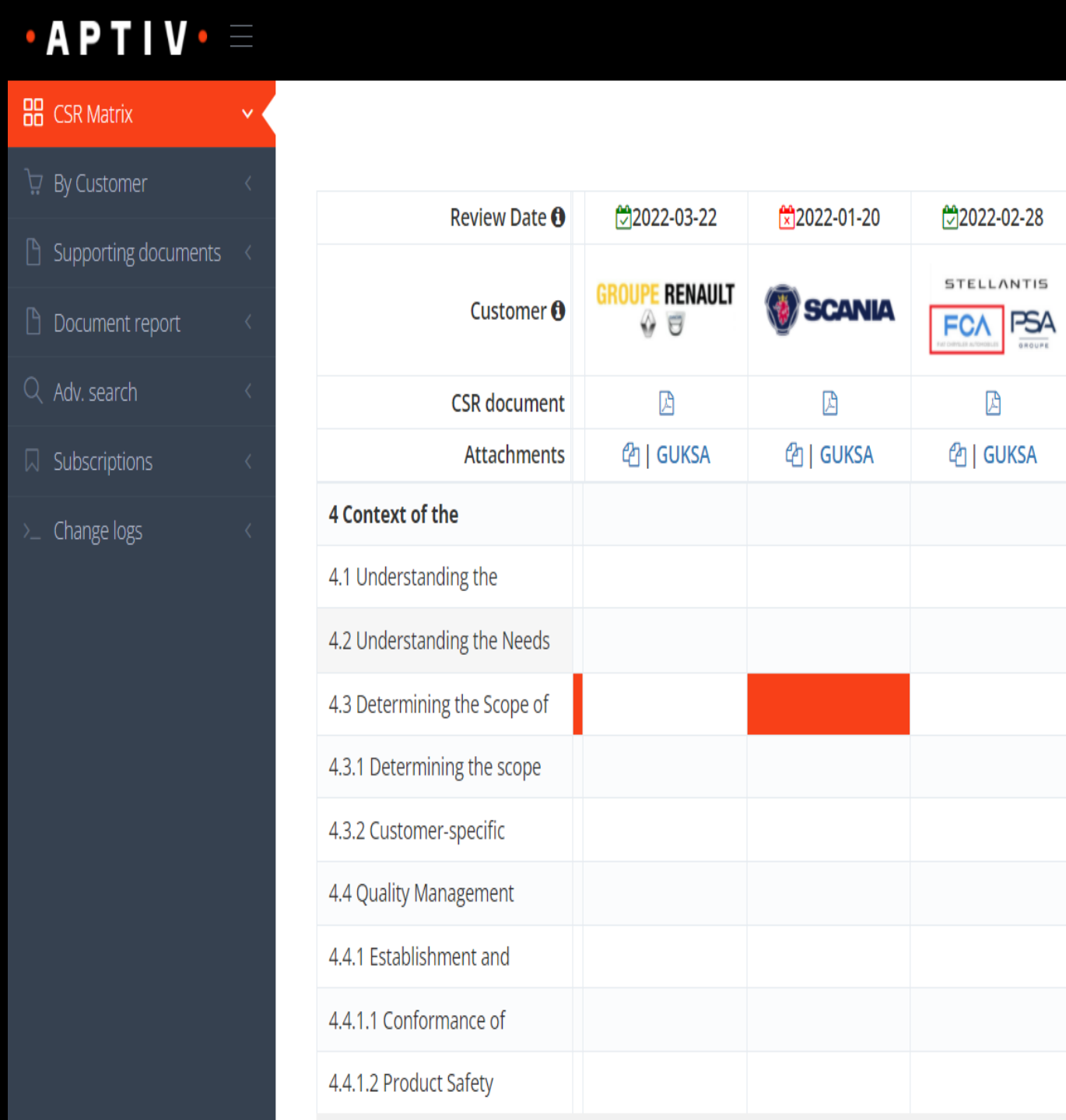
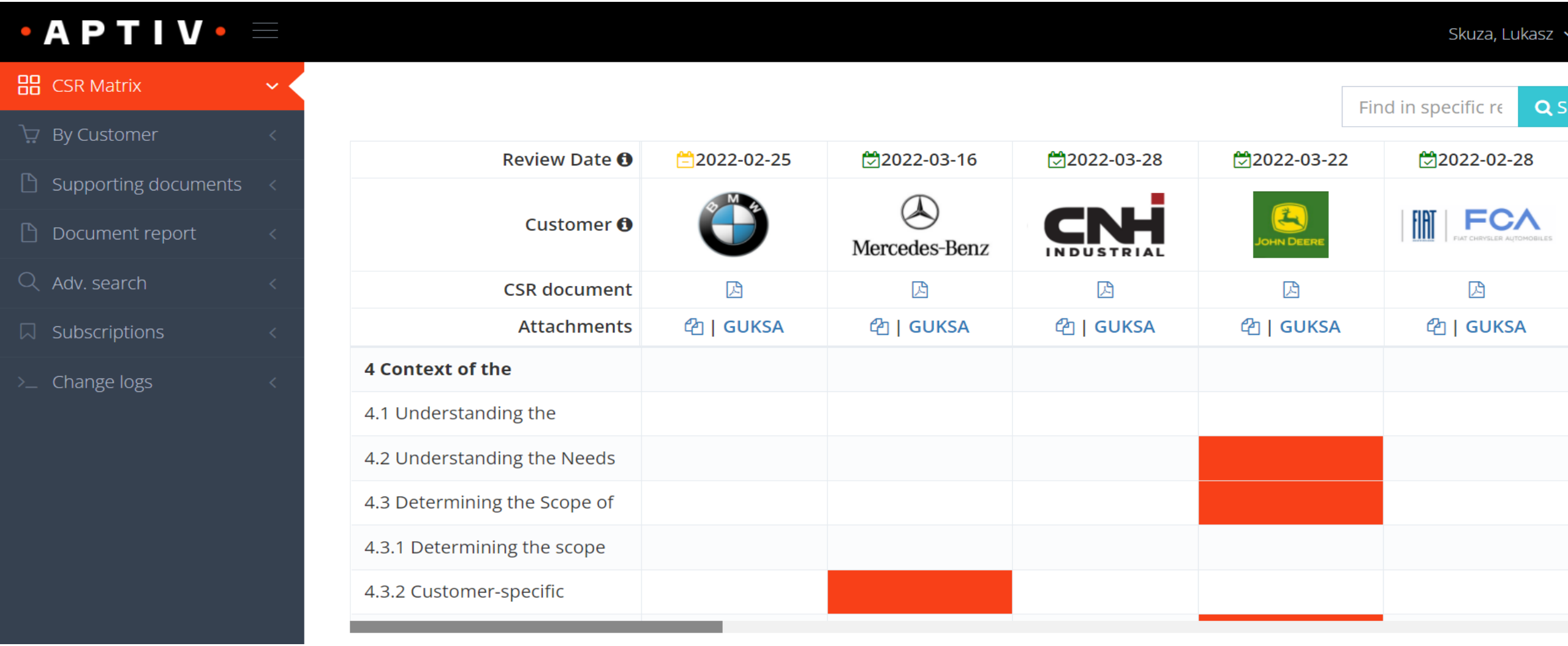


Customer specific requirements (CSR)

The matrix indicating the location of CSR in the Quality Management System and the method of their supervision



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Aptiv Krakow/ Aptiv implementation

IATF 16949:2016, pkt. 7.2.1 Competence – supplemental

The organization shall establish and maintain documented processes for identifying training needs including awareness (see section 7.3.1) and achieving competence of all personnel performing activities affecting conformity to product and process requirements.

Personnel performing specific assigned tasks shall be qualified, as required, with particular attention to the satisfaction of customer requirements.

PSA Group „Customer Specific Requirements for use with IATF 16949" May'18

The supplier shall be aware of PSA Group requirements (see also 5.5.2.1 Customer representative). The supplier shall evaluate the skills of the project teams involved in PSA Group projects. He shall identify the need of trainings in "**AQF**" (i.e. "Suppliers Quality Assurance") by an organism approved by PSA Group or by a supplier AQF representative after completion of specific training and agreement on specific contract established by PSA Group.

Aptiv Krakow/ Aptiv implementation

Not only car manufacturers have specific requirements, but also more significant suppliers who oblige their sub-suppliers (so-called Tier II) to fulfill certain requirements, and any deviations from this require the customer's consent.

APTIV

Aptiv
Customer Specific Requirements

For Use with ISO 9001:2015 and IATF 16949:2016

Effective June 20th 2022

4.4 Quality Management System and its Processes

The organization shall determine the processes needed for the quality management system and their application throughout the organization, and shall:

a) determine the inputs required and the outputs expected from these processes;

b) determine the sequence and interaction of these processes;

c) determine and apply the criteria and methods (including monitoring, measurements and related performance indicators) needed to ensure the effective operation and control of these processes;

d) determine the resources needed for these processes and ensure their availability;

e) assign the responsibilities and authorities for these processes;

f) address the risks and opportunities as determined in accordance with the requirements of 6.1;

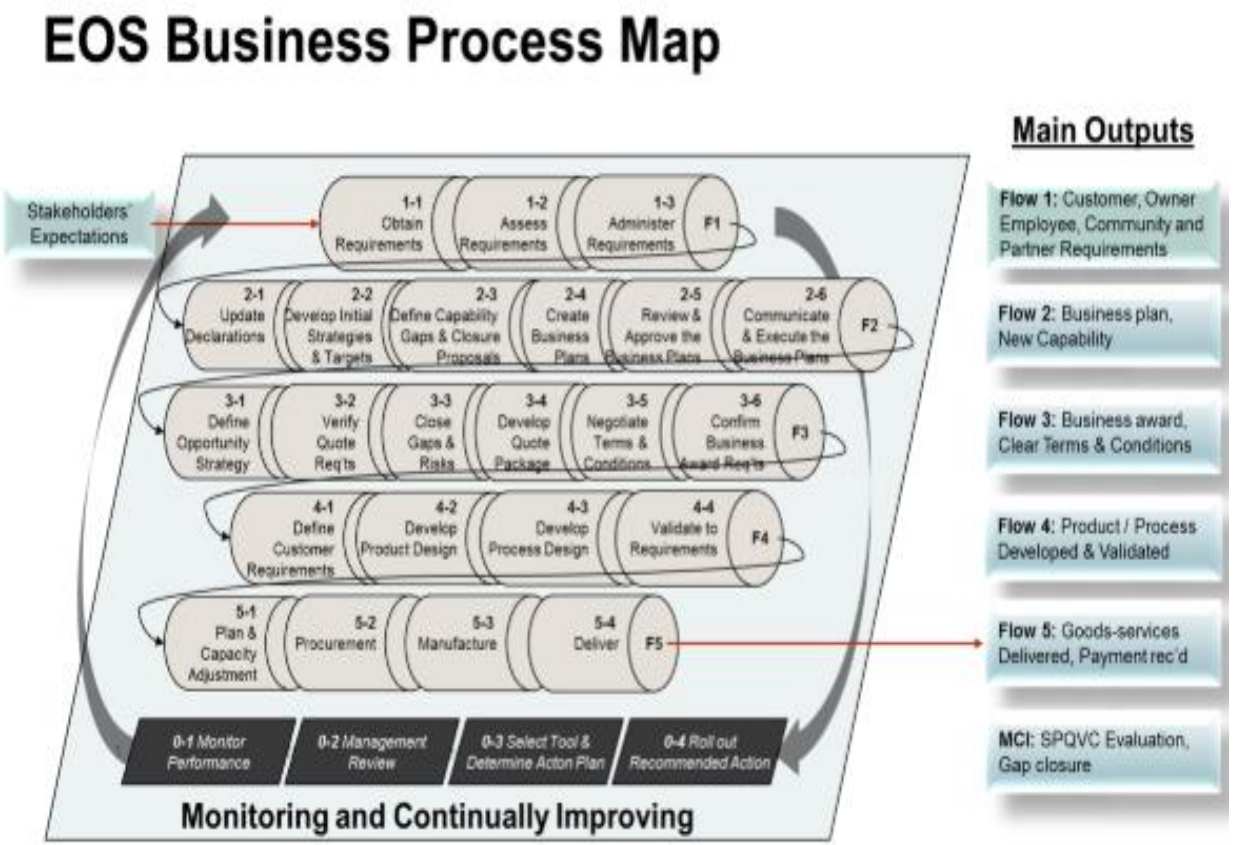
g) evaluate these processes and implement any changes needed to ensure that these processes achieve their intended results;

h) improve the processes and the quality management system.

Aptiv Krakow/ Aptiv implementation

The processes in Aptiv are defined with:

- EOS Business Process Map
- EOS Process cards



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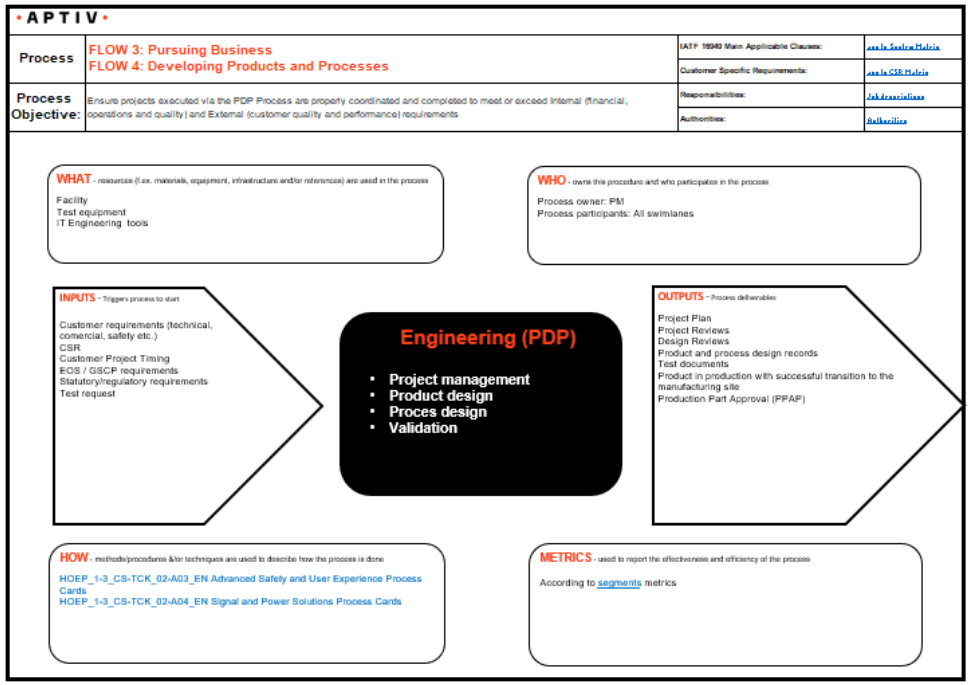
Aptiv Krakow/ Aptiv implementation

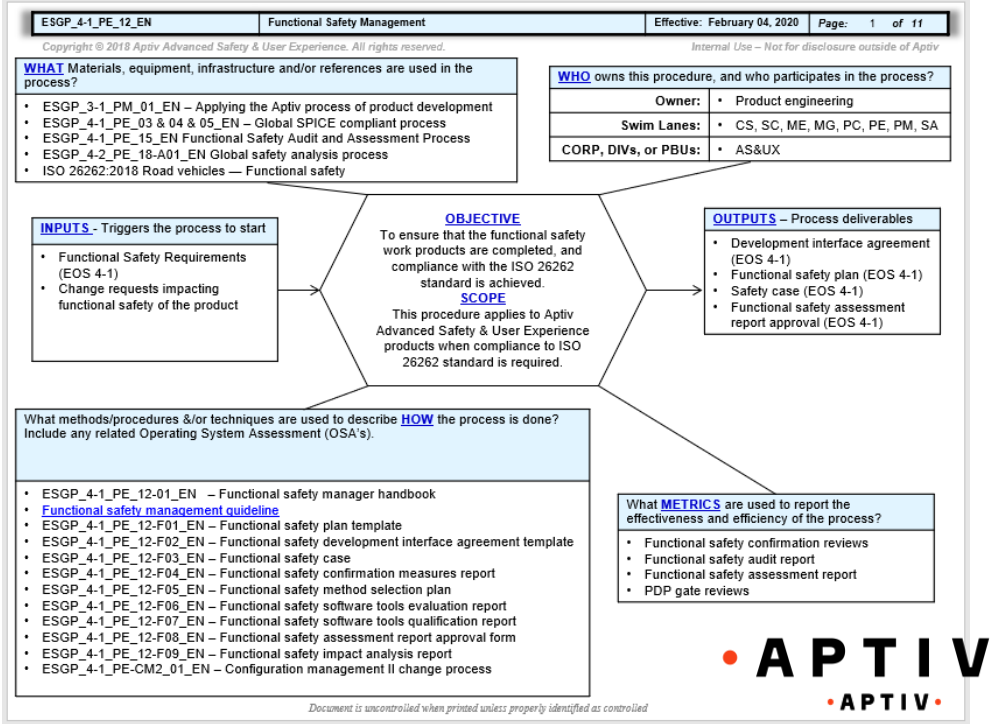
The processes taking place in TCK are additionally defined by the so-called *Process Cards*.

Aptiv Krakow Portal

- Quality
- Process Map & Process Cards

Detailed process inputs and outputs are defined in procedures.





4.4.1.1 Conformance of products and processes

The organization shall ensure conformance of all products and processes, including service parts and those that are outsourced, to all applicable customer, statutory, and regulatory requirements, including conformance to material requirements (see section 8.4.2.2.).

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Aptiv Krakow/ Aptiv implementation

TCK ensures compliance with requirement 4.4.1.2. by supervising the Specific Requirements of Customers, maintaining the "Statutory and regulatory requirements for TCK", databases such as DOORS, Polarion, as well as project reviews (Requirements Review).

Aptiv Krakow Portal
→ Quality
→ Learn More About Requirements
→ Legal & Other Requirements

APTIV

Statutory and regulatory requirements - examples

European Directives/Regulations

- **Directive 2014/35/EU** of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
- **Directive 2011/65/EU** of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
- **REGULATION (EU) 2018/858** OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC) No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC
- **EU Regulation for Automotive industry**
- **Changes in directives and regulations on motor vehicles, their trailers, systems and components**

United Nations Economic Commission for Europe (UNECE) – Vehicle Regulations

- **UN Regulation No. 10 - Rev.6** - Electromagnetic compatibility
- **UN Regulation No. 100 - Rev.3** - Electric power trained vehicles

NHTSA (National Highway Traffic Safety Administration) **issues FMVSS** (Federal Motor Vehicle Safety Standards)

- **§ 571.302** Standard No. 302; Flammability of interior materials
- **§ 571.305** Standard No. 305; Electric-powered vehicles: electrolyte spillage and electrical shock protection

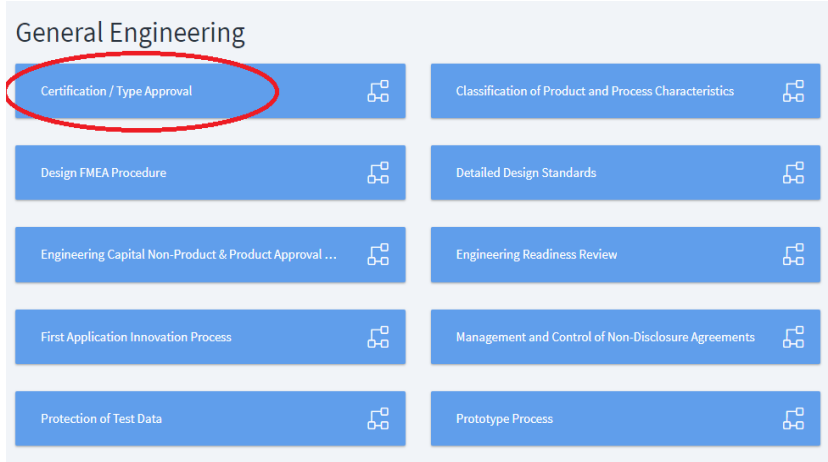
GB (NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA)

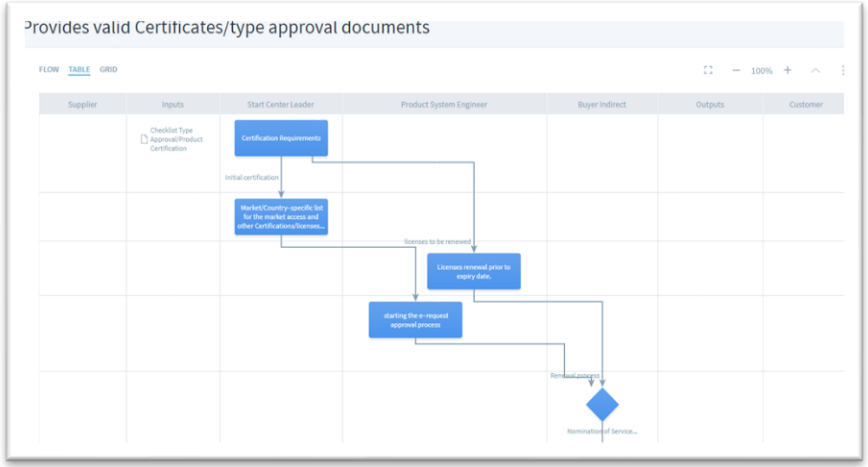
- **GB 8410-2006** Flammability of Automotive Interior Materials
- **GB 22757.2-2017** Energy consumption label for light-duty vehicles -- Part 2: For off-vehicle-chargeable hybrid electric vehicles and pure electric vehicles
- **GB 34660-2017** Road vehicles -- Requirements and test methods of electromagnetic compatibility
- **GB 21670-2008** Technical requirements and testing methods for passenger car braking systems

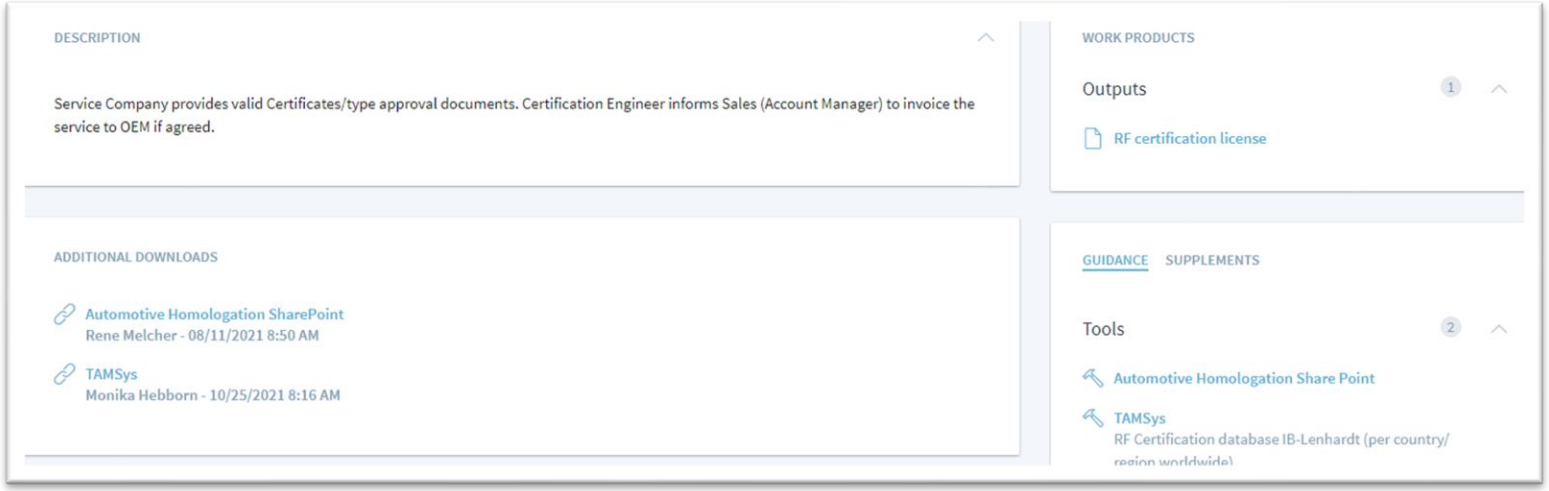
The European Automobile Manufacturers' Association

https://www.acea.auto/files/ACEA-Regulatory-Guide-2023.pdf

Certification / Type Approval







CONTACT PERSON:

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- SPS: Miszczak Filip

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Created: 2008-09-30 10:03, Updated: 2018-08-31

Welcome to the *Document Library* project

This project contains the Document templates. To create a new Document from the template click on *Create new* action.

Systems Requirements Templates

Document	Description	Actions
PDD_SysRS_Template	Provides an Outline for the Systems Requirements Specification.	Create new
PDD_FSC_Template	Povides an Outline for the Functional Safety Concept Document.	Create new

Systems Architecture Templates

Document	Description	Actions
PDD_SysAD_Template	Provides an Outline for the Systems Architecture Specification.	Create new

Software Requirements Templates

Document	Description	Actions
SWS_Template	Provides an Outline for the Software Specification.	Create new
SWS_Written_Template	Provides an Outline for the Software Specification.	Create new

Software Architecture Templates

Document	Description
SwAD_Generic_Template	Provides an Outline for the Software Architecture Specification.
SwAD_Template	Provides an Outline for the Software Architecture Specification.

DOORS

'ShRD' current 13.0 (Delivery_Z350) in /10031049_DMC/01_Stakeholder_REQs (Formal module) - DOORS

File Edit View Insert Link Analysis Table Tools Discussions User Change Management Help

View 01.010_Overview | All levels

- ShRD
  - <ShRD for Porsche Driver Monit
  - 1 K1 integration requirements
  - 2 00_FBK_Calibration
  - 3 01_Fahrerbeobachtungskame
  - 4 01_FBK_Head_Pose
  - 5 02_Fahrerbeobachtungskame
  - 6 02_FBK_Eye_State
  - 7 03_Fahrerbeobachtungskame
  - 8 03_FBK_Fake_Detection
  - 9 04_Fahrerbeobachtungskame
  - 10 04_FBK_Failsafe
  - 11 05_Fahrerbeobachtungskam
  - 12 05_FBK_Viewing_Target
  - 13 09_Fahrerbeobachtungskam
  - 14 10_FBK_Seat_Occupied
  - 15 30_FBK_Drowsiness
  - 16 90_FBK_Abbreviations
  - 17 91_FBK_Performances
  - 18 95_FBK_Measurement
  - 19 99_FBK_General
  - 20 FBK_Basis_Software
  - 21 Power Management
  - 22 System Functions
  - 23 Diagnostic
  - 24 Data Recording
  - 25 Run Time System
  - 26 Read Temperature
  - 27 Temperature Compensation
  - 28 LED Spread Compensation
  - 29 Over Temperature Protection
  - 30 Temperature Noise Compens
  - 31 Camera Change
  - 32 Fix Noise Pattern Download
  - 33 Camera Module Requirement

Object Identifier	Views & Attributes - Complete Stakeholder Documents	Object ID	Object_Type	Competency_to_Review	Comment Porsche to Delphi	Comment Delphi to Porsche	Status Delphi t
<Project>_ShRD_<ModuleName>_7	***<ShRD for Porsche Driver Monitoring Camera>*** • **Curent Version:** • **Document Owner [Delphi]: Grzegorz Gazda** For detailed information follow link to DML. **NOTE:** *<This document is an import from the original document.>*		Comment	N/A			tbd
<Project>_ShRD_<ModuleName>_13643	**1 K1 integration requirements**		Heading	N/A			tbd
<Project>_ShRD_<ModuleName>_13644	SWCs shall provide two entry points, init and main runnables. For TVIC and TVMaster there shall be additional entry points for early rearview.		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13645	All dynamic allocation, objects which consume system (CPU and GPU) memory resources within user space shall be completed during the initialization phase.		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13646	SWCs shall not attempt to change its assigned priority, scheduling policy or CPU core affinity.		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13647	The point the SWC returns control to the sequencer, from the main runnable, the SWC shall ensure there are no pending or background work active from that SWC. Except the limitations listed in TIR_1791. (PDD-XXXX)		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13648	SWC threads created during initialization, for execution during the main run phase, shall not run before the main runnable of the SWC is called by the sequencer. This does not include threads that are providing functionality that is required during the initialization of other SWCs.		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13649	At the point an image acquisiton SWC (TVIC and DM) returns to the sequencer it shall have ensured that any computation work done for it by the NVIDIA ISP, ISC and CA threads has completed.		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13650	The rotation shall be done on specific Hardware and shall not block the SWC.		Comment	N/A			tbd
<Project>_ShRD_<ModuleName>_13651	Acquire SWC shall indicate to sequencer when the combined vertical synchronization signal is received from the cameras.		Requirement	SW			tbd
<Project>_ShRD_<ModuleName>_13652	The acquire SWCs shall forward the vsync indication without executing any other functionality prior to forwarding the signal.		Requirement	SW			tbd

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4.4.1.2 Product Safety

The organization shall have **documented processes** for the management of the product-safety related products and manufacturing processes, which shall include but not be limited to the following, where applicable:

a) Identification by the organization of statutory and regulatory product-safety performance

b) Customer notification of requirements in item a);

c) Special approvals for design FMEA;

d) Identification of product safety-related characteristics;

e) Identification and controls of safety-related characteristics of product and at the point of manufacture;

f) Special approval of control plans and process FMEA's;

g) Reaction plans (see section 9.1.1.1);

h) Defined responsibilities, definition of escalation process and flow of information, including top management, and customer notification;

i) Training identified by the organization or customer for personnel involved in product-safety related products and associated manufacturing processes;

j) Changes of product or process shall be approved prior to implementation, including evaluation of potential effects on product safety from process and product changes (see ISO 9001, Section 8.3.6.);

k) Transfer of requirements with regard to product safety throughout the supply chain, including customer-designated sources (see Section 8.4.3.1);

l) Product traceability by manufactured lot (at a minimum) throughout the supply chain (see section 8.5.2.1);

m) Lessons learned for new product introduction.

NOTE: Special approval of safety related requirements or documents may be required by the customer or the organization's internal processes

APTIV

Customer safety requirements

CSR may include additional customer requirements in terms of product safety.

BMW & VW require defining a PSCR role in the organization (PRODUCT SAFETY AND CONFORMITY REPRESENTATIVES).

4.4.1.2	Der Lieferant muss einen Produktsicherheits- und Konformitätsbeauftragten (PSCR) im B2B Portal benennen und jährlich bestätigen bzw. aktualisieren. The supplier has to nominate a Product Safety and Conformity Representative (PSCR) in the B2B Portal and to confirm or update annually.	Sicherstellung der Produktsicherheit- und konformität zur Vermeidung von Produkthaftungsfällen. To assure product quality and conformity in order to avoid product liability cases.

4.4.1.2	Für die Freigabe von D- und P-FMEAs mit Merkmalen zur Produktsicherheit fordert die BMW Group keine Beteiligung ein. Die Freigabe obliegt ausschließlich den Sorgfaltspflichten des Lieferanten. The BMW Group does not require participation in the release of D- and P-FMEAs that contain critical characteristics concerning product safety. The release is part of the supplier's obligations.	Klarstellung zur „gesonderte Freigabe" von Design-FMEA. Clarification regarding „special approval" of Design-FMEA.

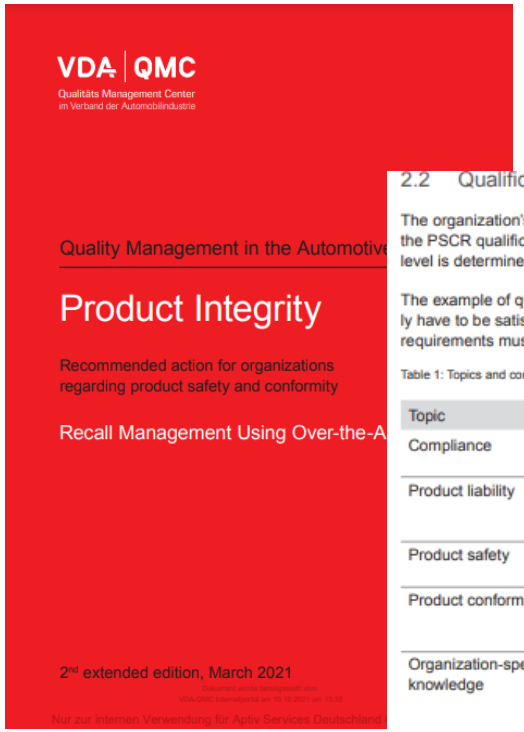
Customer safety requirements

Information on the role and competencies of the PSCR can also be found in the handbook VDA Product Integrity (VW require it in the CSR)

4.4.1.2 Product safety

VWAG requires a management role defined as “Product Safety & Conformity Representative (PSCR)”.
See Formel-Q-konkret, Chapter 4.2 "Product conformity officer as per VDA volume 'Product Integrity'" in www.vwgroupsupply.com

VW-specific Remark to “Note”: VWAG considers the “special approval” a responsibility of the supplier. No additional approval by VWAG is required.



2.2 Qualification requirements

The organization's executive management is responsible for the content and quality of the PSCR qualifications. The qualification requirements and the necessary qualification level is determined by the delegation cascade throughout the product life cycle.

The example of qualification requirements listed in the following table do not necessarily have to be satisfied by one person. However, to ensure product integrity these requirements must be covered in the organization.

Table 1: Topics and content for PSCR qualification

Topic	Content
Compliance	Obligation to comply with laws and directives, as well as the corporate culture shaped by voluntary codes
Product liability	Product knowledge related to the application-specific legal framework in terms of intended use and foreseeable misuse
Product safety	Basic knowledge of consumer protection legislation related to the application-specific legal framework
Product conformity	Basic knowledge of the relevant product approval laws and conformity requirements in the application-specific legal framework
Organization-specific product knowledge	Organization-specific product safety related knowledge in terms of development and production of the relevant product (standards, lessons learned, checklists, etc.)
Risk analysis and risk management	Basic knowledge of prevention (FMEA, FTA, Hazard&Risk, DRBFM, etc.)
	Handling of special characteristics
	Statistical methods (Weibull, etc.)
	Evaluation of the hazard risk, e.g. RAPEX, ACC
Problem-solving methods	8D, Ishikawa, Kepner Tregoe, 5Why, etc.
Customer-specific (safety) requirements	Internal organization checklists
Management and storage of documents	Basic knowledge of compilation and storage of development- and production-related documents
Preventive quality assurance	Basic knowledge (VDA Maturity Level Assessment, APQP)

Aptiv Krakow/ Aptiv implementation

Product management and manufacturing processes related to product safety are described for individual segments mainly on a global level, depending on the specificity of the products.

Product safety related documentation you can find in EOS:

ESGP_4-1_PE_12_EN - Functional Safety Management

ESGP_4-1_PE-SYS_02_EN - Product Requirements Allocation and Documentation

ESGP_4-1_PM_01_EN - Project Management Process

EAGP_4-2_PE_03_EN - Design Failure Mode and Effects Analysis (DFMEA)

ESGP_4-2_PE_05_EN - Design FMEA Procedure

ESGP_4-2_PE_02_EN - Classification of Product and Process Characteristics

EAGP_4-3_CS_01_EN - Control Plan (Prototype, Pre-Launch, Pilots, Production)

ESGP_4-3_ME_22_EN - Process FMEA

ESGP_5-4_CS_14_EN - Product Safety and Significant Field Issue Escalation Process

HOEP_2-6_HR-TCK_01_EN - Trainings/ Szkolenia

EAGP_4-1_ME_01_EN - Change Management Procedure

ESGP_4-1_PE-CM2_01_EN - Configuration Management II Change Process

Aptiv Customer Specific Requirements

ESGP_4-3_CS_02_EN - Lessons Learned

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APTIV

5. Leadership

APTIV

5. Leadership

5.1 Leadership and Commitment
- 5.1.1 General
- 5.1.2 Customer orientation

5.2 Policy
- 5.2.1 Establishing the Quality Policy
- 5.2.2 Communicating the Quality Policy

5.3 Organizational Roles, Responsibilities, and Authorities

APTIV

5.1.1 Leadership and Commitment

ISO 9001: 2015 + IATF 16949: 2016 requires the top management to be more involved in the QMS. Where the term "assurance" appears, top management can assign responsibility to others.

Where the words "promoting", "commitment", "supporting" appear, the activities cannot be outsourced and must be undertaken by top management.

Aptiv Krakow/ Aptiv implementation

Examples:

a) ensuring that the requirements of the QMS are integrated with the organization's business processes;

b) promoting the use of a process and risk-based approach;

c) engaging, directing and supporting those who contribute to the effectiveness of quality management;

d) promoting continual improvement.

TCK management demonstrates leadership by:

- ensuring the establishment of quality objectives for the QMS,
- ensuring adequate resources,
- promoting continuous improvement (MMR, AMR),
- participation in qualitative training,
- establishing awards for employees to honor their contribution to development ("Leszek Płonka - Software Engineering Award"),
- preparing risk and opportunity analyzes for our processes.

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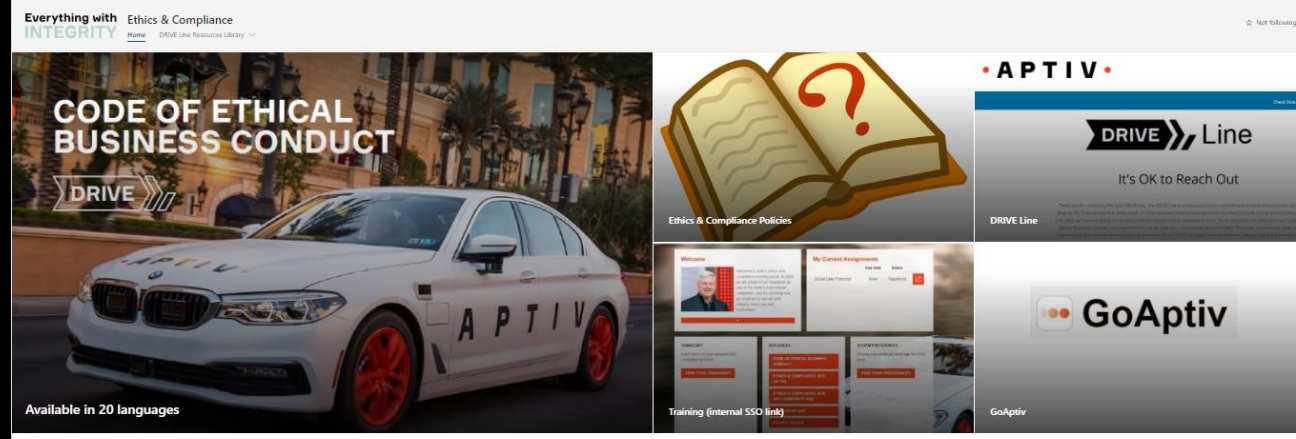
5.1.1.1 Corporate Responsibility

- The organization shall define and implement corporate responsibility policies, including at minimum an anti-bribery policy, an employee code of conduct, and an ethics escalation policy (“whistle-blowing policy”).

Aptiv Krakow/ Aptiv implementation

Aptiv Krakow Portal
→ Organizational Knowledge
→ DRIVE - Ethics and Compliance

Aptiv Krakow Portal
→ HR
→ Code of Ethical Business Conduct
lub
→ DRIVE - Ethics and Compilance



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5.1.1.2 Process effectiveness and efficiency

- Top management shall review the effectiveness and efficiency of the QMS for evaluation and improvement. The results of these reviews are the input to management reviews.

Effectiveness – Have we done it?

Efficiency – How many resources have we used?

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Aptiv Krakow/ Aptiv implementation

In TCK, the effectiveness and efficiency of processes is reviewed during monthly meetings called metrics:

Aptiv Krakow Portal

→ Quality

→ Quality Metrics

APTIV TCK SITE METRICS DASHBOARD

Flow 0: Monitoring and Continually Improving (QA&DA)

METRIC NAME:	METRIC STATUS:	TREND STATUS:	RISK ANALYSIS:
QMS audit actions closed on time	96,7%	POSITIVE	LOW RISK
TISAX audit actions closed on time	99,2%	POSITIVE	LOW RISK
Audit programme effectiveness	n/a	POSITIVE	LOW RISK

Flow 1-3: Administer Requirements (QA&DA)

METRIC NAME:	METRIC STATUS	TREND STATUS	RISK ANALYSIS
Standards delivered on time	100,0%	STABLE	LOW RISK
CSR matrix update	100,0%	STABLE	LOW RISK

Flow 2: Developing Strategies and Capabilities (TCK Management)

METRIC NAME:	METRIC STATUS	TREND STATUS	RISK ANALYSIS
Budget performance	-0,2%	NEGATIVE	LOW RISK
Forecast accuracy	-10,0%		FIO

2020 TCK SIGNAL & POWER S

Type of metrics: Efficiency/ Effectiveness	QVC	METRICS MEASURABLE OBJECTIVES	Metric definition	Green Yellow Red STATUS DEFINITION	REPORTING RESPONS.	REVIEW FREQ.
Effectiveness	Q	Official Internal Customer Complaints related to projects	Number of registered complaints complaint = any information (email, phone call, conversation) from internal source (plant/other site/DCS&DEC Management, Voice of Customer) resulting	0= Green >0= Red	T.ŚWIERCZYŃSKI	monthly
Effectiveness	V	No. of delays (T)	delay = target date which was agreed with customer wasn't met due to internal TCK reasons	0 = Green 0 -3 = Yellow >= 4 = RED	T.ŚWIERCZYŃSKI	monthly
Efficiency	C	Cost of tool corrections/cost of all tools (C)	Cost of tool corrections/cost of all tools tool correction = tool change after tool kick-off due to PE's mistake cost of all tools = cost of all tools during tooling production in tool shops (int or ext)	< 0,05 = Green 0,05 - 0,10 = Yellow >0,10 = Red	T.ŚWIERCZYŃSKI	monthly

APTIV

5.1.1.3 Process owners

Top management shall identify process owners who are responsible for managing the organizations processes and related outputs.

Process owners shall understand their roles and be competent to perform those role

APTIV

Aptiv Krakow/ Aptiv implementation

- Process owners are identified in process cards and procedures.
- Their responsibilities and entitlements are documented in the Job Descriptions, and Authority respectively.
- AS&UX: Roles defined in STAGES
- Competences are presented by Skills Matix.

Process card example for QA&DA Flow MCI:

WHO - owns this procedure and who participates in the process

Process owner: QADA Supervisor
Process participants: All swimlanes and processes

Process card example for Project Managementu AS&UX:

WHO owns this procedure and who participates in the process?	
Owner:	• PM
Swim Lanes:	• CS, BU, FI, SC,ME,MG,PE,SA
CORP, DIVs, or PBUs:	• ES

Process card example for Material Data Reporting S&PS:

WHO - owns this procedure and who participates in the process
Process Owner: Supervisor IMDS/Material Data & Environmental Reporting; Senior Product Environmental Engineer;
Process Participants: Requestor; Coordinator, Material/Standardization Engineer - Materials & Enviormental Engineer; Product Engineering, GSM, Manufacturing Engineering, Manufacturing, Quality, Customer Satisfaction, Customer

APTIV

5.2 Policy

Top management shall establish, implement and maintain a quality policy that:

- The quality policy is in line with the context of the organization and the purpose of its existence.
- Creates a framework for setting quality goals.
- It includes a commitment to continuously improve the QMS and meet the applicable requirements.

It is accessible, documented, communicated, understood and applied, and accessible to interested parties.

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Aptiv Krakow/ Aptiv implementation

Aptiv's Quality Policy Statement

Exceed Customer Expectations

APTIV

- The quality policy is documented in the EOS (HOEP_1-3_CS-TCK_02-A01_EN - TCK Quality Policy).
- It is located on the Aptiv Krakow Portal and in every building, on every floor in a visible place.
- It is also visible to interested parties on the site www.aptiv.com.
- It is passed on to new employees during two initial quality trainings.

5.3 Organizational Roles, Responsibilities, and Authorities

- Top management shall ensure that the responsibilities and authorities for relevant roles are assigned, communicated and understood within the organization.

Responsibility and authority are not the same!

APTIV

5.3.1 Organizational roles, responsibilities, and authorities – supplemental

Top management shall assign personnel with the responsibility and authority to ensure that customer requirements are met. These assignments shall be documented.

This should be documented and include but not be limited to:

- selection of special characteristics,
- setting quality objectives and related training,
- corrective and preventive actions,
- product design and development,
- performance analysis,
- logistic information,
- client scorecards,
- customer portals.

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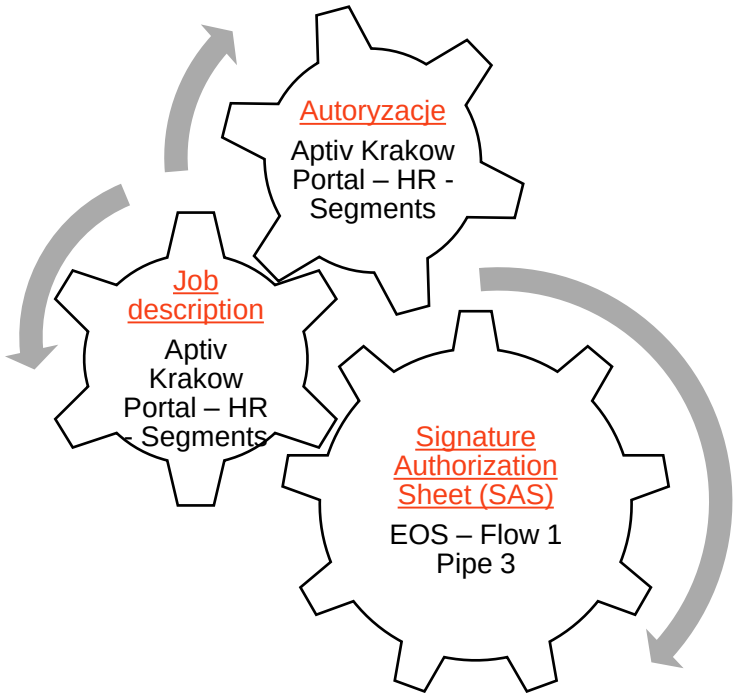
Aptiv Krakow/ Aptiv implementation

- In TCK, the responsibilities are defined in Job description.
- Authorities are definded in Authorities file on HR SharePoint.
- Financial permissions are defined in the file Signature Authorization Sheet (SAS) in EOS.
- The personnel responsible for ensuring that customer requirements are met are identified in the table on the right.



Zgodnie z HOEP_1-3_CS-TCK_02_EN Supplement to EOS Policy Manual describing the Quality Management System in TCK:

Advanced Safety and User Experience	Signal and Power Solutions	Site
Chief Engineers, Department Managers, Engineering Managers, Engineering Group Managers (EGM), Engineering Team Managers (ETM), Supervisors,	Application Engineers, Managers, Supervisors,	Directors, Managers, Supervisors,
oraz personel, który im podlega i posiada odpowiedzialności związane z zapewnieniem satysfakcji klienta w związku z codziennymi obowiązkami wypełnianymi na zajmowanym stanowisku pracy.		

APTIV

5.3.2 Responsibility and authority for product requirements and corrective actions

Top management shall ensure that:

a) Personnel responsible for conformity to product requirements have the authority to stop shipment and stop production.

b) Personnel with authority and responsibility for corrective action are promptly informed of products or processes that do not conform to requirements to ensure that nonconforming product is not shipped to the customer and that all potential nonconforming product is identified and contained;

c) Production operations across all shifts are staffed with personnel in charge of, or delegated responsibility for, ensuring conformity to product requirements.

APTIV

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APTIV

6. Planning

APTIV

6. Planning

6.1 Action to adress risk and opportunities
6.2 Quality Objectives and Planning to achieve them
6.3 Planning of changes

6.1 Action to adress risk and opportunities

- When determining risks and opportunities it is neccesary to refer to:
  - context of organization (internal and external issues and interested parties),
  - continous improvement,
  - preventing or reducing unwanted effects,
  - ensure that QMS can achieve its intended results.

- Actions taken to address risks and opportunities shall be:
  - proportionate to the potential impact on the conformity of products and services,
  - integrated and implemented into QMS processes,
  - evaluated for their effectiveness.

APTIV

How do we do it?

Risk assessment for TCK processes is available on Aptiv Krakow Portal

- Quality
- TCK Quality Items
- Risks & Opportunities Assessment for TCK

Group	Process	Factor or source of risk	Cause of the Risk	Preventive actions	Severity S	Occurence O	Risk Level I R=S*O	Risk owner	Risk treatme
QA&DA	FLOW MCI: Monitoring and Continually Improving	Annual audit program not realized	A large number of audits to be carried out compared to resources / Outside audits supporting by TCK	1. Audit planning done at the beginning of the year and ongoing monitoring of audits	3	1	3	QADA Supervisor	1. Audit plan verification (outside TCK vs in 2. New template for annual audit program
TCK Management	FLOW 2: Developing Strategies and Capabilities	Underestimated or overestimated budget	wrong estimation of budget / changes in the exchange rate	1.Monthly monitoring of forecast accuracy	2	1	2	Finance manager	Low risk level - no action required
Laboratories	FLOW 4: Developing Products and Processes	Yellow sticker on the equipment - scope of calibration not verified before the test	Not sufficient knowledge regarding calibration stickers	1. Calibration procedure in place 2. Knowledge regarding calibration stickers provided during quality trainings 3. Calibration certificates available on the disc	3	1	3	QADA / Metrology / Laboratory Managers	1. Awareness training regatding calibration personel - done 2. Calibration scope will be clearly defined i done 3. Definition of calibration stickers will be r done 4. Additional methods ensuring that persor execution check the scope of the calibratior 5. Additional review of calibration procedur performed
Laboratories	FLOW 4: Developing Products and Processes	Validation performed not on time	Nonconforming work/rejection of the validation report / necessity of retests/calibration delays	1. Validation procedures in place 2. Validation scheduling 3. Defined responsibilities/authorities and competences 4. Calibration planning	2	2	4	Laboratory Managers / PjMs	Acceptable risk level. No action required
Engineering	FLOW 4: Developing Products and Processes	Delays in the project	Insufficient resources - Lack of experienced engineers available on the market	1. Internal recruitment program 2. Cooperation with recruitment companies 3. Participation in job fairs 4. Cooperation with universities 5. Paid internships	2	2	4	Chiefs / HR	**Risk reduction 2018:** 1. enlarging the recruitment team - done 2. recruitment process re-definition - done 3. slots on linkedin (ordered) - done 4. recruitment-branding events - done 5. verification of recruitment agencies - in 6. strengthening employee perception on t progress 7. creation of direct sourcing function - don 8. external branding campaign - done
Facility	FLOW 5: Providing Goods and Services	Delays or interruptions in media deliveries	Limited media usage due to goverment restriction	action plan to be defined	3	1	3	Facility Manager	1. Contingency plan to be updated - action usage due to goverment restriction will be
Logistics	FLOW 5: Providing Goods and Services	High cost of deliveries	Delays in projects causing the need for special transports (premium freight); Time for Logistics handling not included in engineering planning and scheduling	1. Project timing coordinated by the PM 2. Internal monitoring of premium freights by Logistic 3. Logistic procedure " Shipment..." released	2	1	2	Logistic supervisor	Acceptable risk level. No action requred

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How do we do it?

Risk assessment for projects in AS&UX segment is conducted according to:

ESGP_3-6_PM_02_EN PDP Project Risk Management

ESGP_3-6_PM_02-F01_EN Risk Management Plan

Risk assessment for projects in S&PS segment is conducted according to:

EAGP_0-3_CS_13-F01_EN Risk and Opportunities Analysis Format

EAGW_4-1_PM_01_EN Program Launch Risk Assessment

ID	Name	CRI Priority	CRI Status	Type of CRI	Target Date A	Owner	Resolution Date	Associated Work	Probability	Risk Severity	Risk Value	CRI Category	CRI Escalation Leve
	Project understaffed	Urgent	Escalated	Scope	12/31/2023		12/29/2023			major (up to 4		Staffing	VP & MD
	Risk of missing SW/MFG requirements	Medium	Closed	Scope	12/31/2022					medium (less		Manufacturing	Project Manager
	Timing risk on the critical project path	Urgent	Open	Schedule	6/9/2023		12/29/2023			major (up to 4		Delivery	Program Director
	DV and PV builds delayed due to shortage of con	High	Transferrec	Schedule	4/21/2023		4/21/2023			medium (less		Validation	Program Director
	Skyworks tuners are FA	Medium	Closed		12/20/2022							Purchasing	Program Manager
	MFG SW features not ready for D-build	High	Open	Schedule	5/5/2023		6/30/2023			medium (less		Customer Buil	Project Manager
	Certification Benches delayed	Medium	Open	Schedule	5/15/2023		6/30/2023			medium (less		Certification	Program Manager
	Certification timing risk - country homologation	Urgent	Open	Schedule	8/31/2023		7/31/2023			medium (less		Certification	Program Manager
	SW may be not ready to start the certification	Urgent	Escalated	Schedule	12/29/2023		12/29/2023			major (up to 4		Certification	VP & MD
	Certification timing risk	Medium	Closed	Schedule	3/31/2023					major (up to 4		Certification	Program Manager
	Risk of technical complications	Medium	Closed	Schedule	2/7/2023					major (up to 4		Technology	Program Director
	DV may be delayed	Medium	Closed	Schedule	6/30/2023		2/1/2023			medium (less		Validation	Program Director
	ICT tester at D build at risk	High	Transferrec	Schedule	7/7/2023		7/7/2023			medium (less		Electricals	Program Manager
	D build not ready for PV tests	Medium	Open	Schedule	5/26/2023		6/30/2023			medium (less		Manufacturing	Program Director

How do we do it?

Risk assessment can be performed on different levels of detail depending on the risk, the purpose of analysis and availability of information and resources.

Risk analysis shall include, at a minimum:

- lessons learned for product recalls, product audits, field returns and repairs, complaints, scrap, and rework.
- cyber-attack threats to information technology systems

(IATF - 6.1.2.1).

According to Note 1 to requirement 6.1 options to address risks can include:

- avoiding risk
- taking risk in order to pursue an opportunity
- eliminating the risk source
- changing the likelihood or consequences
- sharing the risk
- retaining risk by informed decision

APTIV

6.1.2.2 Preventive action

The organization shall determine and implement actions to eliminate the causes of potential nonconformities in order to prevent their occurrence.

Preventive actions shall be appropriate to the severity of the potential issues.

The process of reducing the impact of negative risk effects should take into account:

- **determination of potential nonconformities** and their causes,
- **evaluation of the need** for preventive action,
- **implementing action**, their documentation and reviewing the effectiveness of the preventive action taken;
- **utilization of lessons learned** to prevent recurrence in similar processes

APTIV

How do we do it?

In risk assessment there is available Preventive actions column.

It includes the actions we take to eliminate the causes of potential non-compliance.

Process	Factor or source of risk	Cause of the Risk	Preventive actions
FLOW MCI: Monitoring and Continually Improving	Annual audit program not realized	A large number of audits to be carried out compared to resources / Outside audits supporting by TCK	1. Audit planning done at the beginning of the year and ongoing monitoring of audits
FLOW MCI: Monitoring and Continually Improving	NCs from internal audit not closed in a timely fashion	Focus on the current project activities	1. Audit procedure in place 2. Quality coordinators supporing processs owner in closing NCs 3. Ongoing communication with the owners of corrective actions
FLOW MCI: Monitoring and Continually Improving	Lost of IATF certificate / decertification process	Not meeting IATF requirements	1. Quality team responsible for monitoring and implementation of IATF requiremets 2. IATF requirements implemented into the APTIV procedures 3. Internal audits according to new IATF requirements
FLOW MCI: Monitoring and Continually Improving	Not sufficient quality awareness among the employess	Lack of one defined method confirming that all employees are aware of their ompact on product quality	1. NHO trainings in place 2. IATF 16949 trainings 3. EOS trainings 4. 'Quality messages' during the EGM meetings
FLOW 1: Managing Stakeholders Requirements	Delays in checking of external standards (norm and CSRs)	Not enought people in quality team due to rapid changes in organization size	1. Procedure 'Control of external standards' in place
FLOW 1: Managing Stakeholders Requirements	Lack of access to the APTIV documentation by employees	EOS failure	1.Ticket to the Service Now 2. Backups
FLOW 2: Developing Strategies and Capabilities	Site Metrics do not meet target	One or more metrics out of the target	1. Regular review of metrics with the Site Management

APTIV

6.1.2.3 Contingency plans

Organization shall:

- define contingency plans according to risk and impact to the Customer taking into acount internal and external risks to all manufacturing processes and infrastructure equipment essential to maintain production output and to ensure that customer requirements are met;
- periodically test the contingency plans for effectiveness;
- conduct contingency plan reviews (at a minimum annually) using a multidisciplinary team including top management, and update as required;
- document contingency plans.

APTIV

How do we do it?

Local documents related to contingency plans/emergency plan:

HOEP_5-1_FC-TCK_01-A4_EN TCK Contingency Plan

HOEP_5-1_FC-TCK_01_EN BUSINESS CONTINUITY PLANNING AT TCK

HOEP_5-1_FC-TCK_02_EN Site Emergency Plan For the Technical Center in Kraków

HOGP_5-1_MG_01_EN Contingency Planning

Fire Safety Manuals for all buildings and Business Recovery Plans are available in EOS (link).

Evidence of contingency plan/emergency plan review:

Annual Management Review
January – December 2022

O. Review of emergency and contingency plan

- Procedure HOEP_5-1_FC-TCK_01_EN Business continuity planning at Aptiv Krakow was completely reviewed and updated in July 2022.
- Procedure HOEP_5-1_FC-TCK_02_EN Site Emergency Plan For the Technical Center in Kraków was reviewed and updated in August 2022.
- Work instruction HOEW_5-1_FC-TCK_01-02_EN BUSINESS RECOVERY PLAN – Signal and Power Solutions was completely reviewed and updated in March 2022, last update in November 2022.
- HOEP_5-1_FC-TCK_01-A4_EN TCK Contingency Plan was completely reviewed and updated in July 2022, last update in December 2022.

Reference documentation: EOS notification

Topics requiring action: The next review of documents above is planned in year 2023.

APTIV

6.2 Quality Objectives and Planning to Achieve Them

The organization shall establish quality objectives at relevant functions, levels and processes needed for the quality management system.

The organization shall maintain documented information on the quality objectives.

Quality objectives shall be communicated and updated as appropriate (at least annualy).

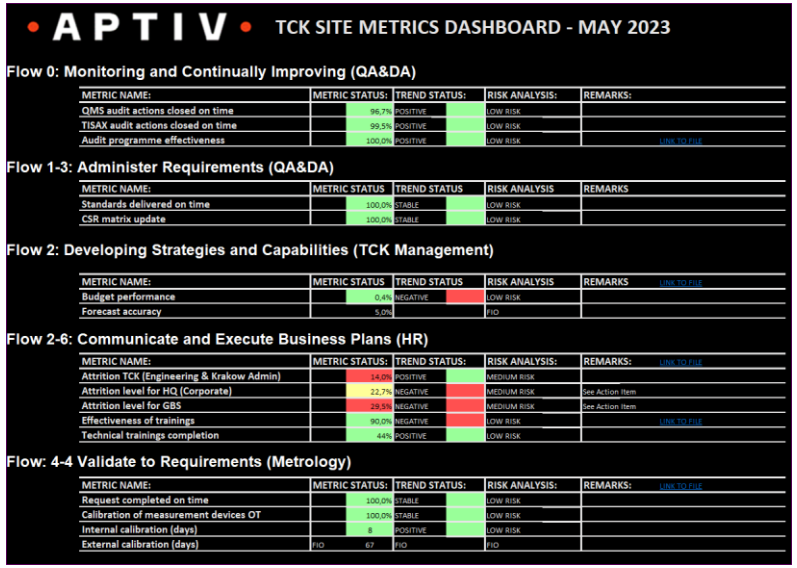
APTIV

How do we do it?

- Objectives for particular processes are set at the beginning of each year e.g. TCK Site Metrics.
- Goals for each employee are set during the first phase of the Grow@Aptiv process by their supervisor.
- Goals are cascade according to scheme below:

Organization's objectives → Supervisor's objecjectives → Employees' objectives

- TCK Site Metrics



APTIV TCK SITE METRICS DASHBOARD - MAY 2023

Flow 0: Monitoring and Continually Improving (QA&DA)

METRIC NAME:	METRIC STATUS:	TREND STATUS:	RISK ANALYSIS:	REMARKS:
QMS audit actions closed on time	96.7%	POSITIVE	LOW RISK	
TISAX audit actions closed on time	99.5%	POSITIVE	LOW RISK	
Audit programme effectiveness	100.0%	POSITIVE	LOW RISK	LINK TO FILE

Flow 1-3: Administer Requirements (QA&DA)

METRIC NAME:	METRIC STATUS	TREND STATUS	RISK ANALYSIS	REMARKS
Standards delivered on time	100,0%	STABLE	LOW RISK	
CSR matrix update	100,0%	STABLE	LOW RISK	

Flow 2: Developing Strategies and Capabilities (TCK Management)

METRIC NAME:	METRIC STATUS	TREND STATUS	RISK ANALYSIS	REMARKS LINK TO FILE
Budget performance	0,4%	NEGATIVE	LOW RISK	
Forecast accuracy	5,0%		FIO	

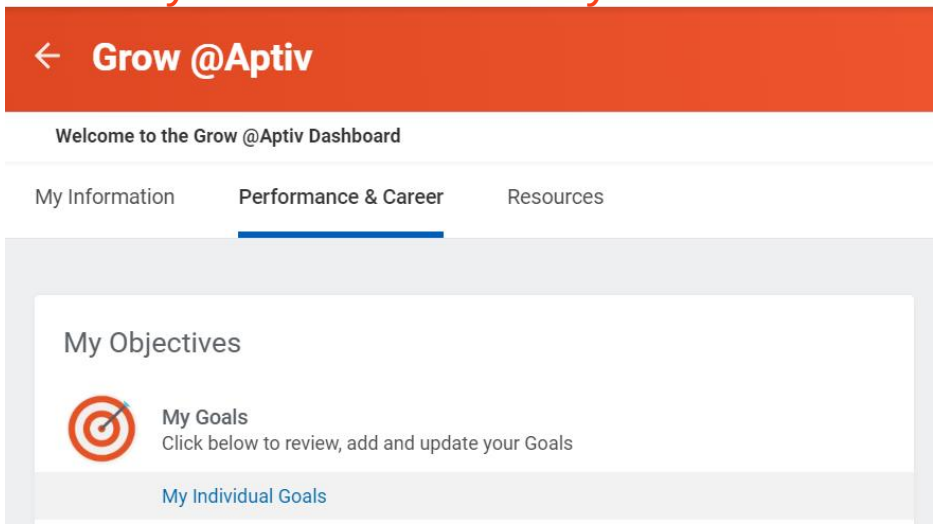
Flow 2-6: Communicate and Execute Business Plans (HR)

METRIC NAME:	METRIC STATUS:	TREND STATUS:	RISK ANALYSIS:	REMARKS: LINK TO FILE
Attrition TCK (Engineering & Krakow Admin)	14,0%	POSITIVE	MEDIUM RISK	
Attrition level for HQ (Corporate)	22,7%	NEGATIVE	MEDIUM RISK	See Action Item
Attrition level for GBS	29,5%	NEGATIVE	MEDIUM RISK	See Action Item
Effectiveness of trainings	90,0%	NEGATIVE	LOW RISK	LINK TO FILE
Technical trainings completion	44%	POSITIVE	LOW RISK	

Flow: 4-4 Validate to Requirements (Metrology)

METRIC NAME:	METRIC STATUS:	TREND STATUS:	RISK ANALYSIS:	REMARKS: LINK TO FILE
Request completed on time	100,0%	STABLE	LOW RISK	
Calibration of measurement devices OT	100,0%	STABLE	LOW RISK	
Internal calibration (days)	8	POSITIVE	LOW RISK	
External calibration (days)	FIO 67	FIO	FIO	

- Cele indywidualne - Workday



APTIV

Quiz

https://forms.office.com/r/kUtuKFtN21

APTIV

7. SUPPORT

APTIV

7. Support

7.1 Resources
- 7.1.1 General
- 7.1.2 People
- 7.1.3 Infastructure
- 7.1.4 Environment for the operation of processes
- 7.1.5 Monitoring and Measuring Resources
- 7.1.6 Organizational Knowledge

7.2 Competence

7.3 Awareness

7.4 Communication

7.5 Documented infomation
- 7.5.1 General
- 7.5.2 Creating and updating
- 7.5.3 Conrol of documented information

APTIV

Recources

People

Infrastructure

(buildings and related utilities; equipment, including hardware and software; transport resources; information and communication techniques)

Monitoring and measuring resources

(resources needed to ensure valid and reliable results)

Organizational Knowledge

(intellectual property, lessons learned; results of the improvement of processes, products and services)

Environment for the Operation of Processes

(combination of human and physical factors such as calm, stress reduction, non-discrimination, prevention of exhaustion, temperature, heat, humidity, lighting, noise). Keeping the facilities in order, clean and renovated.
ISO 45001

APTIV

7.1.2 People

- The organization shall determine and provide the persons necessary for the effective implementation of its quality management system and for the operation and control of its processes.

APTIV

How do we do it?

HOEP_2-6_HR-TCK_02_EN Human resources management proces

Human resources management process consists of the following stages:

- Planning and approval of the number of employees
- Recruitment and selection process
- Human resources development: trainings and Grow@Aptiv process
- Termination of employment

APTIV

Aptiv Services Poland S.A.
Technical Center Kraków

Departmental Procedure Manual
Procedure No. HOEP_2-6_HR-TCK_02_EN 15.06.2023
Subject of the Procedure: HUMAN RESOURCES MANAGEMENT PROCESS / PROCES ZARZĄDZANIA PERSONELEM
Page 2 of 24

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PURPOSE

The objective of this procedure is to define the most critical personnel management processes at the Aptiv Kraków Branch in order to ensure that all Aptiv Kraków Branch employees are recruited, trained and supported by the organization in accordance with their potential as well as Aptiv business objectives.

SCOPE

This procedure applies to all Aptiv Kraków Branch employees, regardless the type of employment contract they have with Aptiv. This procedure does not apply to persons having non-employment contracts concluded with Aptiv Kraków Branch as well as persons employed by suppliers and providing services to Aptiv Kraków Branch.

DEFINITIONS

Personnel management process is aimed to ensure the achievement of business objectives and to ensure optimal development and usage of employees' potential.

The Human Resources Management process consists of the following:

1. Headcount planning and approval
2. Recruitment and selection process
3. Human resources development: training, Aptiv Growth
4. Leaving the company by the employee

PROCESS DESCRIPTION

Note 1 Headcount planning and approval

Hiring plans are prepared on the basis of the business plans of particular segments/business units. Recruitment process is started after the hiring requisition is approved. Template for hiring requisition as well as process of approval is defined by particular segment/business unit.

Note 2. Hiring new employees and internal transfer of employees to a new field of activities / to a new function

2.1 Recruitment and selection process.

Once headcount / "Hire requisition" is approved, qualified individuals are identified by HR Department through different external and internal sources to the recruitment process, according to the job description prepared by appropriate supervisor. Regarding to the implementation of the Information Security Management System compliant with the ISA VDA requirements, particularly sensitive workfields have been defined (listed in the document HOEP_2-6_CS-TCK_01-A01_EN.pptx "Organizational chart for Information Security Management System (ISMS)"), about which it is necessary to verify the knowledge of information security during the recruitment process by the employing Manager. The detailed „job description" (HOEP_2-

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7.1.5.1.1 Measurement system analysis

Statistical studies shall be conducted to analyze the variation present in the results of each type of inspection, measurement, and test equipment system identified in the control plan.(…)

(*comment: e.g. MSA - Measurement System Analysis acc. to AIAG, VDA 5*)

7.1.5.2 Measurement Traceability

When measurement traceability is a requirement, or is considered by the organization to be an essential part of providing confidence in the validity of measurement results, measuring equipment shall be:

a) calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards,

b) identified in order to determine their status,

c) safeguarded from adjustments, damage or deterioration;

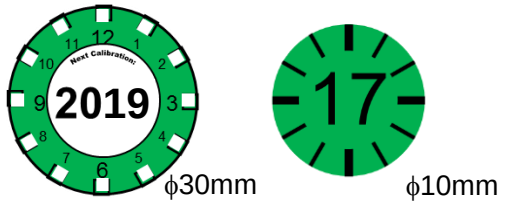
APTIV

How do we do it?

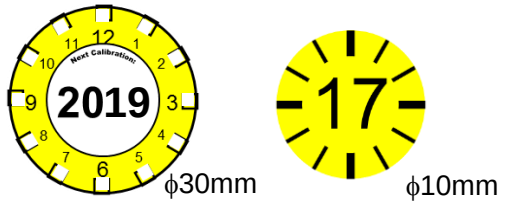
According to procedure HOEP_4-4_PE-TCK_01_EN *Control and calibration /Verification of inspection, measuring and test equipment* user is obliged to provide the MIL employee with information about each IMTE.

MIL – Metrology Laboratory
IMTE – Inspection, Measuring and Test Equipment

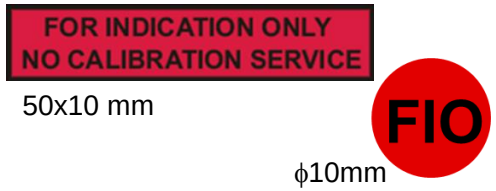
According to HOEP_4-4_PE-TCK_01-A01_EN Confirmation Label:



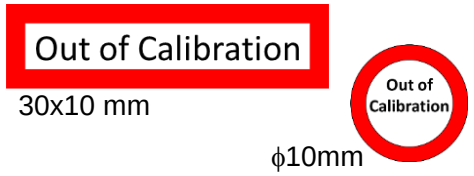
Confirmation Label



Declassification IMTE Label



For Indication Only label (calibration is not required)



Equipment Out of Calibration Label

APTIV

7.1.5.3 Laboratory requirements

	Internal Laboratory 7.1.5.3.1	External laboratory 7.1.5.3.2
Laboratory shall be accredited to ISO/IEC 17025	NO	YES (when using a non-accredited laboratory, the condition marked below must be met*)
Laboratory shall have Laboratory scope	YES	YES

*Where a non accredited laboratory is utilized. The organization is responsible to ensure that there is evidence that the laboratory has been evaluated and meets the requirements of Section 7.1.5.3.1 of IATF 16949.

APTIV

How do we do it?

Assessment of a non-accredited laboratory:
ESGP_5-3_ME_01-F01_EN Non-Accredited Lab Assessment Checklist
EAGP_5-3_CS-EUO_11-F03_EN Equipment calibration by external laboratory

Example:

APTIV

Equipment calibration by external laboratory

Name of laboratory:

Equipment to calibrate:

	YES or NO?
Lab is accredited against ISO 17025 or it's national equivalent and include the relevant inspection, test, or calibration service in the scope of the accreditation (www.ilac.org)	NO
OR	
If accredited laboratory is not available following criteria need to be fulfilled by the lab (Ref. IATF 16949 7.1.5.3.1)	
a) adequacy of the laboratory technical procedures	YES
b) competency of the laboratory personnel	YES
c) testing of the product	YES
d) Capability to perform these services correctly, traceable to the relevant process standard	YES
e) Customer requirements, if any	YES
f) Review of the related records	YES
EVALUATION	
Laboratory capable	YES

Date	done by (name/signature)

APTIV

How do we do it?

Laboratory scope is controled document which contains:

1. Specific tests, evaluations, and calibrations that a laboratory is qualified to perform;
2. A list of the equipment that the laboratory uses to perform the above;
3. A list of methods and standards to which the laboratory performs the above;
4. Personel competences;

Example:

ESEP_4-4_PE-TCK_00-00-A02_EN

TCK Advanced Safety & User Experience Validation Laboratory Scope

Wykonywane badania/ Tests	*Możliwości / Test Equipment Capabilities*	*Norma, specyfikacja metoda/ standard, specification, method*
Salt fog / Spray	Salt chamber: Air temperature from +35 °C to +60 °C; ±2 °C Humidifier temperature from +35 °C to +75 °C; ±2 °C	IEC 60068-2-11, IEC 60068-2-52
Temperature Shock	Termal shock chamber: From -50 °C to + 150°C; ±2°C Transfer < 20 seconds	IEC 60068-2-14, ESGP_4-4_PE-VAL_02-A01_EN

If there are any additional customer specifications these are accessible in specific test plan. Competencies and skills of the laboratory employees are defined in the Skill Matrix.

APTIV

7.1.6 Organizational Knowledge

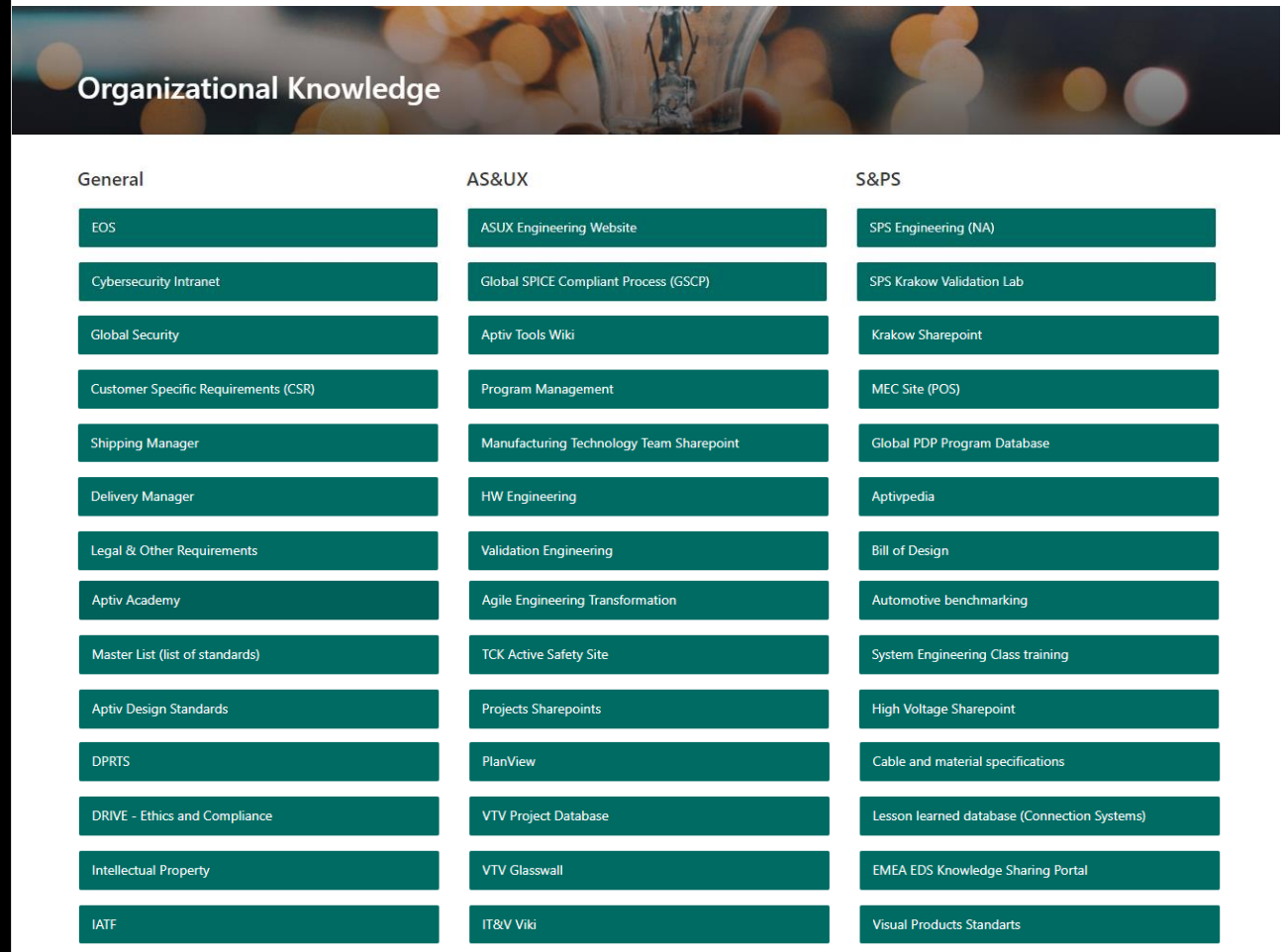
- The organization shall determine the knowledge necessary for the operation of its processes and to achieve conformity of products and services.
- This knowledge shall be maintained and be made available to the extent necessary.

APTIV

How do we do it?

- Aptiv Academy
- EOS, DDS, DPRTS, JIRA
- Lessons Learned databases
- Training materials on Sharepoints
- Sharing knowledge and experience with others (mentoring and coaching program, internal trainers program)
- BIQ, KIM

Aptiv Krakow Portal
→ Organizational Knowledge



APTIV

7.2 Competence

The organization shall:

a) determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the quality management system;
b) ensure that these persons are competent on the basis of appropriate education, training, or experience;
c) where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;
d) retain appropriate documented information as evidence of competence;

APTIV

7.2.1 Competence – supplemental

- The organization shall establish and maintain documented processes for identifying training needs including awareness and achieving competence of all personnel performing activities affecting conformity to product and process requirements.
- Personnel performing specific assigned tasks shall be qualified, as required, with particular attention to the satisfaction of customer requirements.
- To reduce or eliminate risks to the organization, the training and awareness shall also include information about prevention relevant for the organization's working environments and employees' responsibilities, such as recognizing the symptoms of pending equipment failure and/or attempted cyber-attacks.

APTIV

How do we do it?

HOEP_2-6_HR-TCK_01_EN
Trainings/ Szkolenia

Employee provides the HR Department with a certificate of completion of the training (diploma, certificate, etc.) within 7 days of completing the training,

BE AWARE THAT

Supervisors assign required or recommended training to employees on Aptiv Academy platform. The choice of training should be related to the needs for development of employees' competences, resulting from the assessment of achievements and work results, made in the annual Performance Review. It is recommended to plan training for employees in the last quarter of the year for the following year or at the latest at the beginning of each year**.**

If a supervisor does not assign training for subordinate employees in a given year, it is assumed that the employee has no training needs.

Methods of training effectiveness assessment	1	2	3
Training Category:	Trainer's Check	Participant Survey	Supervisor's observation summarized in Performance Review:
Soft Skills	• observation during training sessions (exercises, tasks, questions) • feedback from training groups about general usefulness of training contents	• general assessment • response to training contents • declaration of using new skills and knowledge in the job • cooperation with trainers during training session	• change in employee's behavior • higher interpersonal effectiveness
Technical Skills	• knowledge test /quiz		• higher level of competence (skills matrix) • higher productivity and effectiveness of employees • ability to undertake more complex tasks
QMS Awareness	• understanding of QMS system and stardards		• compliance with quality standards & customer requirements

APTIV

7.2.1 Competence – on-the-job training

- The organization shall provide on-the-job training (which shall include customer requirements training) for personnel in any new or modified responsibilities affecting conformity to quality requirements, internal requirements, regulatory or legislative responsibilities;
- This shall include also contract or agency personnel.

APTIV

How do we do it?

HOEP_2-6_HR-TCK_01_EN
Trainings/ Szkolenia

On the job training is an individual training provided at the working place or working station aiming to create or develop employee's skills directly connected with the job he/she performs.

- The supervisor is responsible for ordering the employee to complete the necessary on-the-job training and overseeing their implementation.
- All on-the-job training should be registered **within 5 business days of the end of the training.** The employee should report the fact of completing the training to the training department in order to register it in the Aptiv Academy training platform.
- The trainings required by the Aptiv corporation and implemented in the form of self-education (e-learning) are treated equally to on-the-job training.
- The supervisor is obliged to **assess the effectiveness of the on-the-job training** as part of the Performance Review process, based on changes in the knowledge / skills of the subordinate employee visible in the workplace.

APTIV

8.3.2.2 Product design skills

- It shall be ensured that personnel with product design responsibility are competent to achieve design requirements and are skilled in applicable product design tools and techniques.
- Applicable tools and techniques shall be identified.

NOTE: An example of product design skills is the application of digitized mathematically based data.

APTIV

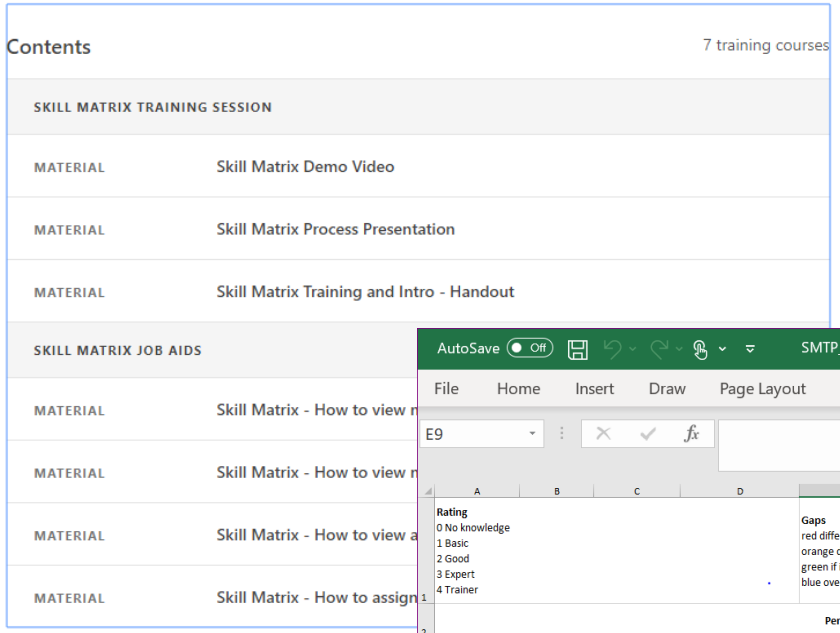
How do we do it?

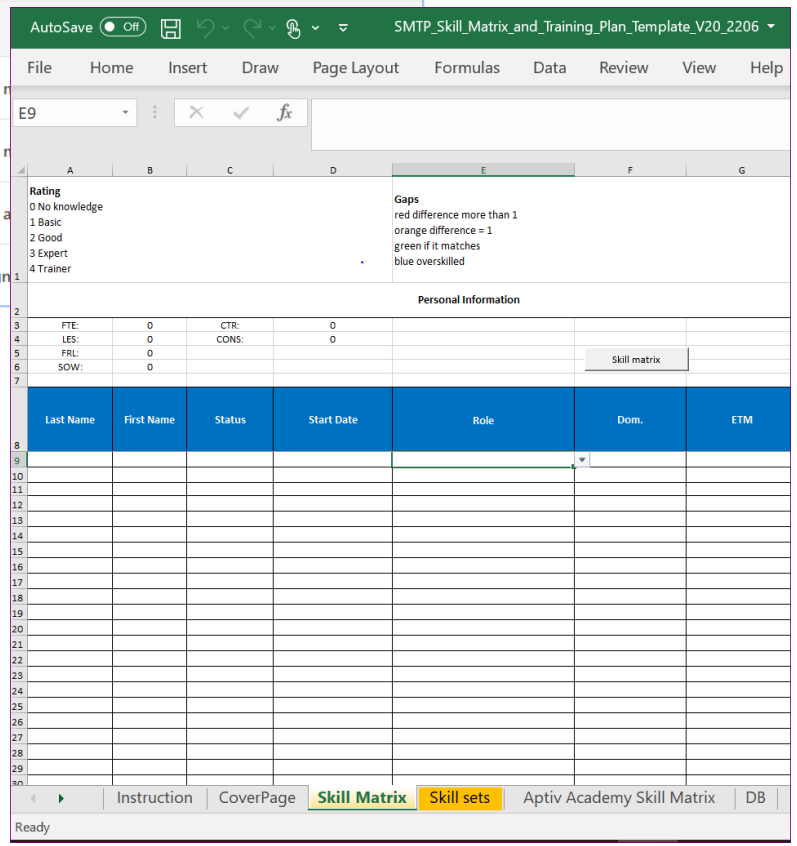
According to HOEP_2-6_HR-TCK_01_EN Trainings/ Szkolenia

The Skill Matrix is a tool for supervisors required to assess specialist competences in the engineering groups of the Technical Centre. Instructions on how to use the Skill Matrix and a presentation of the Skill Matrix assessment process can be found on the Aptiv Academy platform as "Skill Matrix Job Aids".

For supervisors who do not use the Aptiv Academy platform for competence assessment, this is done using the HOEP_2-6_HR-TCK_01-F04_EN form. Instructions on how to use the Skill Matrix form are available in HOEP_2-6_HR-TCK_01-A01_EN.

Aptiv Academy - Skill Matrix Job Aids





APTIV

7.3 Awareness

The organization shall ensure that persons doing work under the organization's control are aware of:

a) the quality policy,
b) relevant quality objectives,
c) they contribution to the effectiveness of the quality management system, including the benefits of improved performance,
d) the implication of not conforming with the quality management system requirements;

APTIV

7.3.1 Awareness – supplemental

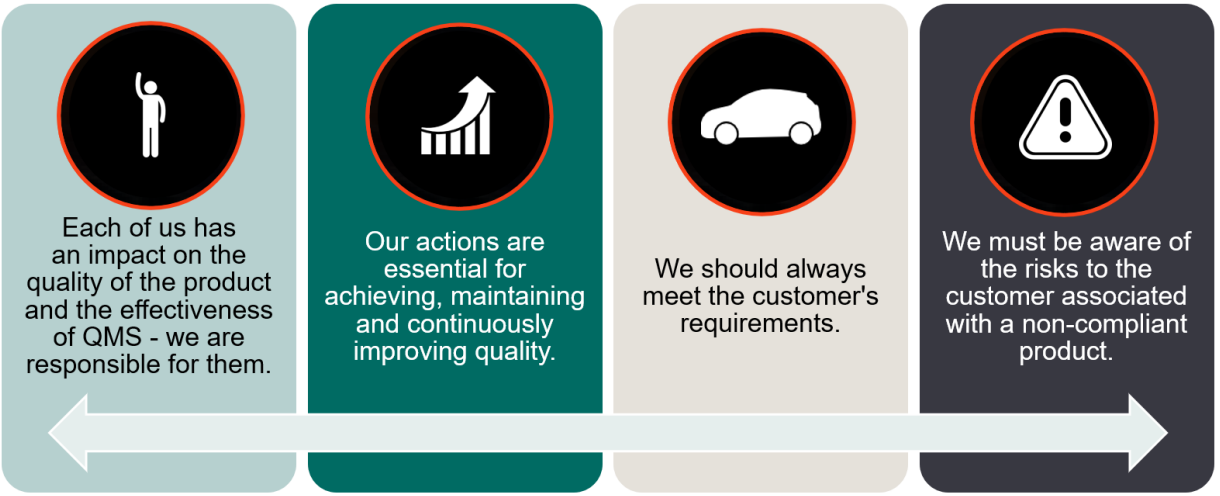
The organization shall maintain documented information that demonstrates all employees are aware of:

- their impact on product quality and
- the importance of their activities in achieving, maintaining, and improving quality, including customer requirements and the risks involved for the customer with non-conforming products.

APTIV

How do we do it?

- Participation of new hired employees in trainings:
  - Quality Management System for new employees (NHO)
  - Quality Management System at TCK and Enterprise Operating System (first 3 months of working in Aptiv)
- Survey about quality awareness:
  - Mandatory for new hired employees
  - E.g. ASUX Quality Awareness Message 2022 (annually required ASUX Global Training)



APTIV

7.3.2 Employee motivation and empowerment

The organization shall maintain documented processes to motivate employees:

- to achieve quality objectives,
- to make continual improvements and
- to create an environment that promotes innovation.

The process shall include the promotion of quality and technological awareness throughout the whole organization.

APTIV

How do we do it?

HOEP_2-6_HR-TCK_05_EN
Motywowanie pracowników / Employee Motivation

Examples of motivational / engaging programs:

- Grow@Aptiv
- Recognition Award Policy
- Social Found
- Aptiv Day
- Meetings employees with management (Town Hall)
- Career Wheel/ promotions
- Trainings and development programs (mentoring, coaching)
- Technical presentations
- Aptiv Technical Women's
- employees engaged in activities related to the employer's brand, supporting sports activities, activities in the field of social responsibility, etc.

APTIV

7.4 Communication

The internal and external communications needs relevant to the quality management system shall be determined, including:

- on what it will communicate,
- when to communicate,
- with whom to communicate,
- how to communicate,
- who communicates.

APTIV

How do we do it?

HOEP_2-6_HR-TCK_02-A01_PL

Komunikacja wewnętrzna i zewnętrzna/ Internal and external communication

KOMUNIKACJA WEWNĘTRZNA				
STRONA ZAINTERESOWANA (Z KIM)	CZĘSTOTLIWOŚĆ (KIEDY)	TREŚCI (CO MA BYĆ KOMUNIKOWANE)	OSOBY ZAANGAŻOWANE (KTO SIĘ KOMUNIKUJE)	NARZĘDZIA KOMUNIKACJI (JAK?)
Pracownicy	Wg ustaleń menadżerów/ kierowników	* Informacje dot. poszczególnych segmentów * Informacje dot. bieżących projektów (uwzględniając reklamacje/zwroty gwarancyjne oraz wyniki analiz/testów reklamacji/ zwrotów gwarancyjnych) * Sprawy organizacyjne i inne wewnętrzne sprawy danego zespołu/grupy, * Role, odpowiedzialności i uprawnienia pracowników * Zapoznanie pracowników z planowanymi zmianami, * Sugestie pracowników, pochwały, problemy, inne bieżące tematy * Przegląd metryk * Perform & Grow	Przełożeni oraz opiekunowie Klienta **Zgodnie z odpowiedzialnościami określonymi w opisie stanowiska lub pliku uprawnienia**	Spotkania wewnętrze segmentów/działów wspierających/grup projektowych, Sharepoint grupy, Yammer grupy, kontakt mailowy, telefoniczny, bazy, Perform & Grow
	wg potrzeb	* Plany i osiągnięcia firmy, realizacja zaplanowanych działań; * Wyniki finansowe firmy; * Prezentacja wyników audytów, informowanie o wprowadzanych /planowanych zmianach; * Dokumentacja systemowa; * Informacje dotyczące funkcji wspierających i ich procesów (TCK Administration Manager, Secretary's Office, QA&DA, Metrology, Logistics Department, HR, T&E, Finance, EMEA Sourcing Execution team, External & Internal Communications, Facility Management); * Zmiany organizacyjne; * Opinie nt. ogólnego zadowolenia z warunków pracy; * Opinie nt. współpracy z przełożonym;	TCK Management	spotkania komunikacyjne z ogółem pracowników, Aptiv Krakow Portal, Yammer grupy, kontakt mailowy, tablice informacyjne, ankieta satysfakcji pracowników, ankieta oceny przełożonego, przegląd zarządzania

KOMUNIKACJA ZEWNĘTRZNA				
STRONA ZAINTERESOWANA (Z KIM?)	CZĘSTOTLIWOŚĆ (KIEDY?)	TREŚCI (CO MA BYĆ KOMUNIKOWANE?)	OSOBY ZAANGAŻOWANE (KTO SIĘ KOMUNIKUJE?)	NARZĘDZIA KOMUNIKACJI (JAK?)
KLIENT	wg potrzeb	*Kwestie związane z procesem kwotacji; *Kwestie związane z rozwojem produktu i procesu, walidacją produktu; * Kwestie związane z harmonogramem projektu; *Kwestie związane z dostarczaniem prototypów; *Kwestie związane ze zmianami; * Reklamacje; * Odstępstwa; *Kwestie związane z postępowaniem z własnością klienta i nadzorem nad nią; * Kwestie związane z działaniami awaryjnycmi (jeżeli ma zastosowanie);	*Dział sprzedaży *Pracownicy zespołów/grup projekowych, walidacyjnych *Menedżer projektu * Dział Logistyki **Zgodnie z odpowiedzialnościami określonymi w opisie stanowiska lub pliku uprawnienia**	Kontakt mailowy, telefoniczny, spotkanie, B2B, poczta tradycyjna, bazy (np. IMDS)
DOSTAWCY	wg potrzeb	* Kwestie związane z zakupami produkcyjnymi; * Kwestie związane z zakupami nieprodukcyjnymi; * Promowanie firmy na targach i konferencjach;	*Dział zakupów; *Dział logistyki; * Pracownicy zespołów/grup projekowych, walidacyjnych; **Zgodnie z odpowiedzialnościami określonymi w opisie stanowiska lub pliku uprawnienia**	Kontakt mailowy, telefoniczny, spotkanie, poczta tradycyjna, targi, bazy

7.5.1 Documented Information
7.5.1.1 Quality management system documentation

Documented information is meaningful data that is required to be controlled and maintained by the organization and the medium on which it is contained.

retain documented information

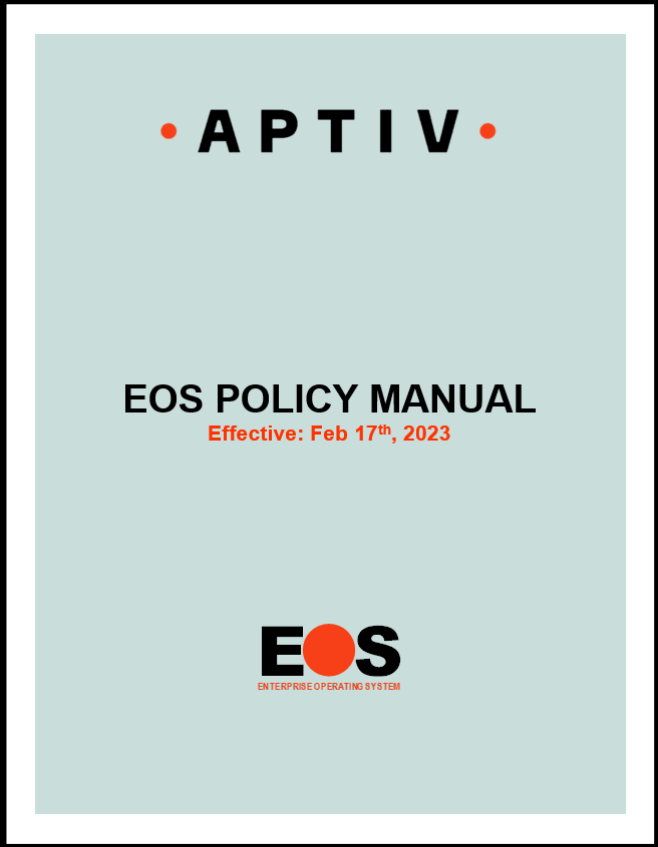
maintain documented information

Quality management system shall be documented and include quality manual, which can be a series of documents (electronic or hard copy).

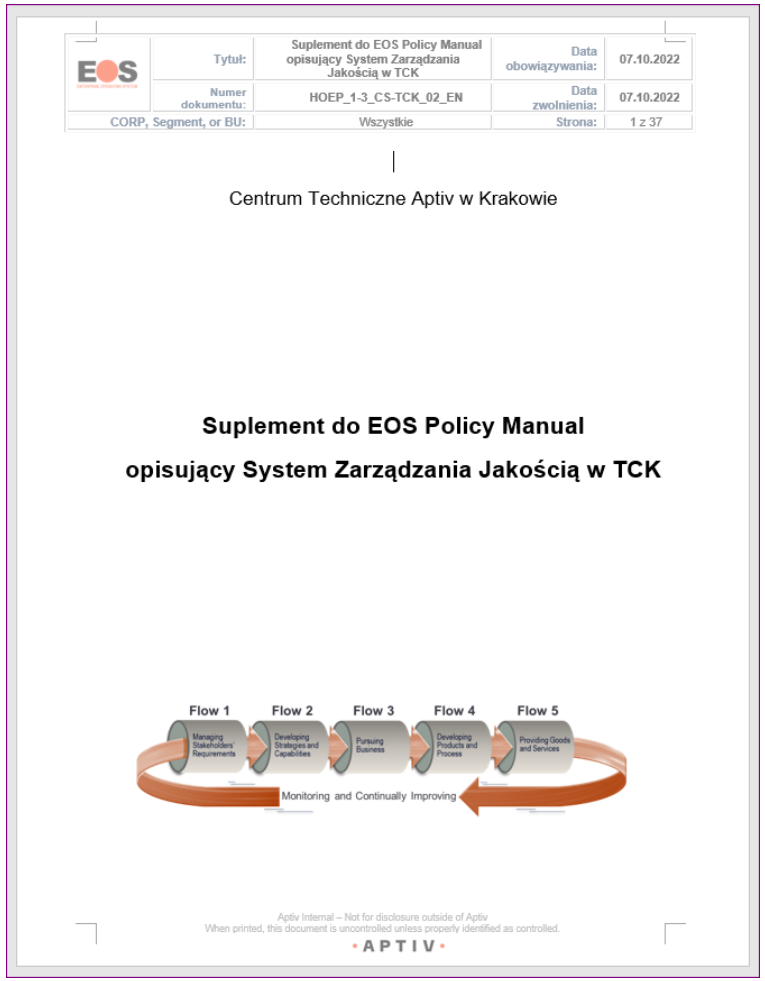
APTIV

How do we do it?

Global Quality Policy Manual:



HOEP_1-3_CS-TCK_02_EN Supplement to EOS Policy Manual describing the Quality Management System in TCK



Tytuł:	Suplement do EOS Policy Manual opisujący System Zarządzania Jakością w TCK	Data obowiązywania:	07.10.2022
Numer dokumentu:	HOEP_1-3_CS-TCK_02_EN	Data zwolnienia:	07.10.2022
CORP, Segment, or BU:	Wszystkie	Strona:	1 z 37

Centrum Techniczne Aptiv w Krakowie

Suplement do EOS Policy Manual

opisujący System Zarządzania Jakością w TCK

Aptiv Internal – Not for disclosure outside of Aptiv
When printed, this document is uncontrolled unless properly identified as controlled.
APTIV

APTIV

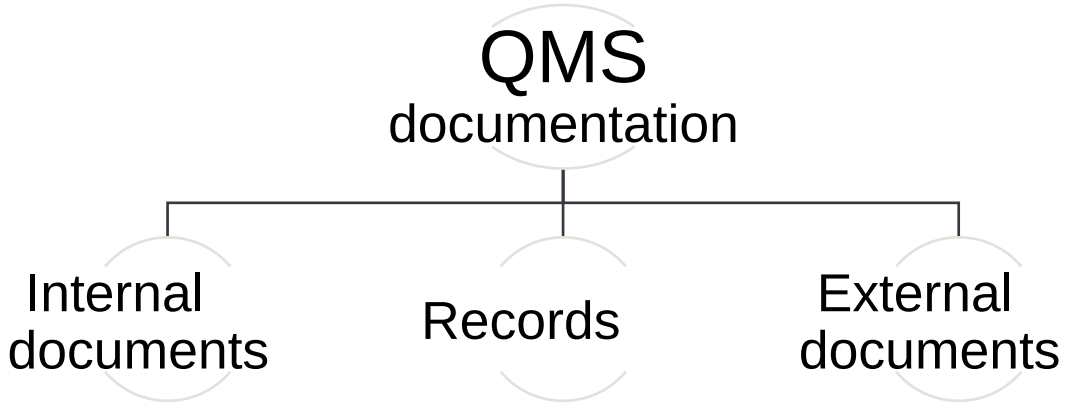
7.5.2 Creating and Updating
7.5.3 Control of Documented Information

The organization shall ensure the control of documented information, including:

- identification and description,
- format and media,
- review and approval for suitability and adequacy,
- availability and suitability for use, where and when it is needed,
- adequate protection, distribution, access, retrieval and use,
- control of changes,
- retention and disposition.

How do we do it?

- EOS is the only source for up-to-date documents (i.e. procedures, work instructions, forms and attachments).
- A printed or locally saved version is treated as non-controlled copy.



APTIV

7.5.3.2.1 Record retention

- Record retention policy shall be defined, documented, and implemented.
- The control of records shall satisfy statutory, regulatory, organizational, and customer requirements.
- Records defined below shall be retained for the lenght of time the product is active for production and service requirements, plus one calendar year, **unless otherwise specified by the customer or regulatory agency**:
  - production part approvals (PPAP),
  - tooling records (including maintenance and ownership),
  - product and process design records,
  - purchase orders,
  - contracts and amendments.

APTIV

How do we do it?

HOEP_1-3_CS-TCK_01_EN Nadzór nad zapisami / Records control

HOEP_1-3_CS-TCK_01-A03_EN Advanced Safety and User Experience TCK engineering records retention matrix

HOEP_1-3_CS-TCK_01-A02_EN Signal and Power Solutions TCK engineering records retention matrix

HOEP_1-3_CS-TCK_01-A01_EN Administration TCK records retention matrix

Ford: records of process control data, product inspection data and records of appropriate reaction actions to readings outside the specification in a recoverable format for a minimum of 2 years.

BMW: Retention period is defined in GS standards and in VDA 1:
*GS 95017 - traceability records: minimum 15 years;

* GS 90036 - retention period of traceability data for outsourced parts: 15 years after EoP of the affected component,

* GS 95004 - NTF records (analysis of defective parts): 15 years after termination of the supply of serial products

PSA: 30 years: Safety Case, regulatory file (with substantiating documents for evidence that the specified safety and regulatory requirements are respected).

Definition, validation and substantiating documents for supplies (mass production and spare part phases).

RECORD NAME	RETENTION PERIOD (years)	LOCATION	RECORD MEDIA / FILLING	INDEXING	RECORDS KEEPER	ACCESS	DISPOSSAL METHOD	SECURITY CLASSIFICATION
VALIDATION								
Test Specification	15p	Electronic database	Electronic	By projects	Validation team	Restricted and controlled access	Erase	Sensitive Business
Product Validation/ Test reports	15p	Electronics copies in Electronic database or Project Folder	Electronic	By projects	Validation team	Restricted and controlled access	Erase	Sensitive Business
Engineering Work Request	10	Electronics copies in Electronic database or Project Folder	Electronic	By projects	Validation team	Restricted and controlled access	Erase	Sensitive Business

APTIV

7.5.3.2.2 Engineering specifications

- The organization shall have a documented process describing the review, distribution and implementation of all customer engineering standards/ specifications and related revisions based on customer schedules, as required.
- Product design change shall be processed according to requirement 8.3.6 and process change according to requirements 8.5.6.1.
- A record of the date on which each change is implemented in production shall be retained (implementation shall include updated documents).
- Review should be completed within 10 working days of receipt of notification of engineering standards/specifications changes.

APTIV

How do we do it?

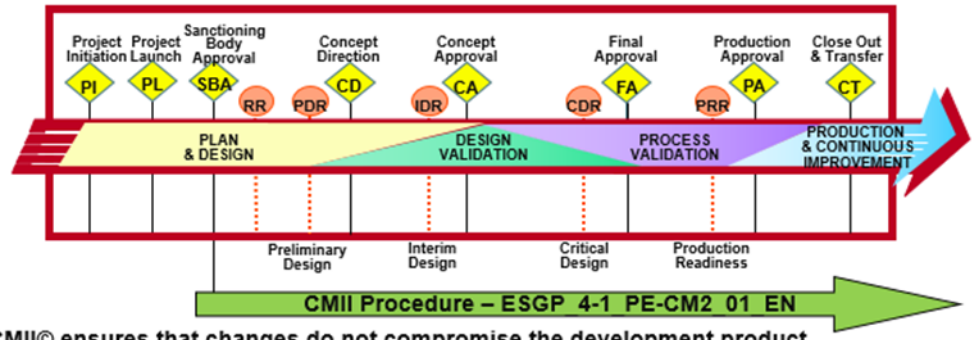
ESGP_4-1_PE-CM2_01_EN Configuration Management II Change Process (AS&UX)

EAGP_4-1_PE_10_EN Global Engineering Change Procedure (S&PS EDS)

EAEP_4-1_ME_01_EN Engineering Change Management (S&PS EDS)

EAGP_4-1_ME_01_EN Change Management Procedure (S&PS Connection Systems)

CMII Process Workflow Training
Product Development and Production



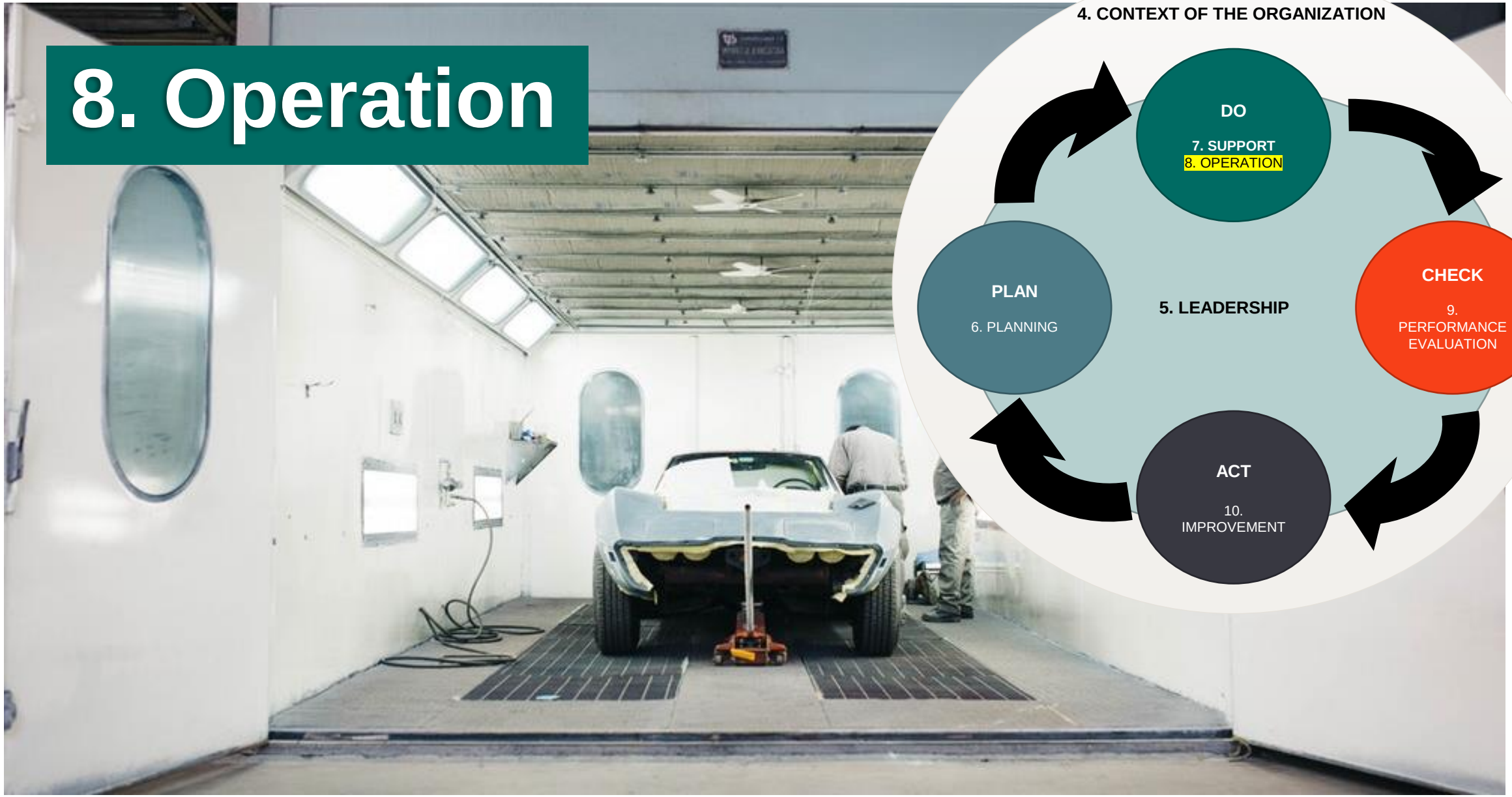
Pre SOP, CMII© ensures that changes do not compromise the development product
Post SOP, CMII© enables flawless execution of changes until the end of the lifecycle
All documents existing at SBA need a CR (Change Request) & CN (Change Notice) to implement a chang
CRs and CNs are used to create new documents which did not exist at SBA

Quiz

https://forms.office.com/r/eQ5bftfDP3

APTIV

8. Operation



APTIV

8. Operation

8.1 Operational Planning and Control

8.2 Requirements for Products and Services
- 8.2.1 Customer Communication
- 8.2.2 Determining the Requirements for Products and Services
- 8.2.3 Review of the Requirements for Products and Services
- 8.2.4 Changes to Requirements For Products and Services

8.3 Design and Development of Products and Services
- 8.3.1 General
- 8.3.2 Design and development planning
- 8.3.3 Design and Development Inputs
- 8.3.4 Design and Development Controls
- 8.3.5 Design and Development Outputs
- 8.3.6 Design and development Changes

8. Operation

8.4 Control of Externally Provided Processes, Products and Services

- 8.4.1 General
- 8.4.2 Type and Extent of Control
- 8.4.3 Information for External Providers

8.5 Production and Service Provision

- 8.5.1 Control of Production and Service Provision
- 8.5.2 Identification and Traceability
- 8.5.3 Property Belonging To Customers or External Providers
- 8.5.4 Preservation
- 8.5.5 Post-Delivery Activities
- 8.5.6 Control of Changes

8.6 Release of Products and Services

8.7 Control of Nonconforming Outputs

APTIV

8.1 / 8.1.1 Operational Planning and Control

The organization shall plan, implement and control the processes needed to meet the requirements for the provision of products and services.

When planning for product realization, the following topics shall be included:

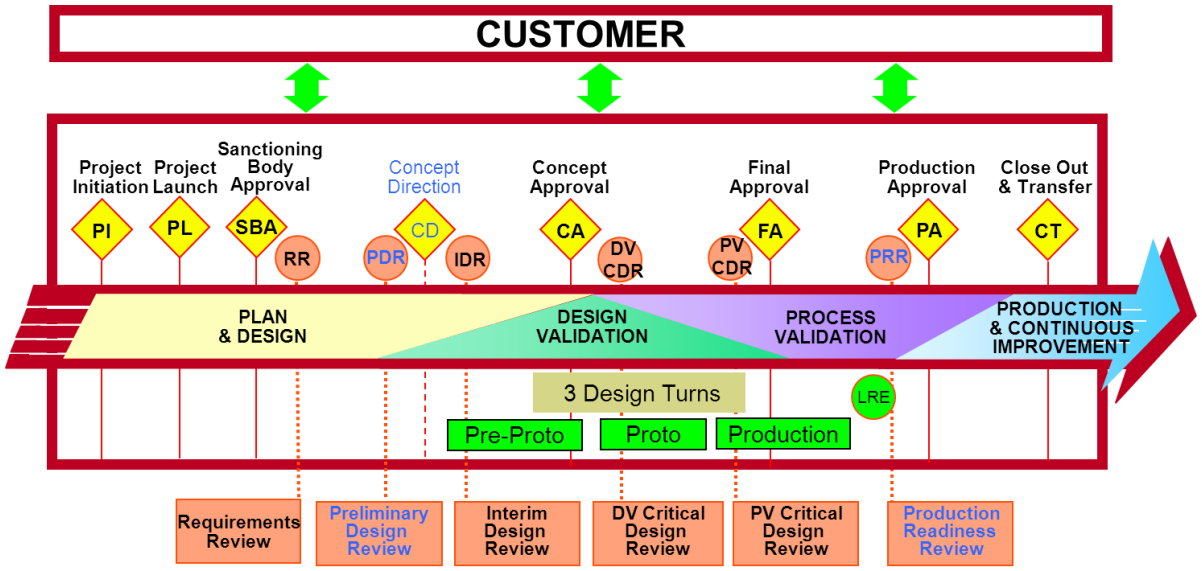
- Customer product requirements and technical specifications;
- Logistics requirements;
- Manufacturing feasibility;
- Project planning (according to Section 8.3.2)
- Acceptance criteria

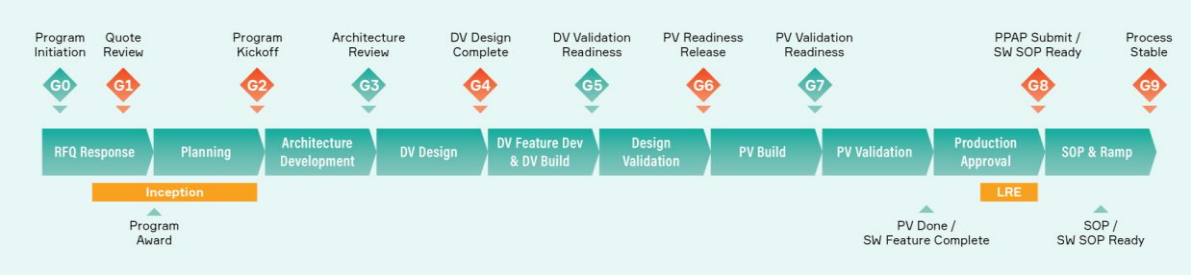
APTIV

How do we do it?

Procedures from:

- Flow 3 Pursuing business
- Flow 4 Developing products and processes
- Flow 5 Providing goods and services





APTIV

8.1.2 Confidentiality

The organization shall ensure the confidentiality of:

- customer-contracted products,
- customer-contracted projects under development,
- product information.

APTIV

How do we do it?

- NDA - non-disclosure agreement signed with customers and suppliers

  (Non-disclosure Agreement (NDA) information center)
- Clauses about non-disclosure in contracts with customers and suppliers
- Information Classification and Handling Standard
- TISAX certification (Trusted Information Security Assessment Exchange)
- All new employees sign Acceptance of Aptiv Cybersecurity Policy

Remember that not all documents can be sent externally. Some of them, such as FMEA, are treated as confidential and should not be sent to customers.

ESGW_1-3_PE_00-00-A01_EN Document Release Matrix

APTIV ESGW_1-3_PE_00-00-A01_EN

Document Release Matrix

Effective Date: September 02, 2022 Page: 1 of 8

Purpose: The purpose of this work instruction is to define the requirements for releasing Aptiv Corporation confidential information to non-Aptiv people or companies who will not accept documents marked "Aptiv Confidential".

Definitions:

- **Provide or Supply:** A text, image or non-editable pdf version (without linkages, formulas or look-ups) copy may be provided.
- **Share/Review but don't provide:** No copies to be given in any format, but maybe shared in an in-person or online review. Items where risk of a potential screen shot of the data is a concern, should be rated below instead as - Do Not Share, Do Not Provide or Do Not Supply.
- **Do Not Share, Do Not Provide, Do Not Supply**: No version should be shown on a screen, in a live discussion, or provided in any format.

Note:
If you do not find any document in the list or have questions regarding actions to be taken for documents stated below, please contact your immediate manager on next steps

DOCUMENT	COMPETENCY	HANDLING GUIDELINES	
		SUPPLIER	CUSTOMER
Technology Roadmaps	Advanced Engineering		High-level, summary roadmaps okay to show, but do not provide copies. Specific, detailed roadmaps not to be shown to customers
Supplier offers (quotes, cost breakdown information, other commercial conditions,)	Supplier Change Management	Do not share with suppliers (competitors) - even with NDA in place	Allow view the information only. Aptiv will not provide copies of the information - work with sales
Supplier Lists	Supplier Change Management	Do not share - even with NDA in place	Allow view the information only. Aptiv will not provide copies of the information - work with sales
Supplier Quality and PPAP related information (includes, but is not limited to: Control Plans, Design and Process FMEA)	Supplier Change Management	Do not share with suppliers (competitors) - even with NDA in place	Allow view the information only. Aptiv will not provide copies of the information - work with sales
EBOM	Hardware Engineering		Review if requested but don't give copies
DFMEA (including DRBFM, DRBTR and similar documents)	Hardware Engineering		Reference ESGP_4-2_PE_05-A02
EMC Design Analysis	Electrical Engineering		OK to share and review, but do not supply

APTIV

8.2.1 Customer Communication

Communication with customers shall include:

- providing information relating to products and services,
- handling enquiries, contracts or orders, including changes,
- handling customer complaints;
- handling or controlling customer property;
- establishing specific requirements for contingency actions, when relevant.

8.2.1.1 Customer Communication - supplemental

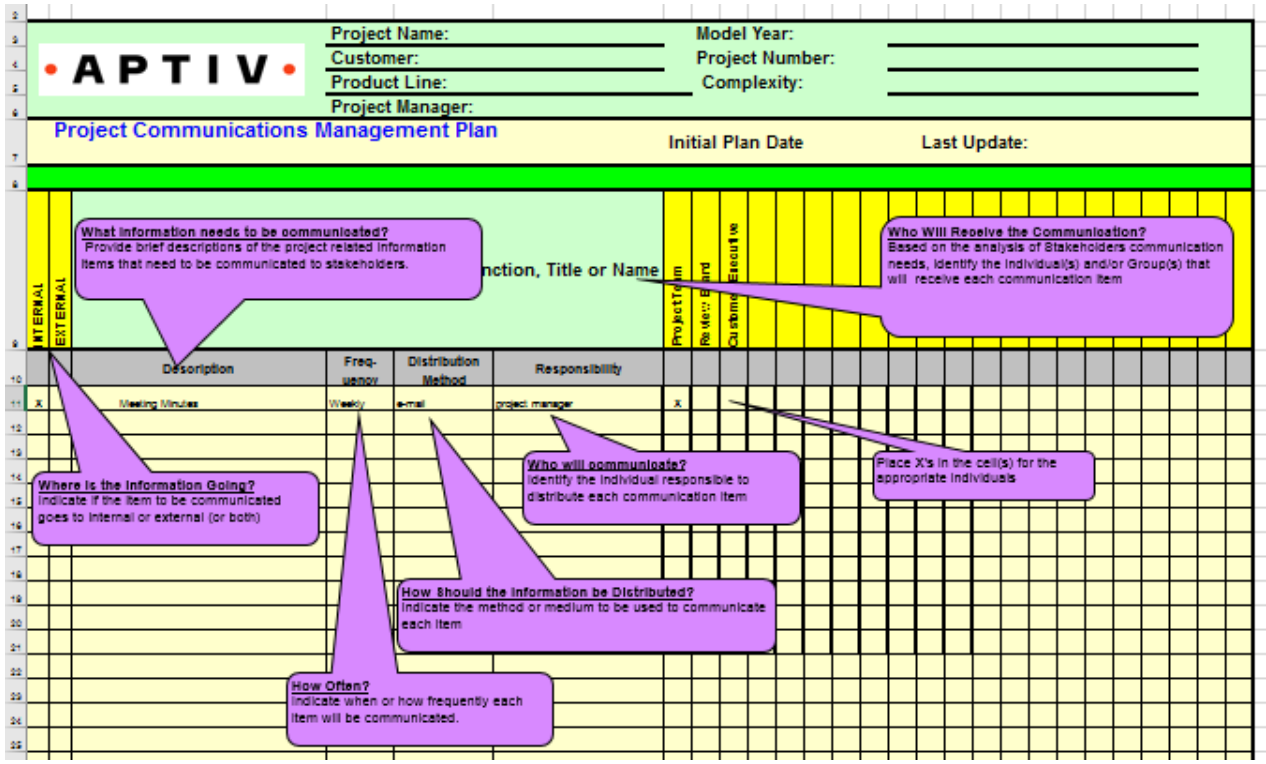
Written or verbal communication shall be in the language agreed with the customer. The organization shall have the ability to communicate necessary information, including data in a customer-specified computer language and format (e.g., computer-aided design data, electronic data interchange).

APTIV

How do we do it?

- The method of communication is agreed in the RFQ phase.
- Each project has a project team defined.
- Communication takes place on many levels using various tools.

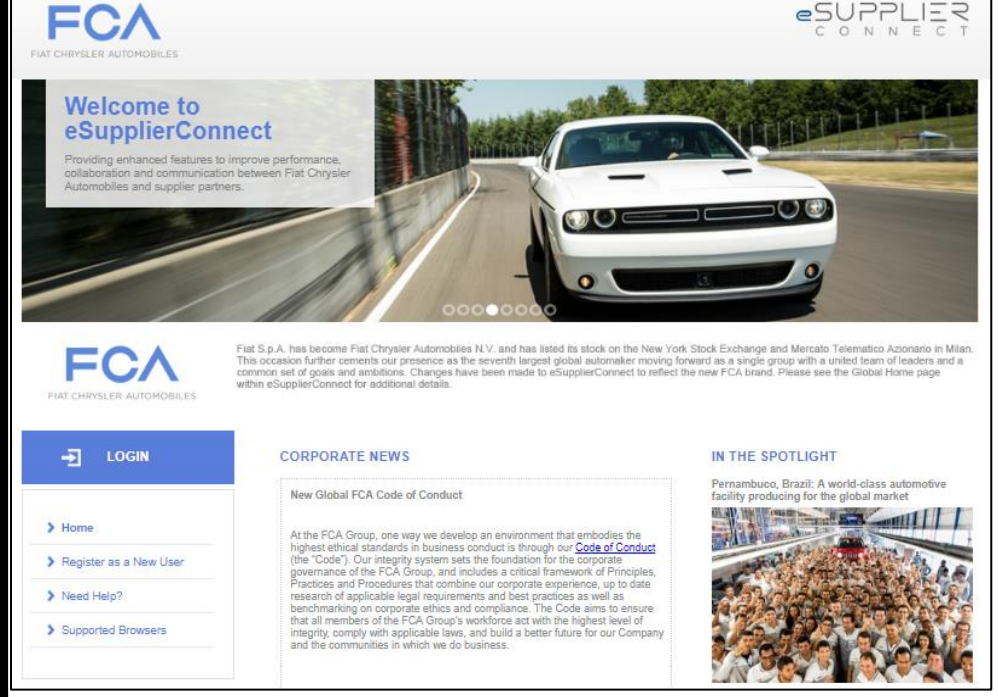
ESGP_4-1_PM_01-F04_EN Project Communications Management Plan (AS&UX)

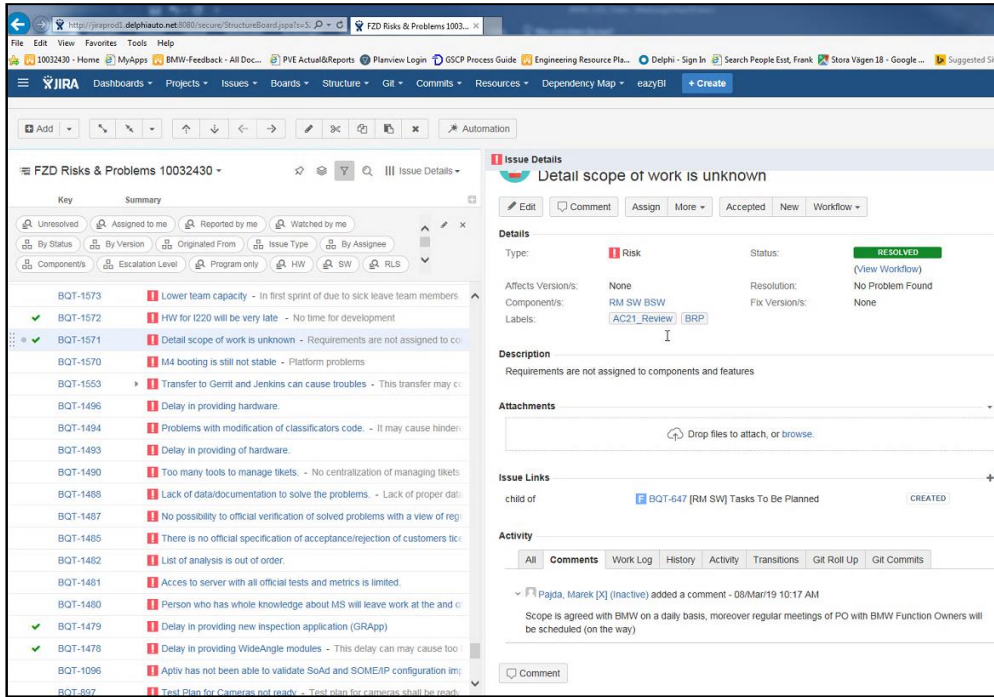


APTIV

How do we do it?

Customers sometimes define in a contract or CSRs specific tools to data exchange (DOORS, JIRA, B2B portals, specific applications etc.)





8.2.2 - 8.2.3.1 Determining and reviewing requirements for products and services

When determining the requirements for the products and services to be offered to customer, the organization shall take into accout requirements:

- specified by the customer, including the requirements for delivery and post delivery activities,
- contract or order requirements,
- not stated by the customer, but necessary for the specified or intended use, when known,
- specified by the organization,
- related to recycling, environmental impact,
- related to procurement and storage requirements,
- statutory and regulatory requirements.

8.3.3.1 Product design input g) Applicable statutory and regulatory requirements of the customer-identified country of destination, if provided;

APTIV

8.2.2 - 8.2.3.1 Determining and reviewing requirements for products and services

- Review shall be conducted before committing to supply products and services to a customer.
- Any discrepancies between the requirements specified in the contract or order and those previously defined shall be resolved.
- The customer’s requirements shall be confirmed by the organization before acceptance, when the customer does not provide a documented statement of their requirements.
- Documented information related to the results of the review and any new requirements for the products and services shall be retained.

APTIV

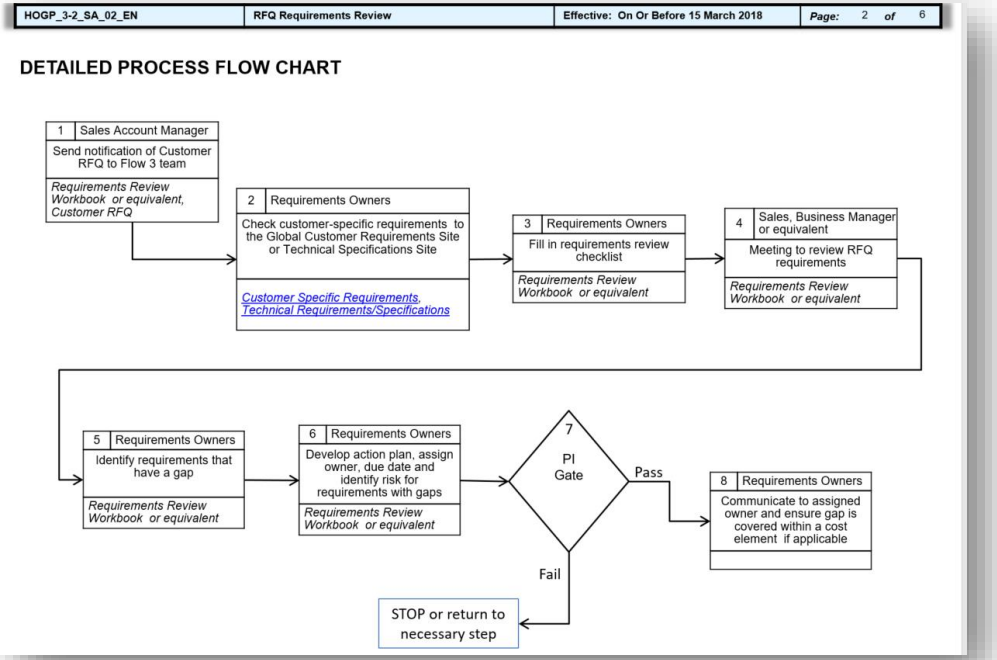
8.2.3.1.1 Review of the requirements for products and services – supplemental

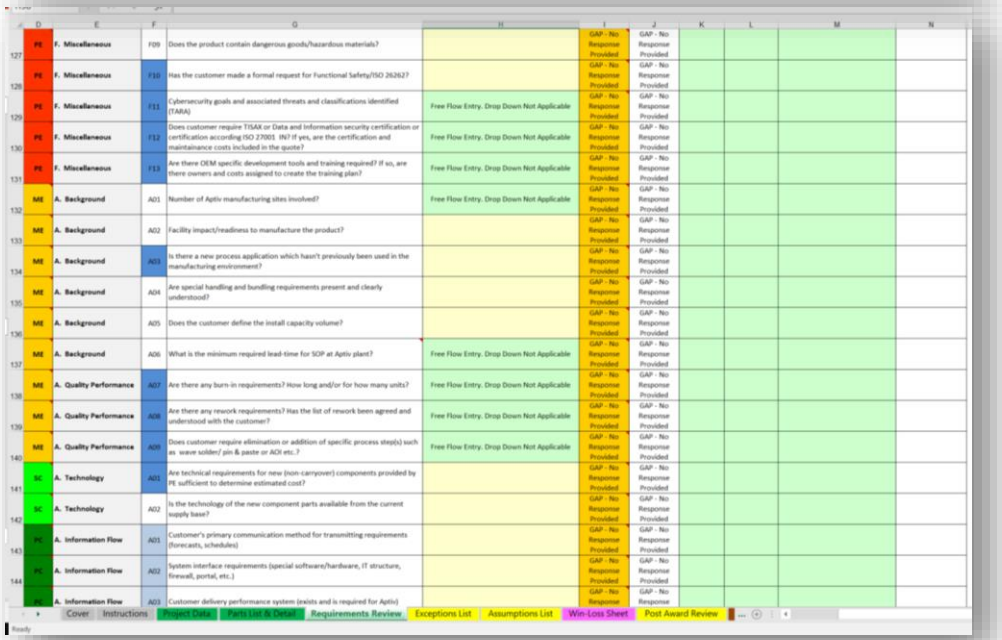
Documented evidence of a customer-authorized waiver for the requirements shall be retained.

APTIV

How do we do it?

- HOGP_3-2_SA_02_EN RFQ Requirements Review
- HOGP_3-2_SA-EAx_02_F01_EN Requirements Review Form
- EAGP_3-2_SA-EUO_01-F01_EN EU Business Pursuit Form (EDS)
- ESGP_3-4_SA_01_EN Quote Kickoff and Business Case Cost Development (AS&UX)





APTIV

8.2.3.1.2 Customer-designed special characteristics

The organization shall conform to customer requirements for:

- designation,
- approval documentation and
- control of special characteristics.

Special characteristic – classification of a product characteristic or manufacturing process parameter that can affect safety or compliance with regulations, fit, function, performance, requirements, or subsequent processing of product.

APTIV

8.2.3.1.3 Organization manufacturing feasibility

- A multidisciplinary approach shall be utilized to conduct an analysis to determine if it is feasible that the organizations manufacturing processes are capable of consistently producing product that meets all of the engineering and capacity requirements specified by the customer.
- A feasibility analysis shall be conducted for any manufacturing or product technology new to the organization and for any changed manufacturing process or product design.
- Ability to make products to specifications at the required rate should be validated through production runs, benchmarking studies, or other appropriate methods.

How do we do it?

The requirements review provides the necessary evidence that a manufacturing feasibility assessment has been performed:

- HOGP_3-2_SA_02_EN RFQ Requirements Review
- HOGP_3-2_SA-EAx_02_F01_EN Requirements Review Form
- EAGP_3-2_SA-EUO_01-F01_EN EU Business Pursuit Form (EDS)
- ESGP_3-4_SA_01_EN Quote Kickoff and Business Case Cost Development (AS&UX)
- EAGP_3-4_PE_04_EN Engineering Risk Assessment Process (CS)

And completed Feasibility Study forms:

- EAEP_4-2_ME_05_EN Feasibility Study (CS),
- EAEP_4-2_ME_05_F01_EN Feasibility Study Form (CS)
- EAEP_4-1_ME_01-F01_EN Feasibility Study Checklist (EDS)

Our suppliers shall also provide us completed feasibility analysis:

- HOGW_4-2_SC-DIR_23-F01_EN Form – Team Feasibility

Form Name:	Requirements Review Form	Effective Date:	on or before 05 June 2016
Document #:	HOGP_3-2_SA_02_F01_EN	Approval Date:	11-maj-16
CORP, DIVs, or PBUs:	All	Page:	Cover
		Form updated:	01-cze-2016
		Data updated:	11-maj-2016

OBJECTIVE

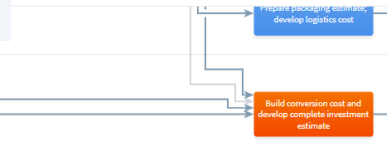
This form is used in Pipes 2 and 3, after receipt of request for quote (RFQ) from a customer. It is used to assist the Flow 3 business pursuit team to better understand the customer RFQ, determine risks and assess plans to ultimately facilitate a Aptiv's response to the RFQ.

The requirements review provides the necessary evidence that a manufacturing feasibility assessment has been performed.

SL	Category	#	Detailed Requirement	Response	Gap/Risk	Owner	Date
SA	F. Sanctioned Countries	F01	Have you documented and completed the appropriate follow-up for each "Delphi" selling country (or variation) using the attached *Sanctions - Selling Country* worksheet?		GAP - No Response Provided		
PE	A. Product	A01	Is a similar product in current portfolio?		GAP - No Response Provided		
PE	A. Product	A02	Is there new product technology?		GAP - No Response Provided		
PE	A. Product	A03	Are there new process technologies required for this product?		GAP - No Response Provided		

Process > Workflows and Activities > Sales > Quote Kickoff & Business Case Cost Development

Build conversion cost and develop complete investment estimate



DESCRIPTION

NOTE: Manufacturing Feasibility is considered complete once this step is done.

ng capital and expense. Submit to finance analyst and business manager.

Compare the conversion cost and investment to the targets established for the pursuit. If any gap exists, a plan must be developed to identify how the gap will be closed.

Deviation Plan for Manufacturing Engineering can be found on the Global Manufacturing Engineering Common Sharepoint

If a Cybersecurity Key Management System is required, include the cost in the manufacturing CARD.

WORK PRODUCTS

Inputs

Supplier tooling cost

Outputs

GUIDANCE SUPPLEMENTS

APTIV

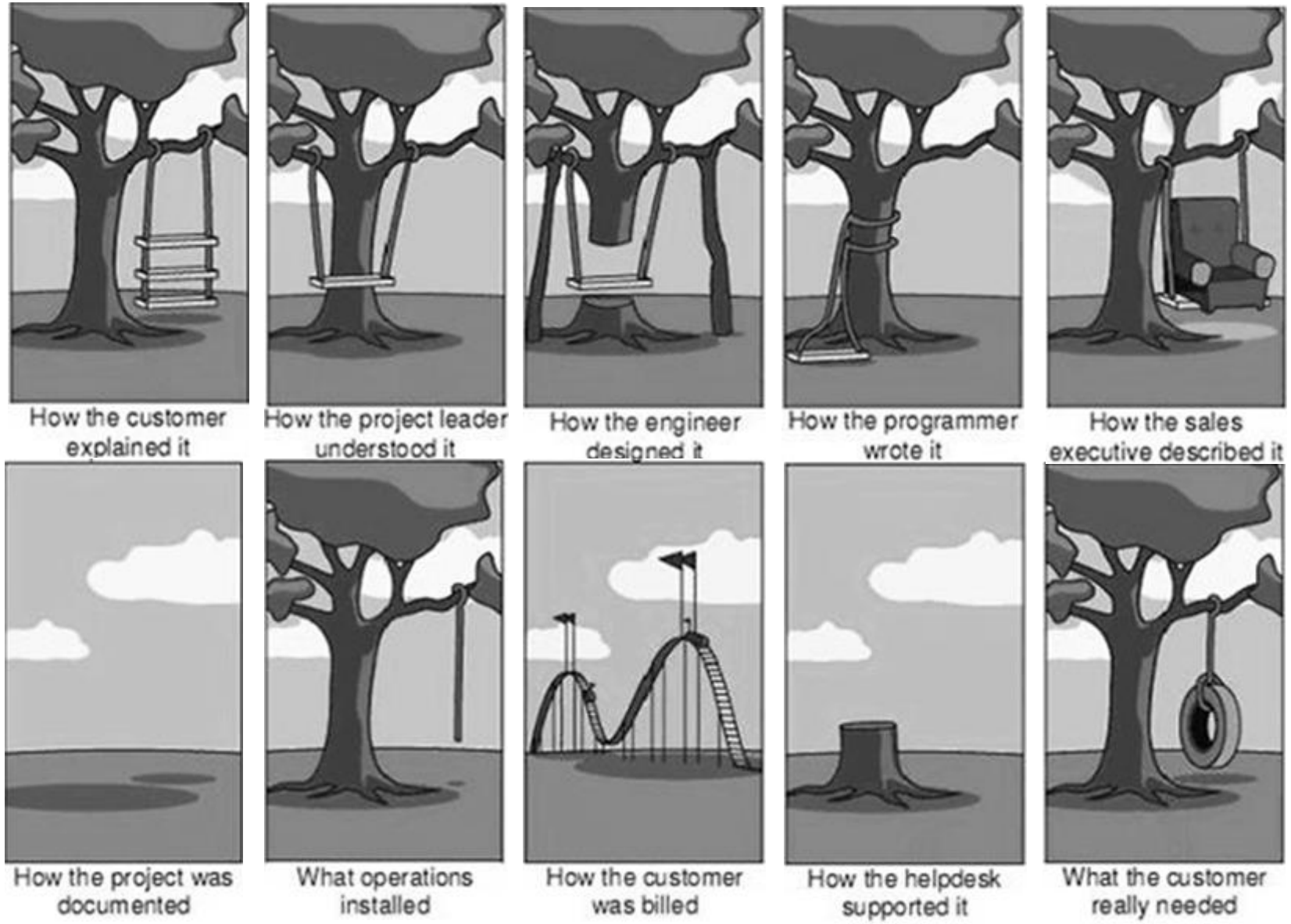
8.2.4 Changes to Requirements for Products And Services

It shall be ensured that:

- relevant documented information is amended,
- relevant persons are made aware of the changed requirements

APTIV

It is important to understand what the customer really needs



APTIV

Quiz

https://forms.office.com/r/8Qd3TwFDiq

APTIV

8.3 Design and Development of Products and Services

- The organization shall establish, implement and maintain a design and development process.
- Above requirement shall apply to product and manufacturing process design and development and shall focus on error prevention rather than detection.

The organization shall document the design and development process.

APTIV

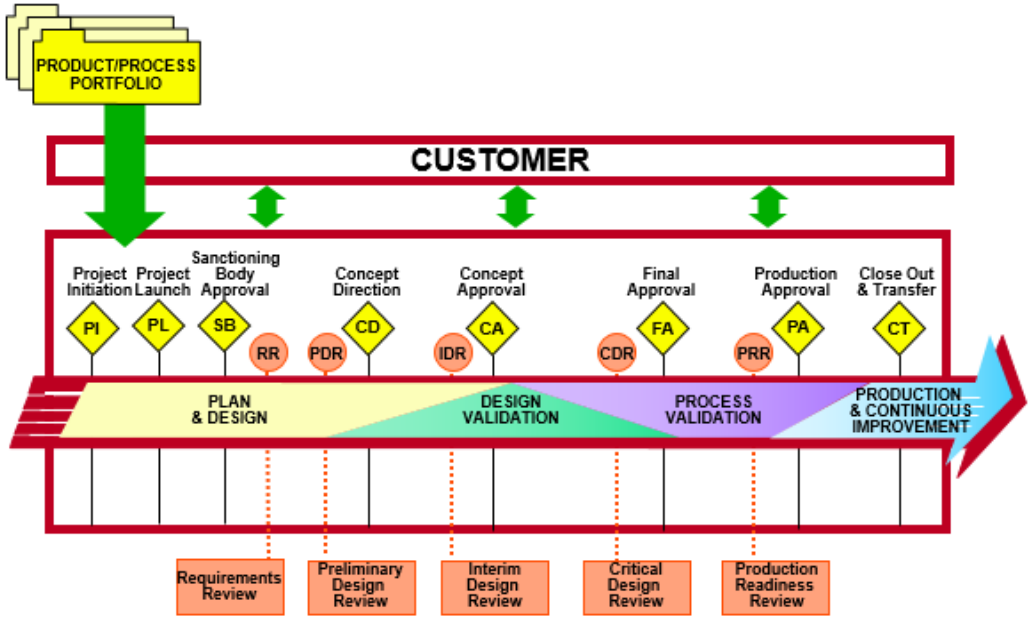
How do we do it?

Design and development process is described in PDP/PDP 2.0 and in EOS procedures.

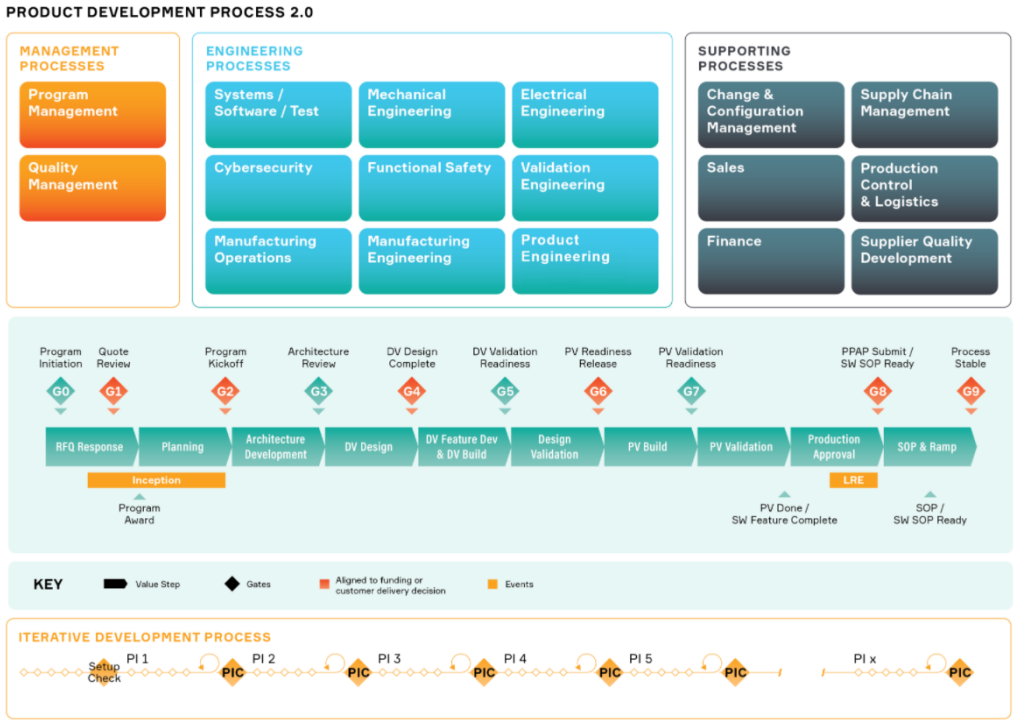
Documentation of Handoff from Flow 3 to Flow 4 is by Flow 3-to-4 Handoff form:

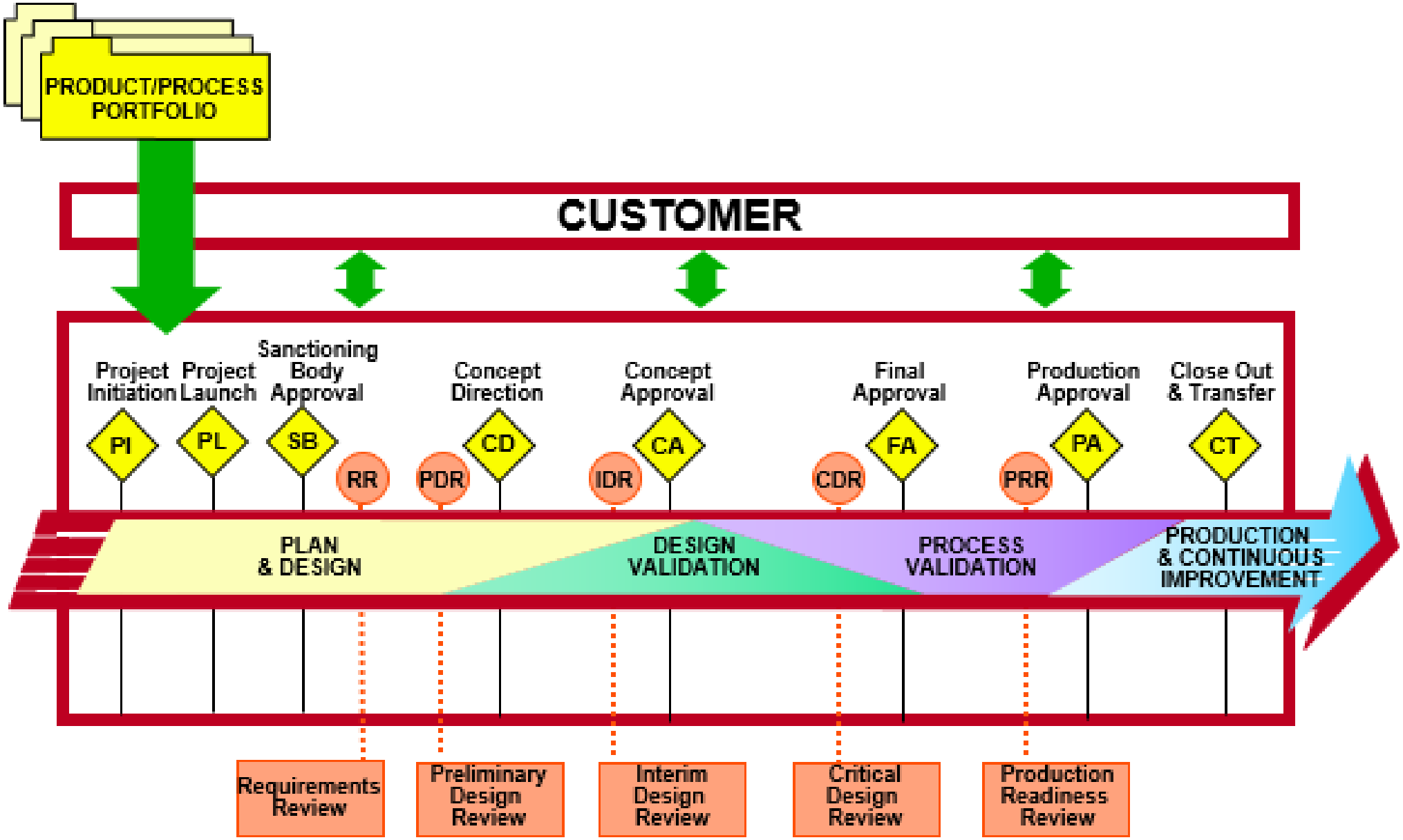
- *HOGP_3-6_SA_02-F01_EN* (AS&UX, S&PS EDS)
- *EAGP_3-6_SA_04-F01_EN* (Connection Systems)

S&PS:

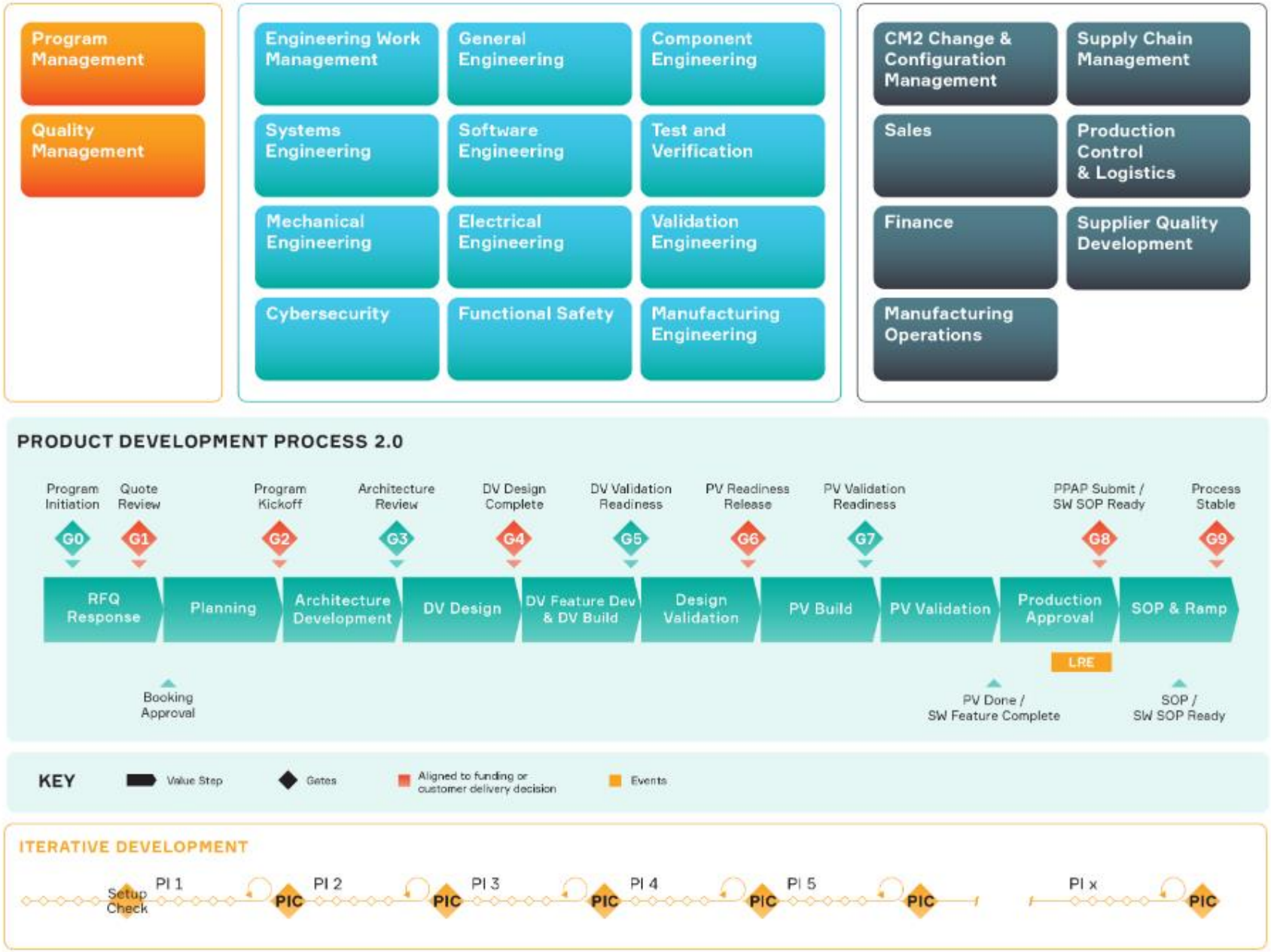


AS&UX:




PRODUCT/PROCESS PORTFOLIO
CUSTOMER
Project Initiation
Project Launch
Sanctioning Body Approval
Concept Direction
Concept Approval
Final Approval
Production Approval
Close Out & Transfer
PI
PL
SB
RR
PDR
CD
IDR
CA
CDR
FA
PRR
PA
CT
PLAN & DESIGN
DESIGN VALIDATION
PROCESS VALIDATION
PRODUCTION & CONTINUOUS IMPROVEMENT
Requirements Review
Preliminary Design Review
Interim Design Review
Critical Design Review
Production Readiness Review

APTIV



Training:

PDP 2.0 Training
Gate Review Training
Process Overview – PDP 2.0 training

Process description and forms:

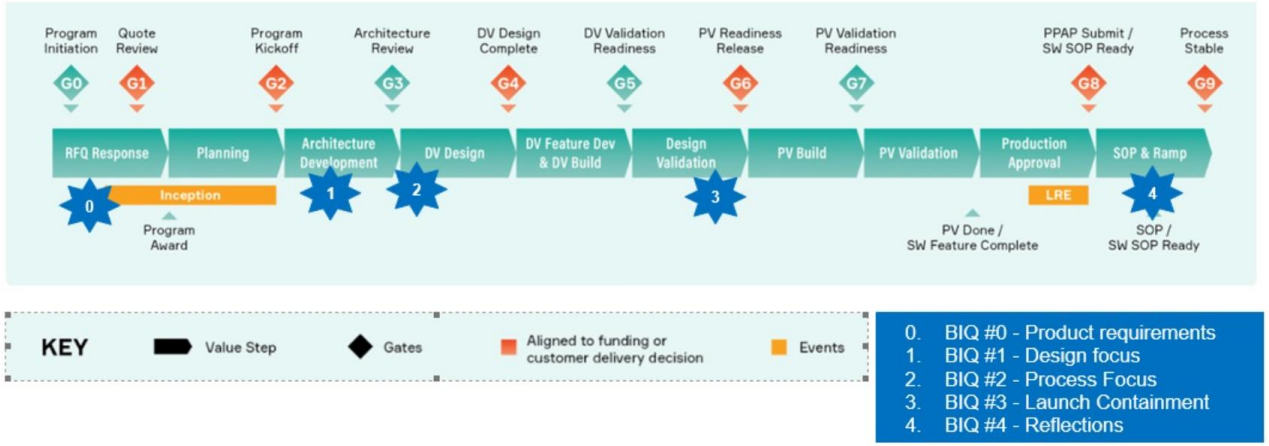
ESGP_4-1_PM_07_EN
Gate Reviews
ESGP_4-1_PM_07-F02_EN
Gate Review Template
ESGP_4-1_PM_07-F01_EN
Work Product Tracker for Gate Reviews
ESGP_4-1_PE_26_EN
Engineering Readiness Review
ESGP_4-1_PE_26-F01_EN
Work Product Tracker for Engineering Readiness Reviews

APTIV

How do we do it?

BIQ process is an approach to ensure the production of high quality products by designing products and processes that prevent defects.

Built in Quality (BIQ)



APTIV

8.3.2 Design and development planning

Planning and development process is defined, including design and development stages and associated control. Below points are taken into consideration during planning of design and development:

- the nature, duration and complexity of the design and development activities;
- the required process stages, including applicable design and development reviews, verification and validation;
- the responsibilities and authorities;
- the internal and external resource needs;
- the need to control interfaces between persons involved;
- the need for involvement of customers and users;
- the requirements for subsequent provision of products and services;
- the level of control expected for the design and development process by customers;

The documented information are available.

APTIV

8.3.2.1 Design and development planning – supplemental

The organization shall ensure that design and development planning includes all affected stakeholders within the organization and, as appropriate, its supply chain.

Examples of areas for using such a multidisciplinary approach include but are not limited to the following:

- Project management (for example APQP or VDA MLA),
- Product and manufacturing process design activities (for example, DFM and DFA), such as consideration of the use of alternative designs and manufacturing processes,
- Development and review of product design risk analysis (FMEAs) and process risk analysis (e.g. FMEAs, process flows, control plans, and standard work instructions).

APTIV

Multidisciplinary approach

- Contingency plans review (6.1.2.3)
- Plant, facility, and equipment planning (7.1.3.1)
- Organization manufacturing feasibility (8.2.3.1.3)
- Planning of design and development, such as APQP, DFM, DFA, FMEA (8.3.2.1)
- Special characteristics (8.3.3.3)
- Supplier selection process (8.4.1.2)

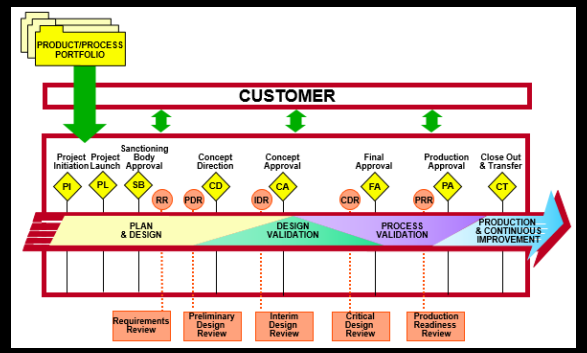
NOTE: A multidisciplinary approach typically includes the organizations design, manufacturing, engineering, quality, production, purchasing, supplier, maintenance, and other appropriate functions.

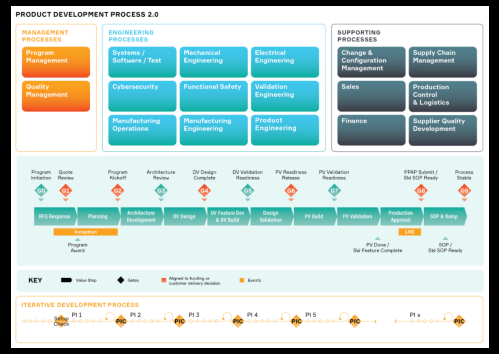
APTIV

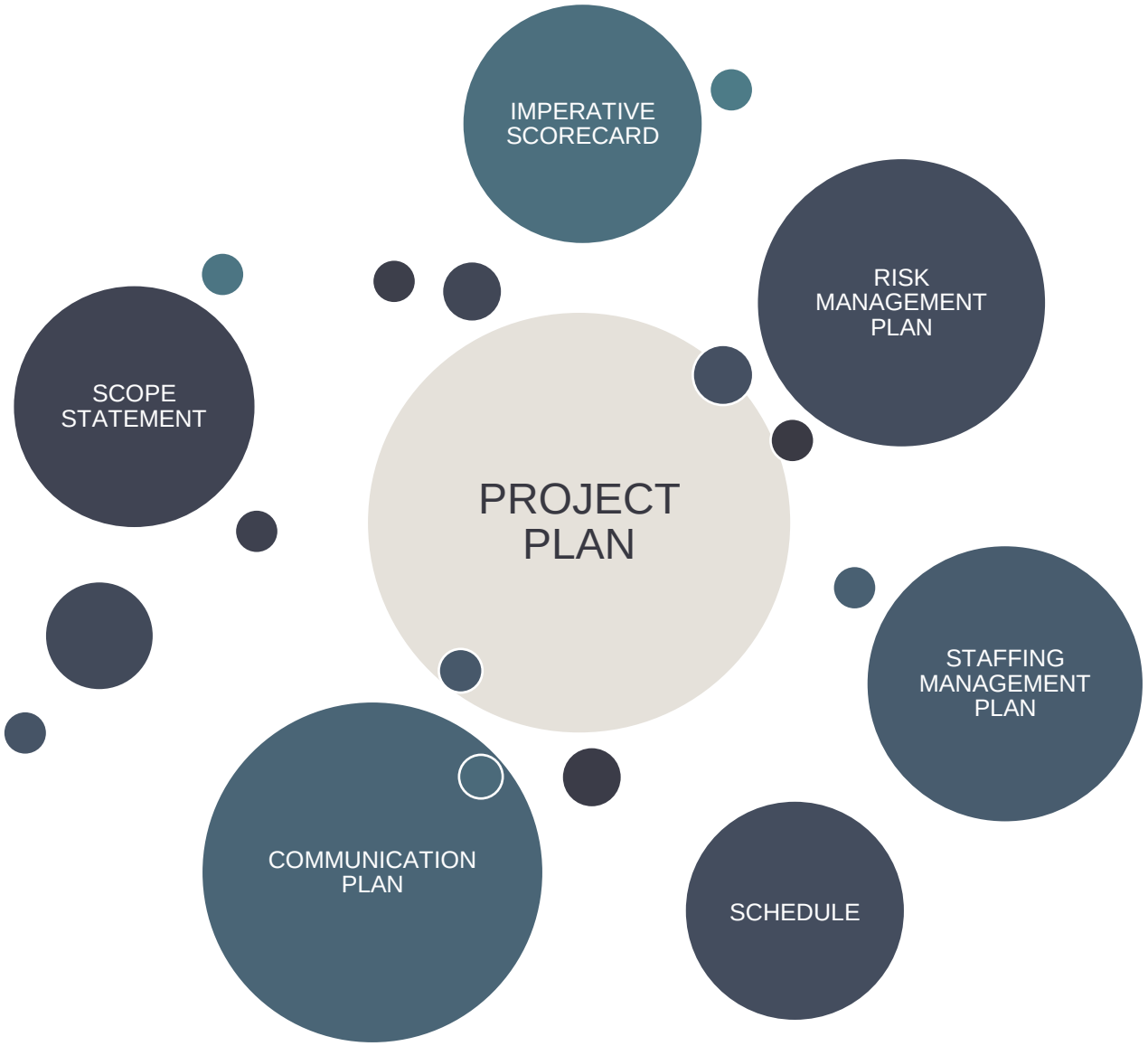
How do we do it?

Projects in Aptiv are developed by using PDP/PDP 2.0 approach.

Project Manager coordinates the work of the project team, maintains the project schedule, plans project reviews, reports metrics, identifies project risks and manages the resources needed to complete the project.







APTIV

8.3.2.3 Development of products with embedded software

- A process for quality assurance shall be used for the products with internally developed embedded software.
- Evaluate the software development process (using approperiate methods) using prioritization based on risk and potential impact to the Customer. Documented information of a software development capability self-assessment shall be retained.
- Software development shall be included within the scope of internal audit program.

APTIV

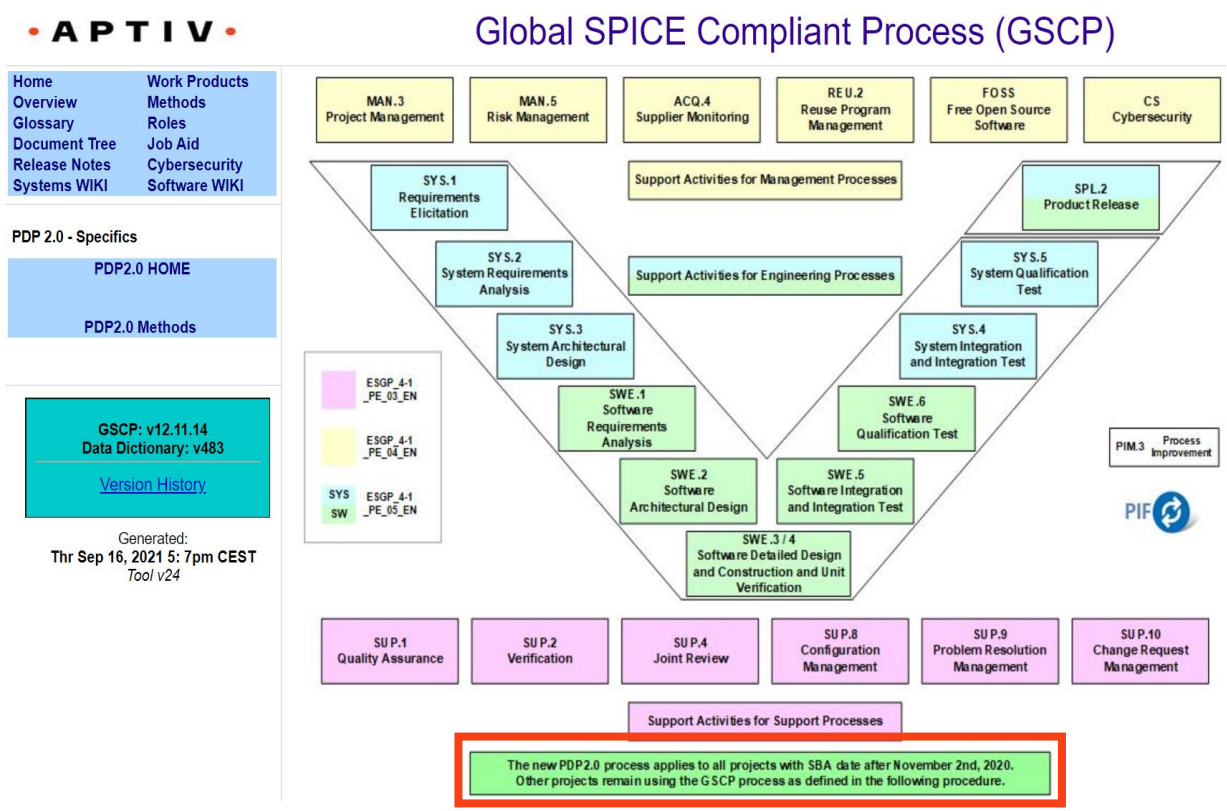
How do we do it?

ESGP_4-1_PE_03_EN Global SPICE Compliant Process for Support Processes – obsolete

ESGP_4-1_PE_04_EN Global SPICE Compliant Process for Management Processes - obsolete

ESGP_4-1_PE_05_EN Global SPICE Compliant Process for Systems and Software Engineering Processes - obsolete

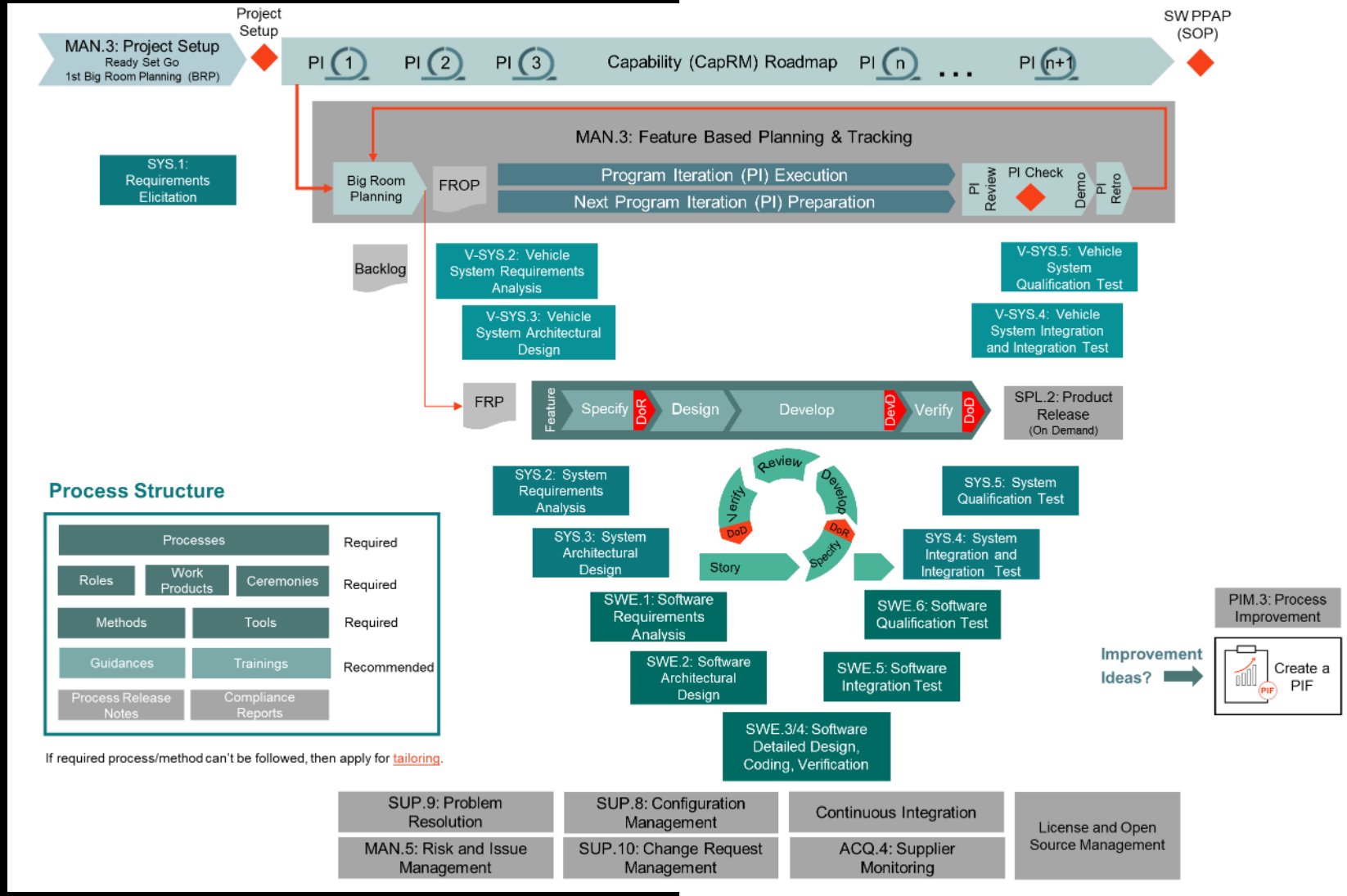
Global SPICE Compliant Process (GSCP)



APTIV

How do we do it?

ASPICE – PDP 2.0 Stages



APTIV

8.3.3, 8.3.3.1, 8.3.3.2 Design and Development Inputs

- The organization shall identify, document, and review product design input requirements as a result of contract review.
- Inputs shall be adequate for design and development purposes, complete and unambiguous.
- Conflicting design and development inputs shall be resolved.
- The organization shall have a process to deploy information gained from previous design projects, competitive product analysis (benchmarking), supplier feedback, internal inputs, field data, and other relevant sources for current and future projects of a similar nature.

APTIV

Exercise - design and development inputs, manufacturing process design inputs

https://forms.office.com/r/udXywvhqiJ

8.3.3 Design and Development Inputs
8.3.3.1 Product design input
8.3.3.2 Manufacturing process design input

Product design inputs	**Manufacturing process design** inputs
• functional and performance requirements; • statutory and regulatory requirements (including statutory and regulatory requirements of the customer-identified country of destination); • standards or codes of practice that the organization has committed to implement, • potential consequences of failure due to the nature of the products and services • product specifications including but not limited to special characteristics • boundary and interface requirements, • identification, traceability, and packaging, • consideration of design alternatives, • assessment of risks with the input requirements and the organizations' ability to mitigate/ manage the risks, including form the feasibility analysis, • information derived from previous similar design and development activities; • targets for conformity to product requirements (preservation, reliability, durability, serviceability, health, safety, environmental, development timing, and cost) • embedded software requirements	• performance requirements; • statutory and regulatory requirements (including statutory and regulatory requirements of the customer-identified country of destination), • standards or codes of practice that the organization has committed to implement, • product design output data including special characteristics, • targets for productivity, process capability, timing, and cost, • manufacturing technology alternatives, • customer requirements, if any, • experience from previous developments, • new materials, • product handling and ergonomic requirements • design for manufacturing (DFM) and design for assembly (DFA) The manufacturing process design shall include the use of error-proofing methods.

How do we do it?

Identification, documentation, and review is carried out as part of the PDP process.

Examples of used tools:

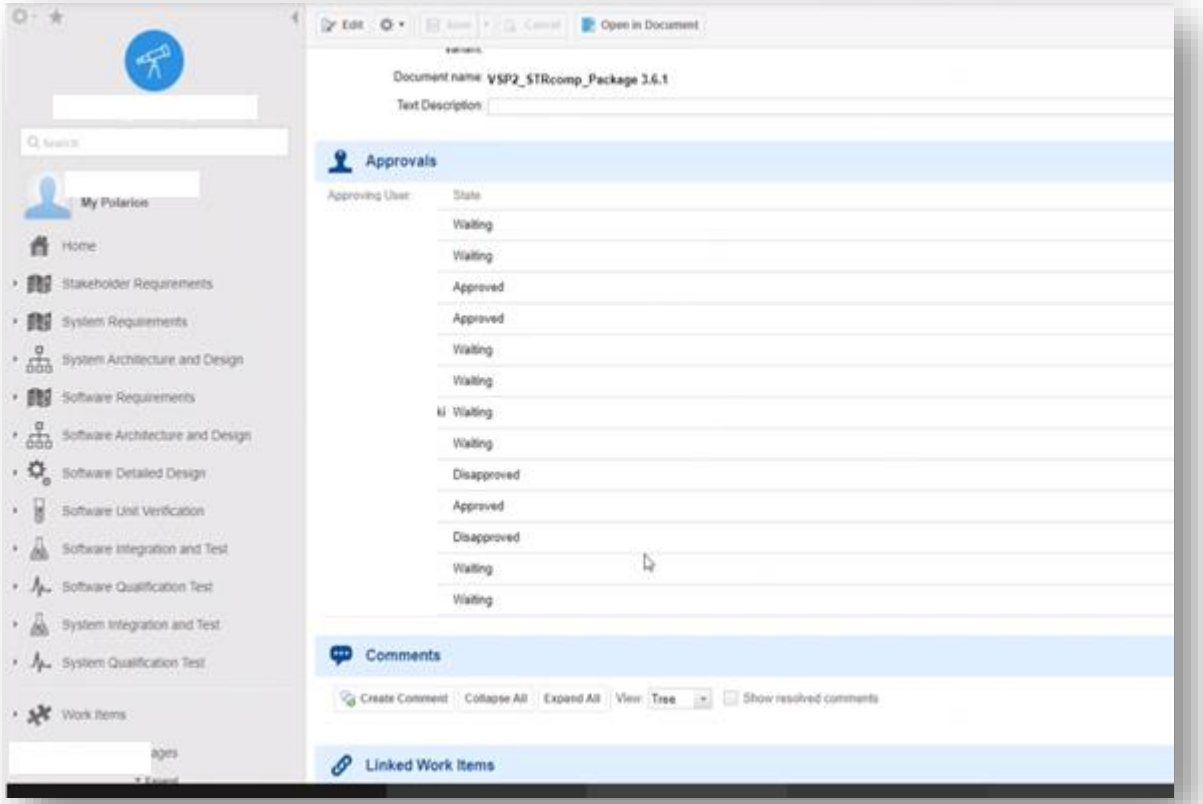
- Polarion
- DOORS
- Excel – Requirements Analysis Review

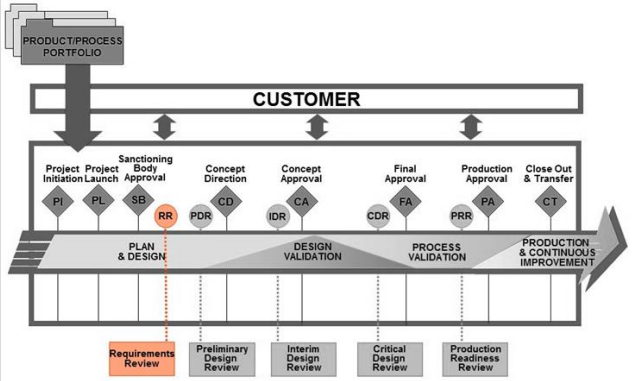
EAGP_3-4_PE-EUO_01-F03_EN
Electrical Centers Workbook

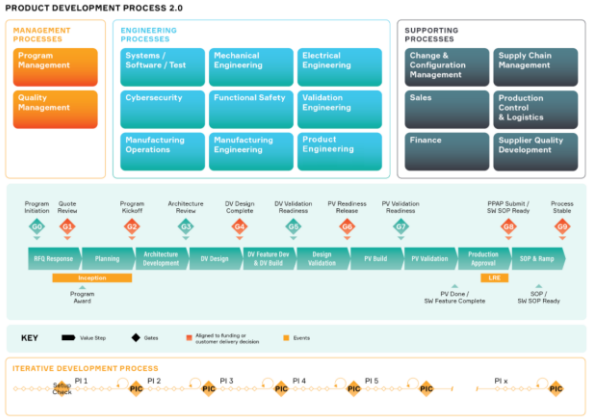
EAGP_3-4_PE-EUO_01-F01_EN
Product Engineer Workbook (Connection Systems)

EAGP_4-1_PE_02-F01_EN
Design Review Checklist (EDS)

ESGP_4-1_PE-SYS_09_EN
Requirements Elicitation







APTIV

How do we do it?

The aim of **Lessons Learned** is to stop and rethink completed projects (processes).

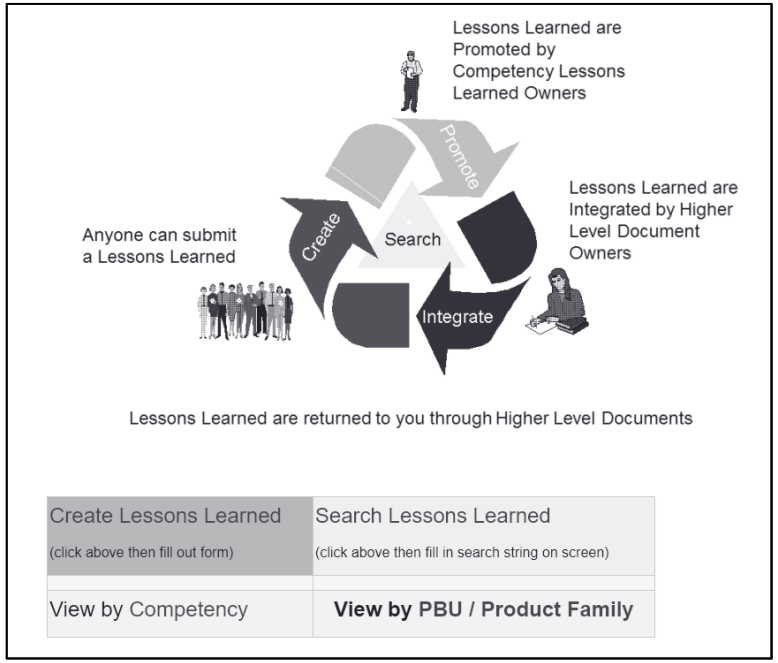
The causes of successes and failures are analyzed, in order to define conclusions for the future that will increase efficiency or quality.

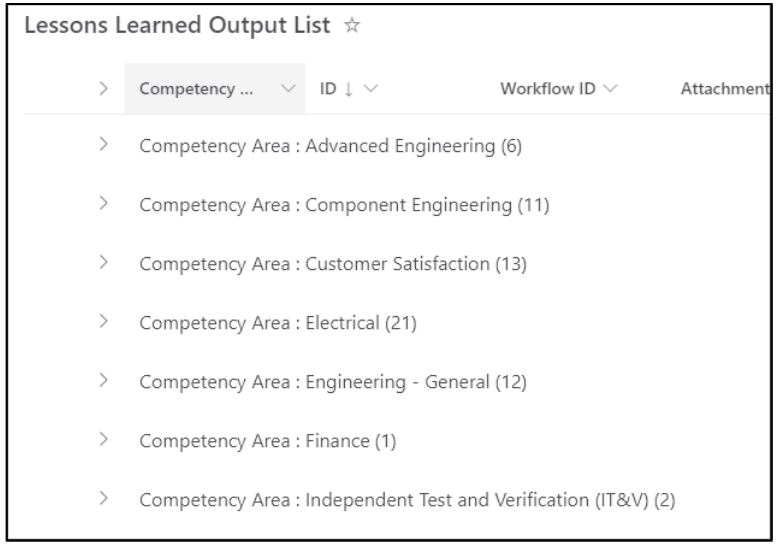
AS&UX Lessons Learned database

Aptiv EDS PE Global sharing knowledge portal

Lessons Learned database Connection Systems

Lessons Learned Database





APTIV

8.3.3.3 Special characteristics

The organization shall use a multidisciplinary approach to establish, document, and implement its processes to identify special characteristics, including these determined by the customer and the risk analysis performed by the organization.

It includes:

- documentation of all special characteristics in the product and/or manufacturing documents (as required), risks analysis (such as FMEA), control plans, and standard work/operator instructions; special characteristics are identified with specific markings and are documented in the manufacturing documents which show the creation of, or the controls required, for these special characteristics;
- development of control and monitoring strategies for special characteristics of products and production processes;
- customer-specified approvals, when required;
- compliance with customer-specified definitions and symbols or the organizations equivalent symbols or notations, as defined in a symbol conversion table. The symbol conversion table shall be submitted to the customer, if required.

APTIV

How do we do it?

HOGP_4-2_PE_04_EN
Classification of Product and Process Characteristics (Corporate)

ESGP_4-2_PE_02_EN
Classification of Product and Process Characteristics (AS&UX)

EAEP_4-2_PE_11_EN
Classification of Product and Process Characteristics (Connection Systems)

EAGP_4-2_PE_19_EN
Special Characteristic Management (EDS)

HOGP_4-2_PE_04_EN Classification of Product and Process characteristics (Corporate)

KPC A product characteristic with particular significance to quality or customer satisfaction. KPC characteristics are classified as special. A KPC may be associated with product safety, customer or Aptiv regulatory compliance (regulations), fit or function.	Safety, Compliance (SC)	▽
	Fit, Function (FF)	◊
QCI A product characteristic primarily associated with system interfaces or mounting in the customer application. It may also be associated with other product or process-related design features	Customer Interface (CI)	◗

Special Characteristics Matrix

Customer effect classification according to Mercedes-Benz Special Terms	symbol according to Mercedes-Benz Special Terms	Aptiv characteristic	Aptiv symbol	Capability
DS: Documentation of relevance to safety Components or systems whose malfunction or failure may place the life and limb of other road traffic users in direct risk are safety-relevant..	DS	SC KPC	▽	• Short-term process capability Cmk ≥ 2.00 • Long-term process capability Cpk ≥ 1.67
DZ: Documentation of certification relevance (incl. emission relevance) Components or systems whose data, verifications, construction permits etc. are used in certificates or country-specific registration documents or which are checked on type approval are certification-relevant..	DZ	SC KPC	▽	

APTIV

8.3.4 Design and Development Controls

Design and development controls contain:

- Reviews are conducted to evaluate the ability of the results of design and development to meet requirements.
- Verification activities are conducted to ensure that the design and development outputs meet the input requirements.
- Validation – activities are conducted to ensure that the resulting products and services meet the requirements for the specified application or intended use.

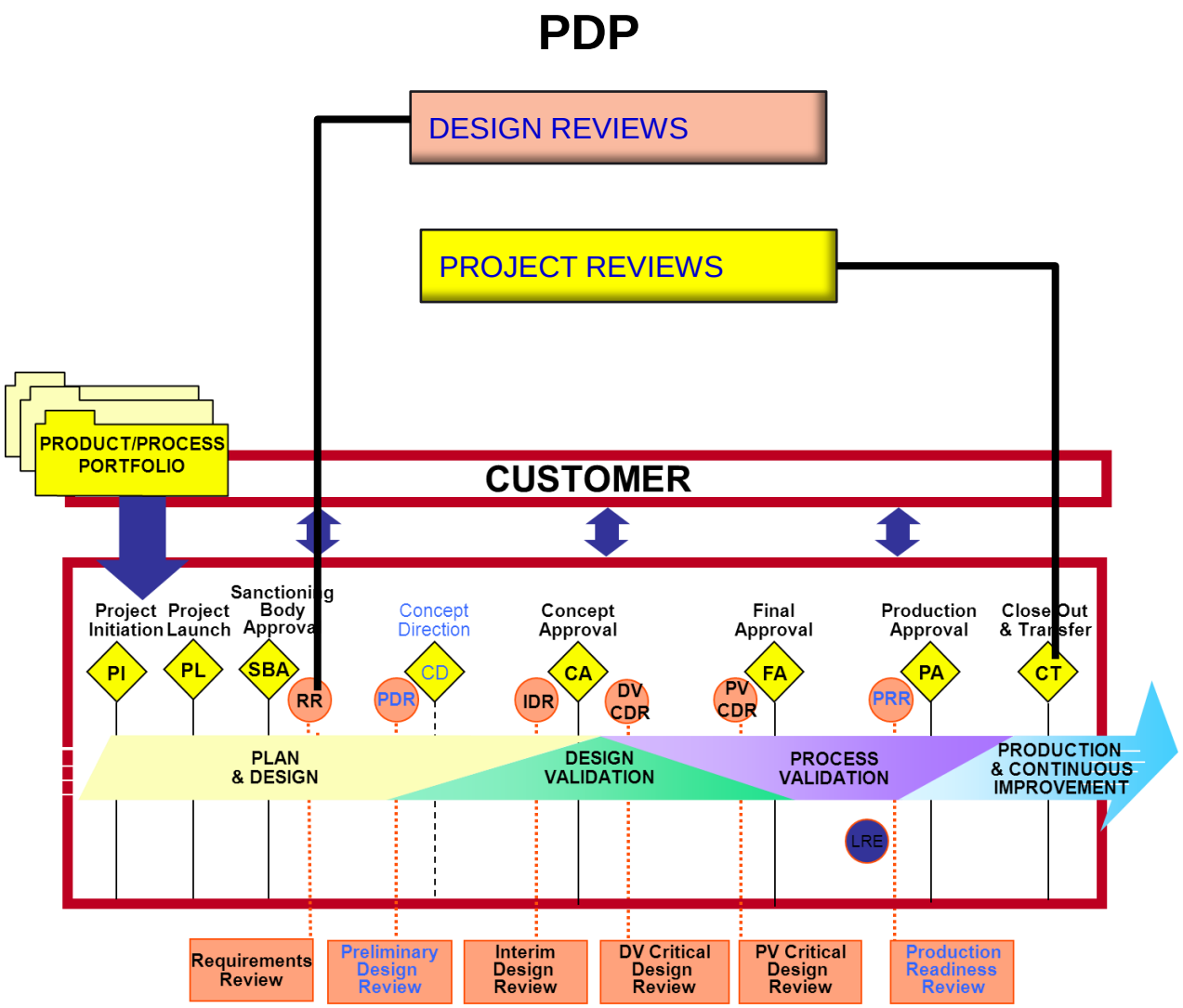
Any necessary actions shall be taken on problems determined during the reviews, or verification and validation activities.

Documented information of these activities is retained.

APTIV

How do we do it?

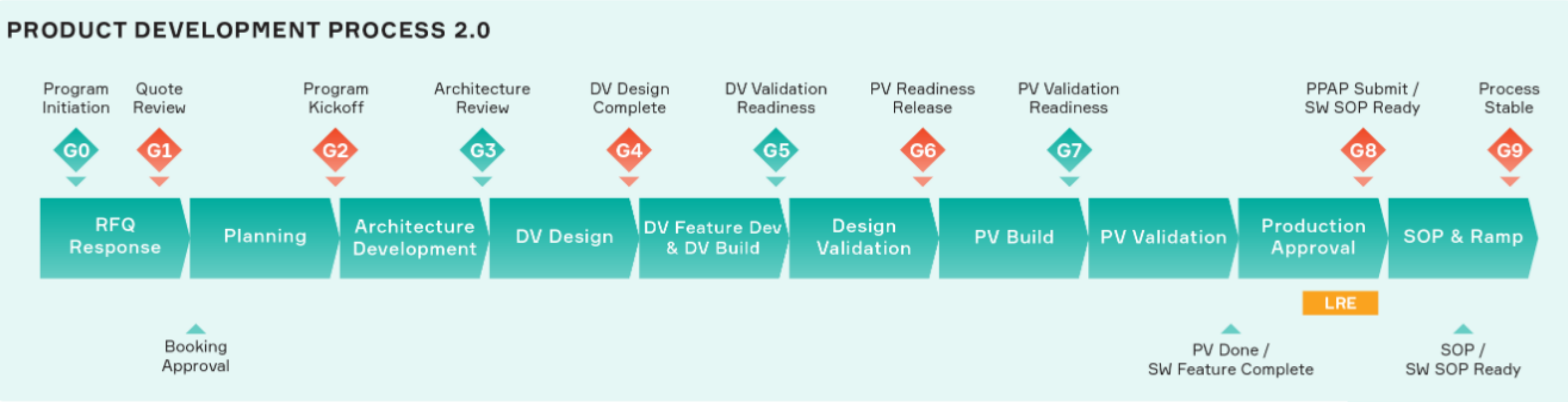
DESIGN REVIEWS (Technical)	PROJECT REVIEWS (Management)
Checks „Design” against Technical requirements.	Checks project status against project plan.
Active participation of Technical experts, the project team.	Presentation of the project status and risk. Discussion within the participants of the review.
The scope is narrow, focused on product/ process issues.	The scope is wide, focused on closing actions, tasks and checking whether the intended goals have been achieved.



APTIV

How do we do it?

PDP 2.0



Opis procesów i formularze:

ESGP_4-1_PM_07_EN Gate Reviews
ESGP_4-1_PM_07-F02_EN Gate Review Template
ESGP_4-1_PM_07-F01_EN Work Product Tracker for Gate Reviews
ESGP_4-1_PE_26_EN Engineering Readiness Review
ESGP_4-1_PE_26-F01_EN Work Product Tracker for Engineering Readiness Reviews

Szkolenia:

PDP 2.0 Training
Gate Review Training
Process Overview – PDP 2.0 training

APTIV

8.3.4.1 Monitoring

At specified stages during the design and development of products and processes organization shall defined, analyse, and report measurements. Summary results shall be provided as an input to management review.

When required by the customer, measurements of the product and process development activity shall be reported to the customer at stages specified, or agreed to, by the customer.

NOTE: When appropriate, these measurements may include quality risks, costs, lead times, critical paths, and other measurements.

APTIV

How do we do it?

For each project Flawless Lunch Metrics are used:

- HOGP_4-1_PM_04_EN Flawless Launch Metrics Process
- HOGP_4-1_PM_04-A01_EN FLM Definitions, Methods & Calculation Guidelines

Flawless Launch Metric

Definitions

- Flawless Launch Metric elements must be Yes/No target comparisons

Customer Flawless	Target	Metric
Full PPAP Submit on Time	Date	Yes/No
Worldwide Formal Customer Complaints	0	Yes/No
Internal Flawless		
Financial	Meets OI%	Yes/No

APTIV

8.3.4.2 Design and development validation

- Design and development validation shall be performed in accordance with customer requirements, including any applicable industry and governmental agency-issued regulatory standards.
- The timing of design and development validation shall be planned in alignment with customer-specified timing, as applicable.
- Where contractually agreed with the customer, this shall include evaluation of the interaction of the organizations product, including embedded software, within the system of the final customer's product.

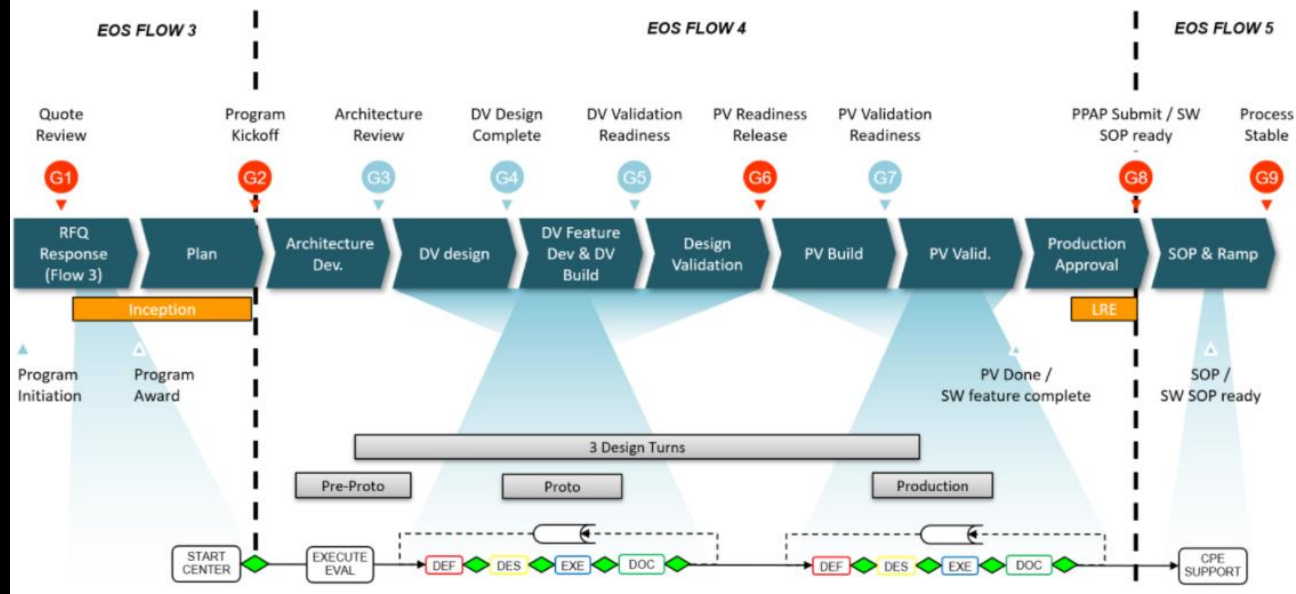
Validation is the activity to ensure that the manufactured products and services meet the requirements related to the specified application or intended use.

APTIV

How do we do it?

Design Validation (DV)
Tests are typically performed early in the design process when first product hardware is available to detect potential design issues as early as possible.

Process Validation (PV)
Tests are performed on units manufactured on series production line to confirm, that the final production design works and (when manufactured on actual production line) meets customer requirements.



APTIV

8.3.4.3 Prototype program

- When required by the customer, the organization shall have:
  - a prototype program and
  - control plan.
- The organization shall use whenever possible, the same-suppliers, tooling and manufacturing processes as will be used in production.
- All performance-testing activities shall be monitored for timely completion and conformity to requirements.

APTIV

How do we do it?

ESGP_4-2_PM_03_EN

Pre-Production Build Responsibility (AS&UX)

EAEP_4-3_PE_03_EN

Produce / Assemble Prototypes
(S&PS Connection Systems)

EAEP_4-3_PE_05_EN

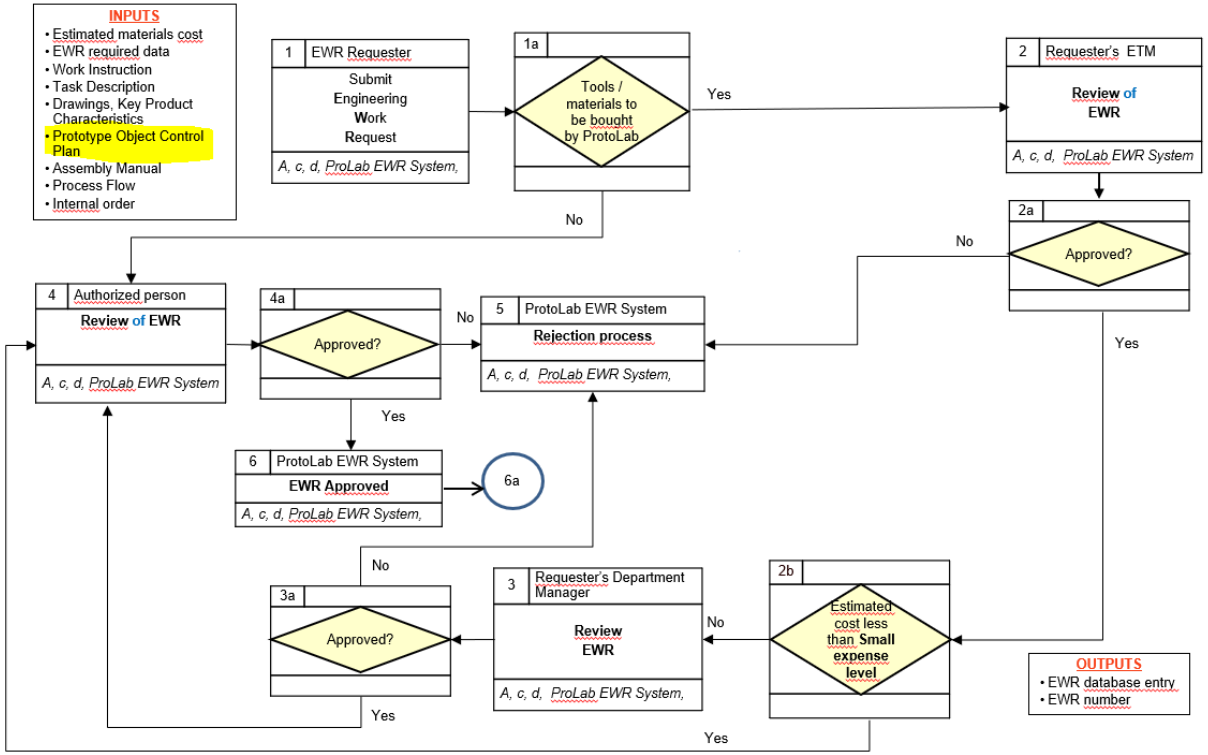
Build Prototypes - Develop Process (PE)
(S&PS Connection Systems)

EAEP_4-3_ME_01_EN

Prototype Production Process (S&PS EDS)

Local procedure

ESEP_4-2_PE-TCK_02_EN Prototype Shop Process



Prototype Object Control Plan – document prepared by CAQE based on customer demand, with defined inspection steps for prototype builds

CAQE – Customer Advanced Quality Engineer

APTIV

8.3.4.4 Product approval process

The organization shall:

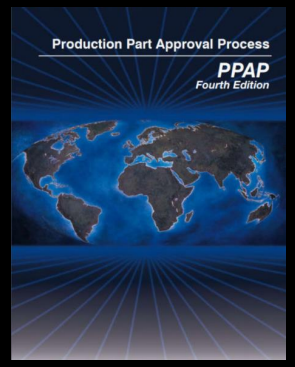
- establish, implement, and maintain a product and manufacturing approval process conforming to requirements defined by the customers
- approve externally provided products and services per ISO 9001, Section 8.4.3, prior to submission of their part approval to the customer
- obtain documented product approval prior to shipment, if required by the customer. Records of such approval shall be retained.

NOTE: Product approval should be subsequent to the verification of the manufacturing process.

APTIV

How do we do it?

PPAP - Production Part Approval Process, mainly required by customers from US market.



VDA 2 Production process and product approval (PPA), mainly required by German customers.

ESGP_4-4_CS_01_EN Part Approval Process

EAGP_4-4_CS_02_EN Prepare and Review Part Certification Package – S&PS

AIAG PPAP

Retention/Submission Requirements Table 4.2

(Normative)

*[NOTE: Table 4.2 lists submission and retention requirements. Mandatory and applicable requirements for a **PPAP** record are defined in the **PPAP** manual and by the customer.]*

		Submission Level				
Requirement		*Level 1*	*Level 2*	*Level 3*	*Level 4*	*Level 5*
1.	Design Record	R	S	S	*	R
	- for proprietary components/details	R	R	R	*	R
	- for all other components/details	R	S	S	*	R
2.	Engineering Change Documents, if any	R	S	S	*	R
3.	Customer Engineering approval, if required	R	R	S	*	R
4.	Design FMEA	R	R	S	*	R
5.	Process Flow Diagrams	R	R	S	*	R
6.	Process FMEA	R	R	S	*	R
7.	Control Plan	R	R	S	*	R
8.	Measurement System Analysis Studies	R	R	S	*	R
9.	Dimensional Results	R	S	S	*	R
10.	Material, Performance Test Results	R	S	S	*	R
11.	Initial Process Studies	R	R	S	*	R
12.	Qualified Laboratory Documentation	R	S	S	*	R
13.	Appearance Approval Report (AAR), if applicable	S	S	S	*	R
14.	Sample Product	R	S	S	*	R
15.	Master Sample	R	R	R	*	R
16.	Checking Aids	R	R	R	*	R
17.	Records of Compliance With Customer-Specific Requirements	R	R	S	*	R
18.	Part Submission Warrant (PSW)	S	S	S	S	R
	Bulk Material Checklist (see 4.1 above)	S	S	S	S	R

S = The organization shall submit to the customer and retain a copy of records or documentation items at appropriate locations.

R = The organization shall retain at appropriate locations and make available to the customer upon request.

* = The organization shall retain at appropriate locations and submit to the customer upon request.

APTIV

How do we do it?

CSR Volvo Truck:

Document requirements

	Requirements	Level 1	Level 2	Level 3	Level 4	Level 5
1	Design record	R	S	S	*	R
2	Engineering change documents, if any	R	S	S	*	R
3	Volvo Group engineering approval, if required	R	R	S	*	R
4	Design FMEA	R	R	S	*	R
5	Process flow diagrams	R	R	S	S	R
6	Process FMEA	R	R	S	S	R
7	Control plan	R	R	S	S	R
8	Measurement System Analysis studies	R	R	S	*	R
9	Dimensional results	R	S	S	S	R
10	Material and performance test results	R	S	S	S	R
11	Initial process studies	R	R	S	*	R
12	Qualified laboratory documentation	R	S	S	*	R
13	Appearance Approval Report (AAR), if applicable	S	S	S	S	R
14	Sample product	R	R	S	*	R
15	Master sample	R	R	R	*	R
16	Checking aids	R	R	R	*	R
17	R Volvo Group specific requirements	R	S	*	R	
18	Part Submission Warrant (PSW)	S	S	S	S	R
19	Picture of sample part (3 views)**	S	S	S	S	R

S The supply partner shall **submit** a copy of the records or documentation and retain a copy at appropriate locations
R The supply partner shall **retain** at appropriate locations and make available to Volvo Group upon request
* The supply partner shall retain at appropriate locations and submit to Volvo Group upon request
** Volvo Group specific requirement
For VCE and for PPAP Level 4 , Dimensional results and PSW to be submitted (S). All other documents to be retained (R).

CSR Volvo Truck:

Software documentation requirements

1	Statement of Work (SOW)	R
2	QDPR compliance matrix	R
3	Communications plan	R
4	Document traceability matrix	R
5	Responsibilities matrix	R
6	Skills and training matrix	R
7	Customer requirement baseline reference	R
8	Software Requirements Specification (SWRS)	R
9	Software Development Plan (SWDP)	R
10	Software Development Schedule (SWDS)	R
11	Risk management plan	R
12	Risk management list	R
13	Progress reports	R
14	Complexity report	R
15	Software Quality Plans (SWQP)	R
16	Software Design Description SWDD)	R
17	Hardware/Software interface specification	R
18	Requirements traceability matrix	S
19	Node Function Implementation Plan (FIP)	R
20	Software Test Plan (SWTP)	S
21	Software Test Description (SWTD)	R
22	Software Test and Verification Report (SWTR)	S
23	Software Version Description (SWVD)	S
24	Software Product Specification (SWPS)	R
25	Software Configuration Management Plan (SWCP)	R
26	Software configuration item list	R
27	Software Worst-Case Analysis Report (SWWCA)	R
28	Software maintenance plan	R
29	Source code	R
30	ASPICE assessment report	R
31	ASPICE assessment action plan	R

S The supply partner shall **submit** a copy of the records and retain a copy at appropriate locations
R The supply partner shall **retain** a copy and make available to Volvo Group upon request

APTIV

8.3.5 Design and Development Outputs

Design and development outputs shall:

- meet the input requirements;
- include or reference monitoring and measuring requirements, as appropriate, and acceptance criteria;
- ensure that products can be manufactured, and services delivered.

Documented information on design and development outputs shall be retained.

APTIV

Exercise - IATF training - design and development outputs, manufacturing process design outputs

https://forms.office.com/r/Cw6gqvMePB

8.3.5, 8.3.5.1 Design and development outputs
8.3.5.2 Manufacturing process design output

Design and development outputs	Manufacturing process design output
• design risk analysis (FMEA), • reliability study results, • product special characteristics, • results of product design error-proofing such as DFSS, DFMA, and FTA, • product definition including 3D models, technical data packages, product manufacturing information, and geometric dimensioning & tolerancing (GD&T), • 2D drawings, product manufacturing information, geometric dimensioning & tolenracing (GD&T), • product design review results, • service diagnostic guidelines and repair and serviceability instructions, • Service part requirements, • packaging and labeling requirements for shipping.	• specifications and drawings, • special characteristics for product and manufacturing process, • identification of process input variables that impact characteristics, • tooling and equipment for production and control, including capability studies of equipment and processes, • manufacturing process flow charts/layouts, including linkage of product, process, and tooling, • capacity analysis, • manufacturing process FMEA;, • maintenance plans and instructions, • control plan (see Annex A), • standard work and work instructions, • process approval acceptance criteria, • data for quality, reliability, maintainability, and measurability, • results of error-proofing identification and verification as appropriate, • methods of rapid detection, feedback, and correction of product/manufacturing process nonconformities.

APTIV

8.3.6 Design and development changes

- The organization shall identify, review and control changes made during, or subsequent to, the design and development of products and services.
- The organization shall retain documented information on:
  - design and development changes;
  - the results of reviews;
  - the authorization of the changes;
  - the actions taken to prevent adverse impacts.

APTIV

8.3.6.1 Design and development changes – Supplemental

- All design changes after initial product approval, including those proposed by the organization or its suppliers, for potential impact on fit, form, function, performance, and/or durability shall be evaluated.
- These changes shall be validated against customer requirements and approved internally, prior to production implementation.
- If required by the customer, the organization shall obtain documented approval, or a documented waiver, from the customer prior to production implementation.
- For products with embedded software, the organization shall document the revision level of software and hardware as a part of the change record.

How do we do it?

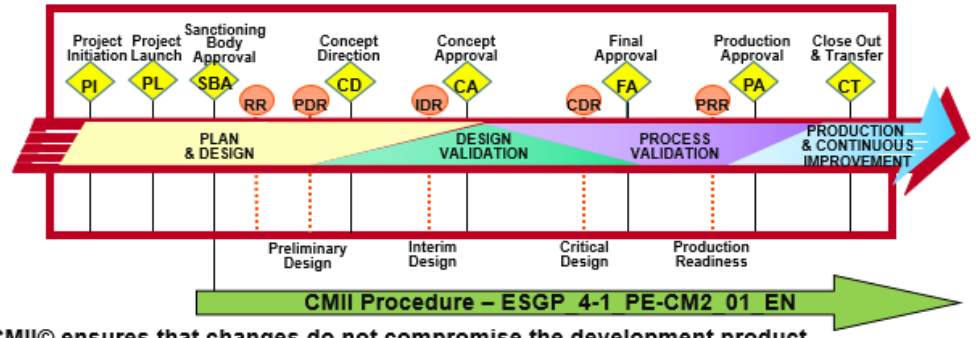
ESGP_4-1_PE-CM2_01_EN
Configuration Management II Change Process (AS&UX)

EAGP_4-1_PE_10_EN
Global Engineering Change Procedure (S&PS EDS)

EAEP_4-1_ME_01_EN
Engineering Change Management (S&PS EDS)

EAGP_4-1_ME_01_EN
Change Management Procedure (S&PS Connection Systems)

CMII Process Workflow Training
Product Development and Production



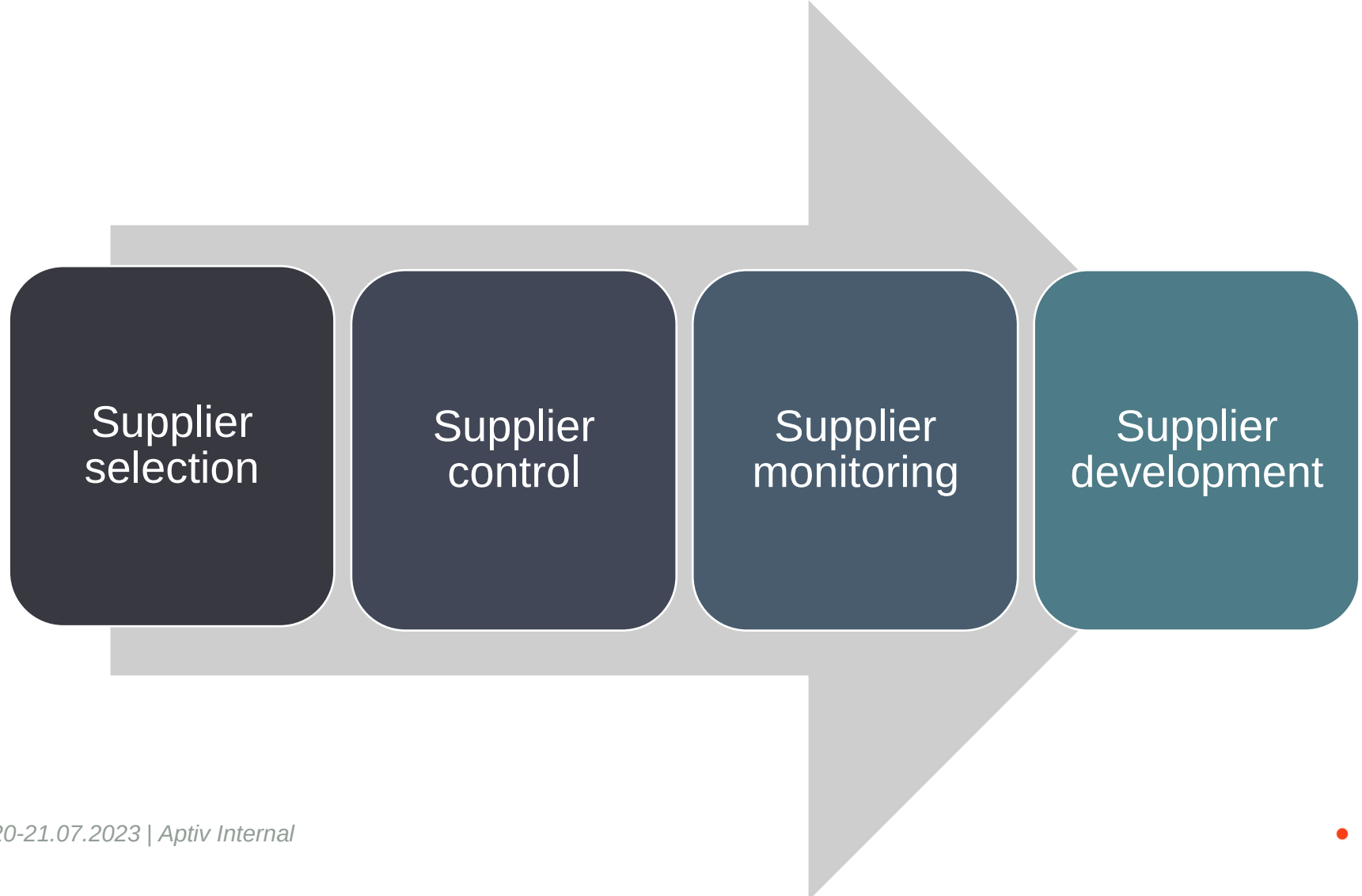
Pre SOP, CMII© ensures that changes do not compromise the development product
Post SOP, CMII© enables flawless execution of changes until the end of the lifecycle
All documents existing at SBA need a CR (Change Request) & CN (Change Notice) to implement a chang
CRs and CNs are used to create new documents which did not exist at SBA

Quiz

https://forms.office.com/r/3QUVTV4Deg

APTIV

8.4 Control of Externally Provided Processes, Products and Services



APTIV

8.4 Control of Externally Provided Processes, Products and Services

8.4.1 General

- The organization shall ensure that externally provided processes, products and services conform to requirements.
- The organization shall determine the controls to be applied to externally provided processes, products and services.
- The organization shall determine and apply criteria for the evaluation, selection, monitoring of performance, and re-evaluation of external providers.
- Documented information of the suppliers' evaluations shall be retained.

APTIV

Aptiv Krakow/ Aptiv implementation

APTIV

Aptiv Customer Specific Requirements

For Use with ISO 9001:2015 and IATF 16949:2016

Effective June 20th 2022

Introduction

Suppliers shall develop a quality management system **that meets industry standards and Aptiv's requirements.** This Aptiv Customer Specific Requirements (CSR) document **sets forth Aptiv's requirements that shall be followed by its suppliers.** (…)

Normative Reference Documents

VDA 1 Documented Information and Retention
VDA 2 Production Process and Product Approval (PP
VDA 4 Quality Assurance in the Process Landscape
VDA 5 Capability of Measurement Processes, Capabi
VDA ISA Control (Information Security Requirements
VDA 6.3 Process Audit
VDA 6.5 Product Audit
VDA 19.1 Inspection of Technical Cleanliness (if required)
VDA 19.2 Technical Cleanliness (if required)
Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers (MAQMSR)

Standards

IATF 16949 Automotive Quality Management System Standard
ISO 9001 Quality Management Systems
ISO 14001 Environmental Management Systems
ISO 19011 Guidelines for Auditing Management Systems
ISO 27001 Information Security Management System/ Information Security Assessment (ISO/IEC 27001/ TISAX)
ISO 45001 Occupational Health and Safety Management Systems
ISO 16232 Road Vehicles Cleanliness of Components and Systems:2018

4.3.2	**OEM Customer Specific Requirements** In addition to the aforementioned Aptiv Customer Specific Requirements documented and referenced in this document, it is the Supplier's responsibility to ensure that they are at all times compliant with relevant Original Equipment Manufacturers (OEM) Customer Specific Requirements and standards irrespective of how they are relayed in the Supply Chain. OEM CSR's are to be found on our Customer's websites and can also be found on the IATF website at this link; https://www.iatfglobaloversight.org/oem-requirements/customer-specific-requirements/ Raw material suppliers and software suppliers are required to comply with the CSR. Aptiv will request certificates as part of our registration process and on an ongoing basis to ensure certificates remain valid.

8.4.1.2 Supplier selection process

The organization shall have a documented supplier selection process.

The selection process shall include:

- an assessment of the selected suppliers risk to product conformity and uninterrupted supply of the organization product to their customers;
- relevant quality and delivery performance,
- an evaluation of the suppliers QMS,
- multidisciplinary decision making
- an assessment of software development capabilities, if applicable.

APTIV

8.4.1.2 Supplier selection process

Other supplier selection criteria that should be considered include the following:

- Volume of automotive business (absolute and as a percentage of total business),
- Financial stability,
- Purchased product, material, or service complexity,
- Required technology (product or process),
- Adequacy of available resources (e.g. people, infrastructure),
- Design and development capabilities (including project management),
- Manufacturing capability,
- Change management process,
- Business continuity planning (e.g. disaster preparedness, contingency planning),
- Logistics process,
- Customer service.

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Aptiv Krakow/ Aptiv implementation

HOGP_4-2_SC-DIR_03_EN

SCM Sourcing – New Part, Standard Part, Global Sourcing,Supplier Negotiation

HOGW_4-2_SC-DIR_23_EN RFQ Instruction

HOGW_4-2_SC-DIR_23-F01_EN RFQ Form

ESGW_4-2_SC_03_EN SPDP Risk Management Process Applied

Purchased Parts Risk Assessment Worksheet

Risk assessment of potential Supplier includes among others review of:

- technical possibilities,
- the capability of the production proces on similar parts,
- capability reports;
- status of ISO 9001 or IATF 16949 certification,
- experience in project management,
- Information about the production plant,
- control of suppliers(tire III).

8.4.1.3 Customer-directed sources (also known as "Directed-buy")

When specified by the customer, the organization shall purchase products, materials, or services from customer- directed sources.

All requirements of Section 8.4 (except the requirements in IATF 16949, Section 8.4.1.2 Supplier selection process) are applicable to the organizations control of customer-directed sources unless specific agreements are otherwise defined by the contract between the organization and the customer.

APTIV

Aptiv Krakow/ Aptiv implementation

HOGW_4-2_SC-DIR_22_EN Customer Directed Buys Instructions

The purpose of this work instruction is to define the global process for properly documenting and communicating a customer directed buy (CDB) of purchased product.

Customer Directed Buy (CDB) – Purchases made from suppliers specified by customers of the Aptiv saleable goods containing the directed buy goods.

APTIV

HOGW_4-2_SC-DIR_22-F01_EN

LEVEL 3 FORM

Customer Directed Buys Form SCM

Date:	Enter Date	**Customer:**	Enter Customer Name
To:	Enter Appropriate Buyer Name	**Program:**	Enter Program Information
From:	Enter Appropriate Sales Rep Name	**SOP Date:**	Enter SOP Date
Subject:	Customer Directed Buy Authorization	**PPAP Due Date:**	Enter PPAP Date

Please consider this form as the Aptiv Supply Chain Management authorization for use in all sourcing activities, in consideration of the following customer directed suppliers and terms:

Part Number	Part Description	Change Level	Not to Exceed Price	Supplier Name	Manufacturing DUNS Code	Manufacturing Location

Comments:	

Sales Approval	
Signature:	
Full Name (printed):	
Telephone Number:	
Date:	

Authorization Identification Number	
Quote/Action Plan/DSR #/DSP # etc.:	

8.4.2 Type and Extent of Control

The organization shall ensure that externally provided processes, products and services do not adversely affect the organization's ability to consistently deliver conforming products and services to its customers.

- Externally provided processes shall remain within the control of organization's quality management system (QMS).
- Controls that organization intends to apply to an external provider and those it intends to apply to the resulting output shall be defined.
- The potential impact of the externally provided processes, products and services on the organization's ability to consistently meet customer and applicable statutory and regulatory requirements shall be taken into consideration.

APTIV

8.4.2.1 Type and extent of control – supplemental

The organization shall have a documented process to:

- identify outsourced processes,
- select the types and extent of controls used to verify conformity of externally provided products, processes, and services to internal (organizational) and external customer requirements

The process shall include the criteria and actions to escalate or reduce the types and extent of control and development activities based on supplier performance and assessment of product, material, or service risks.

APTIV

Aptiv Krakow/ Aptiv implementation

HOGW_4-1_SC-SQD_03_EN Use of SPDP in Flow 4

HOGW_5-1_SC-SQD_01_EN Use of SPDP in Flow 5

SPDP Tasks

ESGP_4-1_PE_04_EN Global SPICE Compliant Process for Management Processes – Supplier Monitoring (ACQ.4) / Stages –ACQ.4

APTIV Supplier Quality & Development

Home | SPDP | Assessments | Site contents

Sync | Add shortcut to OneDrive | Export to Excel | Power Apps | Automate | ...

SPDP Tasks

Document Type	Document No	Name	Last Update	Stage
.Task	01	01 Risk Assessment.doc	10/18/2021	APQP
.Task	02	02 Key Stakeholders Meeting.doc	10/11/2021	APQP
.Task	03	03 Technical Reviews.doc	10/22/2021	APQP
.Task	03_1	03_1 Supplier Kick Off Conference.doc	9/20/2021	APQP
.Task	04_1	04_1 Program Reviews.doc	10/13/2021	APQP
.Task	04_2	04_2 First Time Quality Improvement Pro...	10/13/2021	APQP, Curre Production
.Task	05	05 Timing Charts - Open Issues.doc	10/13/2021	APQP
.Task	06	06 Team Feasibility Commitment Letter.doc	10/14/2021	APQP
.Task	07	07 Process Flow Diagrams.doc	10/18/2021	APQP
.Task	08	08 DFMEA.doc	10/18/2021	APQP
.Task	09	09 Design Reviews.doc	10/19/2021	APQP
.Task	10	10 Gage Reviews.doc	10/20/2021	APQP
.Task	11	11 Pre-prototype and Prototype Material....	10/22/2021	APQP
.Task	12	12 PFMEA Strategy.doc	10/26/2021	APQP
.Task	13	13 Control Plan.doc	10/27/2021	APQP
.Task	14	14 Proactive Containment.doc	4/7/2020	APQP
.Task	15	15 PPAP.docx	4/7/2020	APQP

8.4.2.2 Statutory and regulatory requirements

- Process to ensure that purchased products, processes, and services conform to the current applicable statutory and regulatory requirements in the country of receipt, the country of shipment, and the customer-identified country of destination shall be documented.
- If the customer defines special controls for certain products with statutory and regulatory requirements, the organization shall ensure they are implemented and maintained as defined, included at suppliers.

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Aptiv
Customer Specific Requirements

For Use with ISO 9001:2015 and IATF 16949:2016

Effective June 20th 2022

VDA-No.	Deliverables insofar as they are applicable to the product	Organi-zation	PPA-A
5. General deliverables			
5.1	Evidence of compliance with legal require-ments E.g. country-specific certificates, test numbers, permits, etc. for the environment, safety, recycling, etc. acc. to the specifications agreed upon with the customer.	D	S

Statutory and Regulatory Conformity (Material Expectations)
Supplier shall provide samples, testing, environmental, and Safety Data Sheet (SDS) information within the timeframe stated by Aptiv. SDS is required for bulk materials, raw materials, rust preventive, grease, lubricating oil, or any other chemical materials that are on, in, or part of an assembly provided to Aptiv.

Substances of Concern and Recycled Content
Supplier shall disclose the composition of all parts supplied, or proposed to be supplied, as detailed in the Aptiv 10949001 Substances of Concern and Recycled Content specification on ASP.

Information for external providers – supplemental
The Supplier shall pass down all applicable statutory and regulatory requirements and special product and process characteristics to their Suppliers and require the Suppliers to cascade all applicable requirements down the supply chain to the point of manufacture.

8.4.2.3 Supplier quality management system development

- The oragnization shall require from their suppliers the implementation and improvement of the Quality Management System (QMS) with final certification for compliance with IATF 16949.
- The QMS certified to ISO 9001 (confirmed by a third-party audit) is the initial minimum acceptable level of development, unless the client accepts a different solution.

APTIV

8.4.2.3 Rozwój systemu zarzadzania jakością dostawcy

ISO 9001 -
Third-party audit

ISO 9001 -
Third-party audit
+
Np.. MAQMSR*
Second –party audit

ISO 9001 -
Third-party audit
+
IATF 16949-
Second –party audit

IATF 16949 –
Third-party audit

***MAQMSR** – Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers

APTIV

Aptiv Krakow/ Aptiv implementation

Quality Management System
All ISO 9001 / IATF 16949 requirements and all requirements of this document must be integrated into Supplier's quality management system. **Unless otherwise authorized, the ultimate objective is for Suppliers to become certified to both ISO 9001 and IATF 16949.**

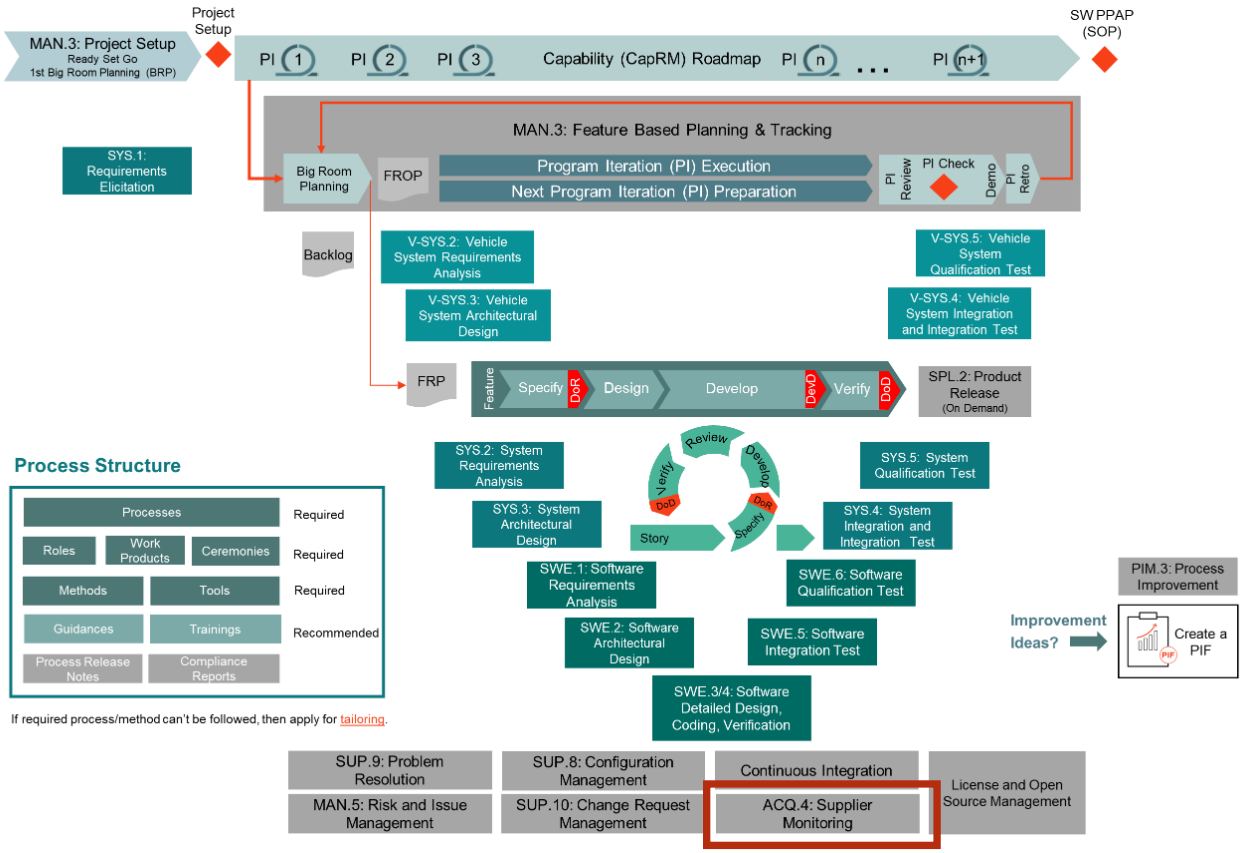
8.4.2.3.1 Automotive product-related software or automotive products with embedded software

- The organization shall require their suppliers of automotive product-related software, or automotive products with embedded software, to implement and maintain a process for software quality assurance for their products.
- A software development assessment methodology shall be utilized to assess the supplier's software development process. Using prioritization based on risk and potential impact to the customer, the organization shall require the supplier to retain documented information of a software development capability self-assessment.

APTIV

Aptiv Krakow/ Aptiv implementation

ESGP_4-1_PE_04_EN Global SPICE Compliant Process for Management Processes - **Supplier Monitoring (ACQ.4) / Stages – ACQ.4**



8.4.2.4 Supplier monitoring

The organization shall have a documented process and criteria to evaluate supplier performance in order to ensure conformity of externally provided products, processes, and services to internal and external customer requirements.

At a minimum, the following supplier performance indicators shall be monitored:

- delivered product conformity to requirements;
- customer disruptions at the receiving plant, including yard holds and stop ships;
- delivery schedule performance;

APTIV

Aptiv Krakow/ Aptiv implementation

HOGW_4-4_SC-SQD_18_EN Supplier Quality Scorecard - Roles and Responsibilities

EAGP_4-2_SC_10_EN Supplier Monitoring

Scorecards (Supplier Scorecard)

Month	2019-3	2019-2	2019-1	2018-12	2018-11	2018-10	20
Quality	85	85	85	95	80	100	1
Shipping	65	100	100	100	100	100	1

ASN Compliance (at Ultimate DUNS Level)

Month	Prelim 2019-1	2018-12	2018-11	2018-10	2018-9	2018-8	2018-7	2018-6
Non-Compliant	17	17	19	21	20	17	26	27
Performance (%)	87	81	83	86	84	82	80	74

Supplier On Time Delivery (at Ultimate DUNS Level)

Month	Prelim 2019-1	2018-12	2018-11	2018-10	2018-9	2018-8	2018-7	2018-6
Non-Compliant	105	73	92	37	35	20	59	57
Performance (%)	60	61	69	86	86	88	78	78

8.4.2.4.1 Second-party audity

- The organization shall include a second-party audit process in their supplier management approach.
- Based on a risk analysis, including product safety / regulatory requirements, performance of the supplier, and QMS certification level, at a minimum, the organization shall document the criteria for determining the need, type, frequency, and scope of second-party audits.
- The organization shall retain records from second-party audits (raports).
- If the scope of the second-party audit is to assess the supplier's quality management system, then the approach shall be consistent with the automotive process approach.

APTIV

Aptiv Krakow/ Aptiv implementation

HOGP_5-2_SC-SQD_03_EN Annual Risk Based Supplier Audit

Below types of audits can be used:

- Layout Inspection and Functional Testing HOGP_5-2_SC-SQD_03-F02_EN
- Problem Case corrective action verification
- Run at Rate verification
- Manufacturing Capability Assessment (MCA)

8.4.2.5 Supplier development

- The organization shall determine the priority, type, extent, and timing of required supplier development actions for its active suppliers.
- The organization shall implement actions necessary to resolve open (unsatisfactory) performance issues and pursue opportunities for continual improvement.

APTIV

8.4.3 Information for External Providers

- The organization shall ensure the adequate communication with the external providers (requirements as follow shall be communicated: product/ process/ services requirements, requirements related to competences, control and monitoring requirements, verification and validation activities).
- Requirements which shall be communicated include also the approval of products, services, methods, processes and equipments and the release of product and services.

APTIV

Aptiv Krakow/ Aptiv implementation

HOGW_4-1_SC-SQD_03_EN Use of SPDP in Flow 4

HOGW_5-1_SC-SQD_01_EN Use of SPDP in Flow 5

SPDP Tasks – 15 PPAP

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Home | SPDP | Assessments | Site contents

Sync | Add shortcut to OneDrive | Export to Excel | Power Apps | Automate | ...

SPDP Tasks

Document Type	Document No	Name	Last Update	Stage
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.Task	14	14 Proactive Containment.doc	4/7/2020	APQP
.Task	15	15 PPAP.docx	4/7/2020	APQP

8.4.3.1 Information for external providers – supplemental

The organization shall pass down to their suppliers:

- all applicable statutory
- and regulatory requirements and special product and process characteristics

The organization shall require the suppliers to cascade all applicable requirements down the supply chain to the point of manufacture.

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Aptiv Krakow/ Aptiv implementation

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Aptiv
Customer Specific Requirements

For Use with ISO 9001:2015 and IATF 16949:2016

Effective June 20th 2022

Information for external providers – supplemental

The Supplier shall pass down all applicable statutory and regulatory requirements and special product and process characteristics to their Suppliers and require the Suppliers to cascade all applicable requirements down the supply chain to the point of manufacture.

Test:

https://forms.office.com/r/PkeKQL7P0z

APTIV

8.5 Production and Service Provision

8.5.1 Control of Production and Service Provision

- 8.5.1.1 Control Plan
- 8.5.1.2 Standardized work – operator instruction and visual standards
- 8.5.1.3 Verification of job set-ups
- 8.5.1.4 Verification after shutdown
- 8.5.1.5 Total productive maintenance (TPM)
- 8.5.1.6 Management of production tooling and manufacturing test inspection tooling and equipment
- 8.5.1.7 Production scheduling

8.5.2 Identification and Traceability

8.5.3 Property Belonging To Customers or External Providers

8.5.4 Preservation

8.5.5 Post-Delivery Activities

- 8.5.5.1 Feedback of information from service
- 8.5.5.2 Service agreement with customer

8.5.6 Control of changes

- 8.5.6.1.1 Temporary change of process controls

APTIV

8.5.1.1 Control plan

- The organization shall develop control plans (in accordance with Annex A) (…).
- Control plans for pre-launch and production shall show linkage and incorporates information from:
  - design risk analysis (if provided by customer),
  - Process flow diagram and
  - manufacturing process risk analysis outputs (such as FMEA).

The organization shall, if required by the customer, provide measurement and conformity data collected during execution of either the pre-launch or production control plans.

APTIV

Annex A: Control Plan – A.1 Phases of the control plan

Control plan covers three distinct phases, as appropriate:

a) Prototyp phase: a description of the dimensional measurements, material, and performance tests that will occure during building of the prototype. The organization shall have a prototype control plan, if required by the Customer.

b) Pre-launch phase: a description of the dimensional measurements, material, and performance tests that occure after prototype and before full production. Pre-launch is defined as a production phase in the process of product realization that may be required after prototype build;

c) Production phase: documentation of product/process characteristics, process controls, tests, and measurement systems that occur during mass production

For **highly automated processes** (e.g., semiconductors, machining, welding) where the control method (i.e., specification/tolerances, sample size, frequency) is controlled by a system (i.e., MES – Manufacturing Execution System or similar), summary control information is acceptable with direct references or linkage to the system that manages the detailes process control information.

APTIV

Annex A: Control Plan – A.1 Phases of the control plan

A control plan incudes, as a minimum, the following contents:

General data:
a) control plan number;
b) issue date and revision date, if any;
c) customer information (see customer requirements);
d) organization's name/site designation;
e) part number(s) or common control plan designation;
f) part name/description;
g) engineering change level;
h) phase covered (prototype, pre-launch, production);
i) key contact;
j) part/process step number;
k) process name/operation description
l) functional group/area responsible

Product control:
a) product-related special characteristics;
b) other characteristics for control (number, product or process);
c) specification/tolerance;

Annex A: Control Plan – A.1 Phases of the control plan

Process control:

a) process parameters (including process settings and tolerances);
b) process-related special characteristics;
c) machines, jigs, fixtures, tools for manufacturing (including identifiers, as appropriate);

Methods:

a) evaluation measurement technique;
b) error-proofing;
c) sample size and frequency;
d) control method;
e) process parameters (including process settings and tolerances);

Reaction plan:

a) reaction plan (include or reference);

APTIV

PLAN KONTROLI

Strona . . . . z . . . . .

..... Prototyp ..... Wstępne uruchomienie ...X...Produkcja Nr Planu Kontrolnego **001**	Kluczowy Kontakt/telefon **J.Davis /313-555-5555**	Data (orginalna) **1-26-92**	Data (rewizji) **2-2-92**
Nr Części / Ostatni Poziom Zmian Technicznych **22521211/G 11-2-92**	Główny Zespół **Grupa Rozwojowa Produktu (E01) - Patrz lista**	Zatwierdzenie Techniczne przez Klienta/Data (Jeżeli Wymagane)	
Nazwa/Opis części **Krata Plastikowa Wtryskiwana**	Dostawca/Zatwierdzenie Zakładu/Data	Zatwierdzenie Jakości przezKlienta/Data (Jeżeli Wymagane)	
Dostawca/Zakład 4-B Grill Co. Zakład Nr 3 / Kod Dostawcy **0123**	Inne Zatwierdzenie/Data (Jeżeli Wymagane)	Inne Zatwierdzenie/Data (Jeżeli Wymagane)	

Numer Procesu/ Części	Nazwa Procesu /Numer Operacji	Maszyna, Urządzenie Zaciskowe, Narzędzia do Prod.	Charakterystyki			Specjalna Klasa Charakterystyk	Metody					Plan Reagowania
			Nr	Produkt	Proces		Specyfikacja/Tolerancja Produktu/Procesu	Technika Oceny Pomiaru	Próbka Wielkość	Próbka Częstotliwość	Metoda Kontroli	
3	**Plastikowy wtrysk**	**Nr Maszyny 1-5**	**18**	**Wygląd**		•	**Wolne od skaz**	**inspekcja wizualna**	**100%**	**kontynuacja**	**100% inspekcji**	**powiadom kierownika**
				brak skaz			**linie płynięcia**	**1-wsza szt. Wykupiona**			**arkusz sprawdzający**	**wyreguluj/ sprawdź ponownie**
							znaki wgłębień	**1-wsza szt. Wykupiona**			**arkusz sprawdzający**	**wyreguluj/ sprawdź ponownie**
		Nr Maszyny 1-5	**19**	**Położenie otworu mocującego**		•	**umieszczenie otworu "X"**	**Uchwyt Nr 10**	**1-wsza próbka**	**wykupienie na przebieg (serię)**	**arkusz sprawdzający**	**wyreguluj/ sprawdź ponownie**
							25 ± 1 mm		**5 szt.**	**godzinowa**	**wykres x-R**	**kwarantanna i regulacja**
		Nr Maszyny 1-5	**20**	**Wymiar**		•	**luka 3 ± 0,5 mm**	**Uchwyt Nr 10**	**1-wsza próbka**	**wykupienie na przebieg (serię)**	**arkusz sprawdzający**	**wyreguluj/ sprawdź ponownie**
		Uchwyt Nr 10	**21**	**Pasowanie obwodu**		•	**luka 3 ± 0,5 mm**	**sprawdź lukę aby złapać w 4 miejscach**	**5 szt.**	**Godzinowa**	**wykres x-R**	**kwarantanna i regulacja**
		Nr Maszyny 1-5	**22**		**Nastawienie wtryskarki**		**patrz załączona karta nastawień**	**przejrzyj kartę ustawień i ustawienia maszyny**		**każde nastawienie**	**1-wsza szt. Wykupiona**	**wyreguluj/ sprawdź ponownie**
											inspektor sprawdza ustawienia	

APTIV

8.5.1.1 Control plan

The organization shall review control plans, and update as required, for any of the following:

a) The organization determines it has shipped nonconforming product to the customer;

b) When any change occurs affecting product, manufacturing process, measurement, logistics, supply sources, production volume changes, or risk analysis (FMEA) (See Annex A);

c) After a customer complaint and implementation of the associated corrective action, when applicable;

d) At a set frequency based on a risk analysis.

If required by the customer, the organization shall obtain customer approval after review or revision of the control plan.

APTIV

8.5.2 Identification and Traceability

- The organization shall use suitable means to identify outputs when it is necessary to ensure the conformity of products and services.
- The organization shall identify the status of outputs with respect to monitoring and measurement requirements throughout production and service provision.
- The organization shall control the unique identification of the outputs when traceability is a requirement, and shall retain the documented information necessary to enable traceability.

APTIV

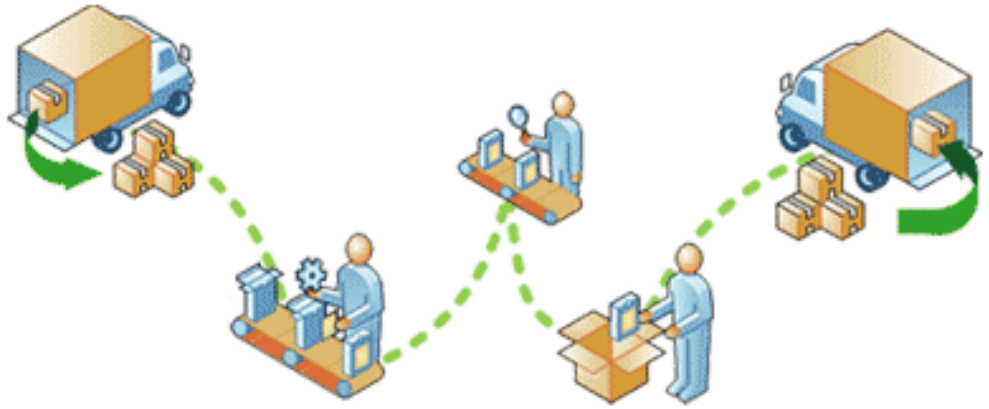
Aptiv Krakow/ Aptiv implementation

Identification

Continuous ability to distinguish the product using an appropriate marking system (e.g. cards, stamps, tags) during the entire product realization process.

Traceability

Ability to trace/follow the history of the product.



8.5.3 Property belonging to Customers or External Providers

- The organization shall exercise care with property belonging to customers or external providers while it is under the organization's control or being used by the organization.

- The organization shall identify, verify, protect and safeguard customers' or external providers' property provided for use or incorporation into the products and services.

- When the property of a customer or external provider is lost, damaged or otherwise found to be unsuitable for use, the organization shall report this to the customer or external provider and retain documented information on what has occurred.

Examples of customer or supplier property:
Materials, components, tools and equipment, test cars,
Intellectual property, personal data

APTIV

Aptiv Krakow/ Aptiv implementation

HOEP_5-3_PE-TCK_01_EN_ Control of customer and external supplier property/ Nadzorowanie własności klienta i zewnętrznego dostawcy

Test car register

Customer_Supplier Property Register

	A	B	C	D	E	F	G	H	I	J
1	DATA DOSTAWY AUTA DATE OF CAR DELIVERY	ILOŚĆ KLUCZY (przekazanych wraz z autem) NUMBER OF KEYS (handed over with the car)	AUTO: - ZAKUPIONE - BEZPŁATNE CAR: - BOUGHT - FREE	NUMER PO PO NUMBER	DOKUMENTY PRZEWOZOWE PRZEKAZANE DO LOGISTYKI TRANSPORT DOCUMENTS PROVIDED TO LOGISTICS	NADAWCA SENDER	KRAJ POCHODZENIA SAMOCHODU (KRAJ WYSYŁKI) CAR COUNTRY OF ORIGIN (SHIPPING COUNTRY)	WAGA (Orientacyjna) WEIGHT (Approximate)	NUMER REJESTRACYJNY REGISTRATION NUMBER	NUMER VIN VIN NUMBER
10	12.02.2019	3	Kupiony	453015481	NIE	mCars	PL	1980	KR 6EW53	WBA7G81040B248969
11	15.02.2019	3	Kupiony	453015482	NIE	mCars	PL	1980	KR 3LA59	WBA7G81000B248970
12	12.02.2019	3	Kupiony	453015482	NIE	mCars	PL	1980	KR 5EW94	WBA7G81020B248971
13	USA	3	Kupiony	453033292	NIE	-	USA	1715	EAV 3020	5UXTR9C51KLE21663
14	USA	3	Kupiony	453033292	NIE	-	USA	1980	EAV 3021	WBA7E4C57KGV70163
15	18.05.2018	1	Bezpłatny	N/A	NIE	Ford	DE	1554	KQB 4424	WF0EXXWPCEFJ43743
16	12.07.2018	2	Kupiony	452840049	NIE	-	PL	1481	KR 7CK73	WF0UXXWPGUJL53885
17	12.02.2019	3	Kupiony	453015480	NIE	mCars	PL	2060	KR 9EX02	WBACR61010LJ03430
18	18.03.2019	3	Kupiony	453015480	NIE	mCars	PL	1715	KR 6EX49	WBATR95060NC89209
19	23.03.2019	3	Kupiony	453015480	NIE	mCars	PL	1715	KR 8EX61	WBATR95020NC89241
20	26.03.2019	3	Kupiony	453015480	NIE	mCars	PL	1715	KR 9EX15	WBATR95060NC89307
21	19.03.2019	3	Kupiony	453015480	NIE	mCars	PL	1715	KR 4EX13	WBATR950X0NC89214
22	19.02.2019	3	Kupiony	453051593	NIE	mCars	PL	1880	KR 8EX75	WBABC21000BT80484
23	19.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KPQ 8278	WF03XXTTG3JA60329
24	24.04.2019	1	Bezpłatny	N/A	Tak	Ford DE	DE	2000	KPQ 3891	1FA6P8TH3K5110462
25	24.04.2019	1	Bezpłatny	N/A	Tak	Ford DE	DE	2000	KQE 1149	WF0JXXGAHJJT55274
26	26.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KQB 4643	WF0JXXWPCJGK41246
27	01.04.2019	1	Bezpłatny	N/A	TAK	IVECO	IT	8000	brak	WJMM1VUH60C292644
28	02.05.2019	2	Kupiony	453159921	NIE	mCars	PL	1980	KR3JS65	WBA7G81030B446314
29	04.05.2019	2	Kupiony	453159920	NIE	mCars	PL	2060	KR7LE34	WBACR61090LJ18922
30		1	Bezpłatny	N/A	TAK	IVECO	IT	8000	K01 01P13	WJMM62ATZ0C406848
31	11.09.2019	2	Bezpłatny	N/A	TAK	FIAT	IT	900	brak	ZFA 31200003B88964
32	21.06.2019	2	Kupiony	453159918	Nie	mCars	PL	1715	KR 7LG24	WBATR95000NC89352
33	01.10.2019	2	Kupiony	453199666	Nie	mCars	PL	1715	KR 1LJ59	WBATX35060NE02496
34	02.09.2019	2	Kupiony	453174387	Nie	Grupa PGD	PL	1650	KR 6LF96	WF0NXXGCHNKE14071
35	26.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KPQ 1063	WF0PXXGCHPJY37956
36	26.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KPQ 2241	WF0NXXGCHNJT79418
37	26.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KQE 3427	WF01XXTTGJJJ88178
38	26.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KPQ 4666	WF0FXXTTGFJB10977
39	26.04.2019	1	Bezpłatny	N/A	NIE	Ford DE	DE	2000	KPQ 6948	2FMTK4K30KBB49799
40	21.11.2019	2	Bezpłatny	N/A	TAK	FIAT	IT	900	K0101P10	ZFA 31200003D64542
41	21.11.2019	2	Bezpłatny	N/A	TAK	FIAT	IT	900	K0101P08	ZFA31200003D70737
42	30.09.2020	1	Bezpłatny	N/A	TAK	FIAT	IT	2050	K0101P14	ZFA25000002N72784
43	21.11.2019	2	Bezpłatny	N/A	TAK	FIAT	IT	900	K01 01P07	ZFA 31200003D66543
44	28.11.2019	2	Kupiony	453238108	NIE	mCars	PL	1715	KR 5LL63	WBAUZ35090N005943
45	28.11.2019	2	Kupiony	453238108	NIE	mCars	PL	1715	KR 3LL75	WBAUZ35090NE42604
46	02.01.2020	2	Kupiony	453249437	NIE	PGD	PL	1880	KR 2LS78	2FMTK4V31KBC30287
47	24.06.2019		Bezpłatny			Aptiv Norymberga	DE		W DD 27	WAUZZZF45GA002954
48	26.02.2018		Bezpłatny			Aptiv Norymberga	DE		IN MC7399	WAUZZZF41GA002997
49	09.01.2019		Bezpłatny			Aptiv Hildesheim	DE		W AP1013	WAUZZZF44JA036469
50	30.11.2018		Bezpłatny			Aptiv Norymberga	DE		IN MC 7469	WAUZZZF40GA002621
51	30.09.2019					Audi AG	DE		IN MC 7545	WAUZZZF88JN001266
52	10.12.2019	2	Kupiony			AutoSpecial	PL		KR 4PG35	WAUZZZF43LN001143
53	10.12.2019	2	Kupiony			AutoSpecial	PL		KR 4PG34	WAUZZZF32L1030924
54	25.02.2020	2	Bezpłatny			Aptiv Hildesheim	DE		WAP 1029	WAUZZZF27LN010149
55	10.08.2020	1	Bezpłatny	N/A	TAK	John Deere	DE	6000	brak	1L06110RTHR882432
56	02.09.2020	2	Kupiony			AutoSpecial	PL		KR 8SU41	WAUZZZGY0MA018623
57	10.11.2020	1	Kupiony	453707263	NIE	VW/Audi Cichy-Zasada	PL	1406	KR 3MM83	WVWZZZ3CZKE120734

8.6 Release of Products and Service

8.6.1 Release of products and services – supplemental

8.6.2 Layout inspection and functional testing

8.6.3 Appearance items

8.6.4 Verification and acceptance of conformity of externally provided products and services

8.6.5 Statutory and regulatory conformity

8.6.6 Acceptance criteria

APTIV

8.7 Control of Nonconforming Output

8.7.1 Identification and control of nonconforming outputs to prevent delivery

- 8.7.1.1 Identification and control of nonconforming outputs to prevent delivery
- 8.7.1.2 Control of nonconforming product – customer-specified process
- 8.7.1.3 Control of suspect product
- 8.7.1.4 Control of reworked product
- 8.7.1.5 Control of repaired product
- 8.7.1.6 Customer notification
- 8.7.1.7 Nonconforming product disposition

8.7.2 Retain documented information of non-conformities

APTIV

Rework i repair

Rework

activities on a non-compliant product produced according specification A in order to restore it to the original A specification.

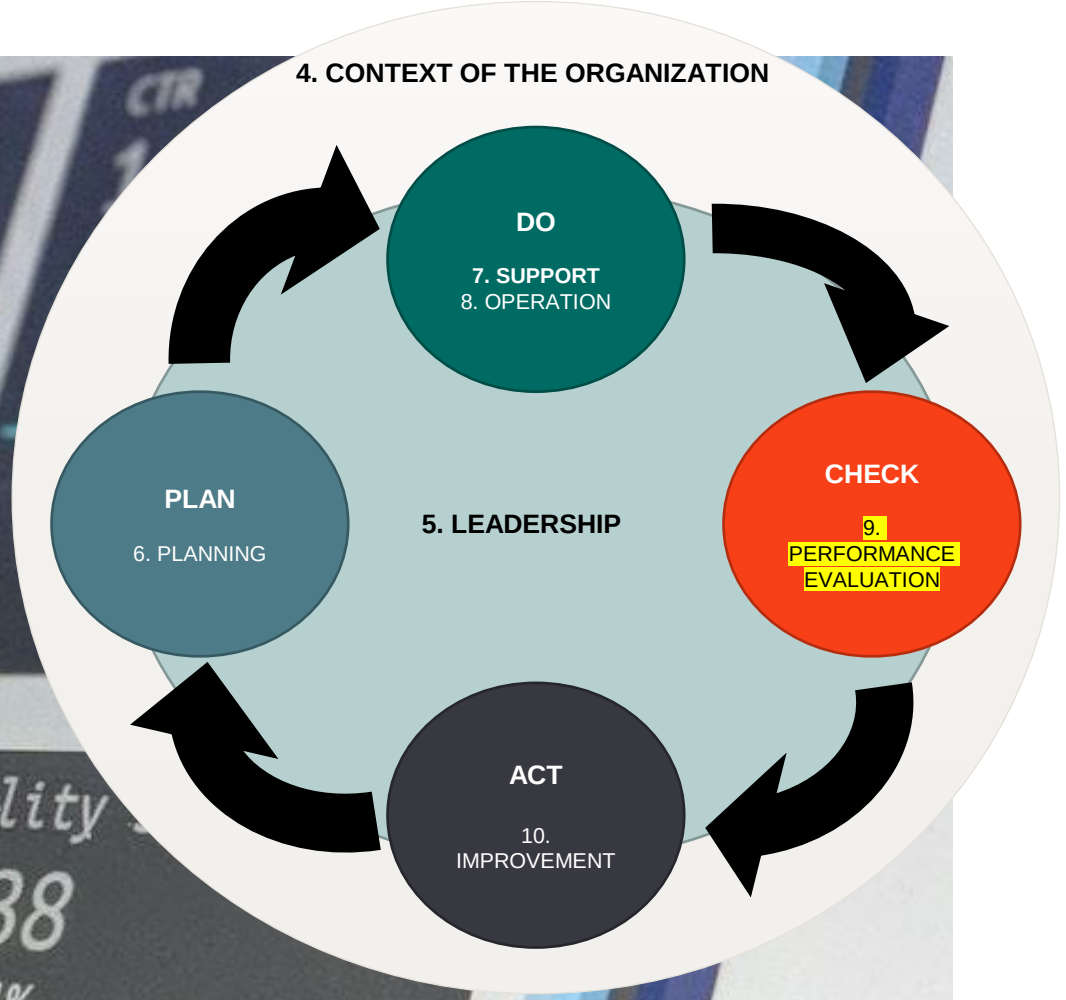
Repair

activities on a non-compliant product produced according specification A but bringing it to not-original specification B (allowing for its intended use), because it is not possible to restore it to its original state.

Documented customer consent to the repair is required.

APTIV

9. Performance evaluation



APTIV

9. Performance evaluation

9.1 Monitoring, Measurement, Analysis, and Evaluation

- 9.1.1 General
- 9.1.2 Customer Satisfaction
- 9.1.3 Analysis and evaluation

9.2 Internal audit

9.3 Management Review

- 9.3.2 Management Review Inputs
- 9.3.3 Management Review Outputs

APTIV

9.1 Monitoring, Measurement, Analysis, and Evaluation

9.1.1 General:

- The organization shall determine:
- a) what needs to be monitored and measured;
- b) the methods for monitoring, measurement, analysis and evaluation needed to ensure valid results;
- c) when the monitoring and measuring shall be performed;
- d) when the results from monitoring and measurement shall be analyzed and evaluated.

The organization shall evaluate the performance and the effectiveness of the quality management system.

9.1.3 Analysis and evaluation

The results of the analysis and assessment are used as input to the management review.

APTIV

Aptiv Krakow/ Aptiv implementation

Monitoring and measurement of processes in TCK is carried out through Monthly Metrics Review (MMR) and Annual Management Review (AMR):

Quality Metrics

Annual Management Review

• APTIV • TCK SITE METRICS DASHBOARD - October 2021

Flow 0: Monitoring and Continually Improving (QA&DA)

METRIC NAME:	METRIC STATUS:		TREND STATUS:	RISK ANALYSIS:	REMARKS:
QMS audit actions closed on time	YELLOW	97,0	POSITIVE	LOW RISK	2 actions on time, 2 extended
VDA 6.3 audit actions closed on time	GREEN	100,6	POSITIVE	LOW RISK	No action planned to close this month
ISMS audit actions closed on time	GREEN	100,0	POSITIVE	LOW RISK	No action planned to close this month
TISAX audit actions closed on time	RED	85,3	NEGATIVE	MEDIUM RISK	See Action Item line 19

Flow 1-3: Administer Requirements (QA&DA)

METRIC NAME:	METRIC STATUS		TREND STATUS	RISK ANALYSIS	REMARKS
Standards delivered on time	GREEN	99,0%	POSITIVE	LOW RISK	Quarterly
CSR matrix update	GREEN	100%	POSITIVE	LOW RISK	

Flow 2: Developing Strategies and Capabilities (TCK Management)

METRIC NAME:	METRIC STATUS		TREND STATUS	RISK ANALYSIS	REMARKS
Budget performance	GREEN	16,0%	POSITIVE	LOW RISK	
Forecast accuracy	FIO	12,0%	POSITIVE	FIO	To high result (still positive trend).
MyCORE efficiency	n/a		n/a	n/a	Semi-annual result

Flow 2-6: Communicate and Execute Business Plans (HR)

METRIC NAME:	METRIC STATUS:		TREND STATUS:	RISK ANALYSIS:	REMARKS:
Attrition TCK (Engineering & Krakow Admin)	RED	16,6%	NEGATIVE	MEDIUM RISK	18,5% of attrition in AS&UX Engineering. See Action Item line 20
Attrition level for HQ (Corporate)	GREEN	17,9%	POSITIVE	LOW RISK	
Attrition level for GBS	GREEN	14,6%	POSITIVE	LOW RISK	

to copy / paste | Green | Yellow | Red | White

2021 TCK SIGNAL & POV

Type of metrics: Efficiency/ Effectiveness	QVC	METRICS MEASURABLE OBJECTIVES	Metric definition	Green Yellow Red STATUS DEFINITION	REPORTING RESPONS.	REVIEW FREQ.	January RESULTS	February RESULTS	March RESULTS	April RESULTS	May RESULTS	June RESULTS
							24.03.2021	24.03.2021	12.05.2021	12.05.2021	16.06.2021	29.09.2021
0-1 Monitor Performance, 0-2 Management Review, Flow 2 Developing Strategies and Capabilities (Signal and Power Solutions Engineering Management)												
Effectiveness	Q	My Core on time		100% on time = Green < 100 - 90% = Yellow < 90% = Red	P. ARTYMIAK	per occurance	n/a	100,0%	100%	n/a	n/a	n/a
							Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends
Efficiency	C	Budget execution (EOY FCT)		- 2% ≤ red -2% - 0 = yellow >=0 = green	P. ARTYMIAK	monthly	1,50%	1,50%	6,20%	7,88%	5,60%	6,00%
							Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends
3-1 Define Opportunity Strategy (CS Opportunity team)												
Efficiency	C	Target execution	BUY APTIV - Make 15 Mio$ real cash revenue in 2021	information factor (↗) Expected value at the end of the year - => 100%	K. LUCHOWSKI	monthly	68%	79%	75%	67%	66%	63%
							Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends
Efficiency	C	Budget perfromance	(BGT - (ACT+FCT))/BGT	FIO	K. LUCHOWSKI	monthly	1,4%	1,4%	1%	3%	4%	4%
							Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends
Efficiency	C	Budget forecasting accuracy	$(ACT_{month} - FCT_{month})$	FIO	K. LUCHOWSKI	monthly	-6%	-11%	3%	-11%	-7%	-4%
							Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends
Efficiency	C	Headcount forecasting in a month	HCFct - HCAct	FIO	K. LUCHOWSKI	monthly	0	0	0	0	0	0
							Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends	Analysis of trends
Effectiveness	Q	Official Internal Customer Complaints related to projects	Number of registered complaints	0= Green >0= Red	K. LUCHOWSKI	monthly	0	0	0	0	0	0

METRICS NEW | Metrics status | Action Items | Attendance | Revision Records | Eng mgnt | CS opport. | EEDS Design | EDS W_H Design | CS | EC | MDR | AE&ES | Cable Eng. | EDCC&PNA | HV S

9.1.1.2 Identification of statistical tools

The organization shall determine the appropriate use of statistical tools.

The organization shall verify that appropriate statistically tools are included as part of the Advanced Product Quality Planning (or equivalent) process and included in the design risk analysis (such as DFMEA) (where applicable), the process risk analysis (such as PFMEA), and the control plan

Examples of the statistical tools:
Pareto- Lorenz diagram, process control cards, Design of Experiment (DoE)

APTIV

9.1.1.3 Application of statistical concepts

Statistical concepts, such as:

- variation,
- control (stability),
- process capability, and the
- consequences of over-adjustment,

shall be understood and used by employees involved in the collection, analysis, and management of statistical data.

APTIV

9.1.2 Customer Satisfaction

The organization shall monitor customers' perceptions of the degree to which their needs and expectations have been fulfilled.

The organization shall determine the methods for obtaining, monitoring and reviewing this information.

Examples of customer perception monitoring may include:	Surveys
	Feedback from the customer about the products and services provided
	Meeting with customer
	Market share analysis
	Awards nominations
	Warranty claims
	Trader reports
	Scorecards

APTIV

9.2 Internal Audit

The organization shall conduct internal audits at planned intervals to provide information on whether the quality management system:

a) conforms to:

1) the organization’s own requirements for its quality management system;

2) the requirements of this International Standard;

b) is effectively implemented and maintained.

APTIV

Aptiv Krakow/ Aptiv implementation

Internal audits - called first-party audits, carried out by the organization itself or on its behalf, most often by a team of TCK internal auditors.

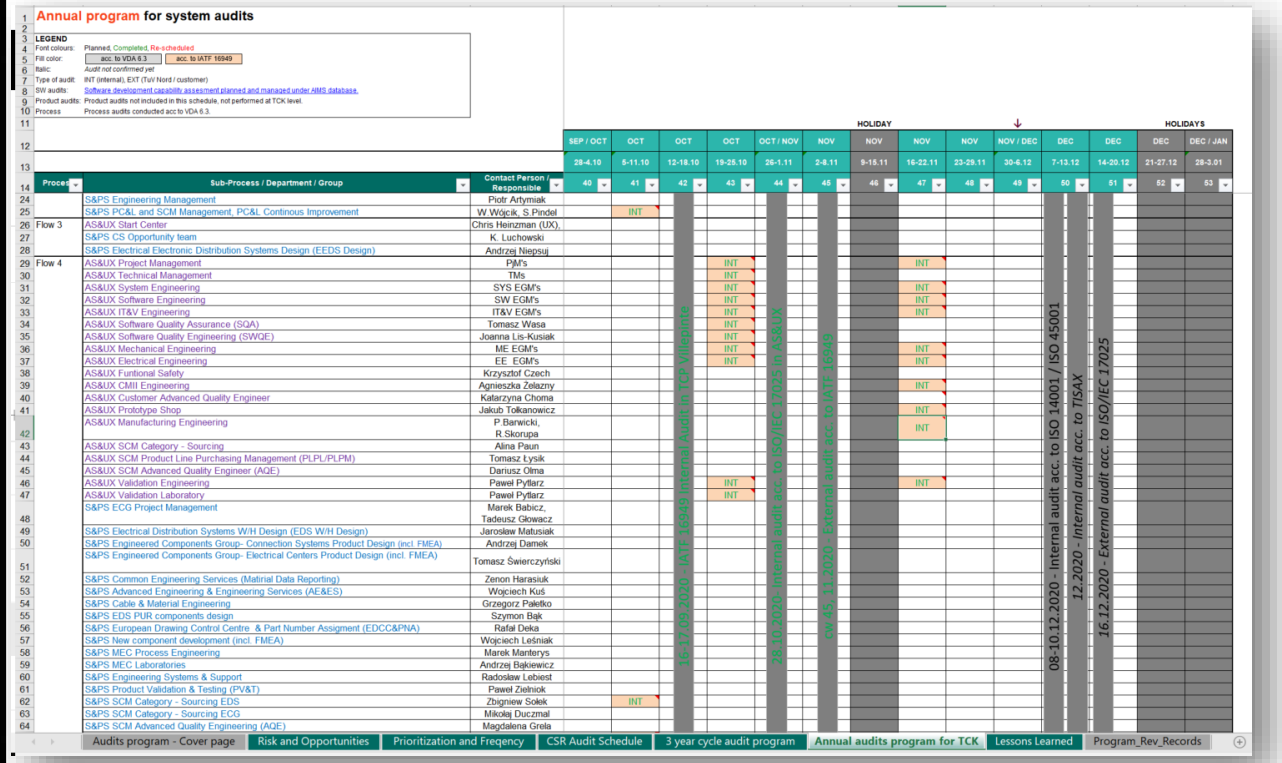
External audits – include:

second-party audits conducted by parties interested in the organization - such as customers of the organization

third party audits carried out by auditors of an independent certification body.

TÜV NORD conducts external audits for Aptiv in Krakow.

TCK audit programme:



Annual program for system audits

LEGEND
Font colours: Planned, Completed, Re-scheduled
Fill color: acc. to VDA 6.3 | acc. to IATF 16949
Italic: *Audit not confirmed yet*
Type of audit: INT (internal), EXT (TuV Nord / customer)
SW audits: Software development capability assessment planned and managed under AIMS database.
Product audits: Product audits not included in this schedule, not performed at TCK level.
Process: Process audits conducted acc to VDA 6.3.

	Process	Sub-Process / Department / Group	Contact Person / Responsible	SEP / OCT 28-4.10 (40)	OCT 5-11.10 (41)	OCT 12-18.10 (42)	OCT 19-25.10 (43)	OCT / NOV 26-1.11 (44)	NOV 2-8.11 (45)	HOLIDAY NOV 9-15.11 (46)	NOV 16-22.11 (47)	NOV 23-29.11 (48)	NOV / DEC 30-6.12 (49)	DEC 7-13.12 (50)	DEC 14-20.12 (51)	HOLIDAYS DEC 21-27.12 (52)	DEC / JAN 28-3.01 (53)
24		S&PS Engineering Management	Piotr Artymiak			16-17.09.2020 - IATF 16949 Internal Audit in TCP Villepinte		28-10.2020 - Internal audit acc. to ISO/IEC 17025 in Astrock	CW 45 - 11.2020 - External audit acc. to IATF 16949					08-10.12.2020 - Internal audit acc. to ISO 14001 / ISO 45001	12.2020 - Internal audit acc. to TISAX	16.12.2020 - External audit acc. to ISO/IEC 17025		
25		S&PS PC&L and SCM Management, PC&L Continous Improvement	W.Wójcik, S.Pindel		INT												
26	Flow 3	AS&UX Start Center	Chris Heinzman (UX),														
27		S&PS CS Opportunity team	K. Luchowski														
28		S&PS Electrical Electronic Distribution Systems Design (EEDS Design)	Andrzej Niepsuj														
29	Flow 4	AS&UX Project Management	PjM's				INT				INT						
30		AS&UX Technical Management	TMs				INT										
31		AS&UX System Engineering	SYS EGM's				INT				INT						
32		AS&UX Software Engineering	SW EGM's				INT				INT						
33		AS&UX IT&V Engineering	IT&V EGM's				INT				INT						
34		AS&UX Software Quality Assurance (SQA)	Tomasz Wasa				INT										
35		AS&UX Software Quality Engineering (SWQE)	Joanna Lis-Kusiak				INT										
36		AS&UX Mechanical Engineering	ME EGM's				INT				INT						
37		AS&UX Electrical Engineering	EE EGM's				INT				INT						
38		AS&UX Funtional Safety	Krzysztof Czech														
39		AS&UX CMII Engineering	Agnieszka Zelazny								INT						
40		AS&UX Customer Advanced Quality Engineer	Katarzyna Choma														
41		AS&UX Prototype Shop	Jakub Tolkanowicz								INT						
42		AS&UX Manufacturing Engineering	P.Barwicki, R.Skorupa								INT						
43		AS&UX SCM Category - Sourcing	Alina Paun														
44		AS&UX SCM Product Line Purchasing Management (PLPL/PLPM)	Tomasz Łysik														
45		AS&UX SCM Advanced Quality Engineer (AQE)	Dariusz Olma														
46		AS&UX Validation Engineering	Paweł Pytlarz				INT				INT						
47		AS&UX Validation Laboratory	Paweł Pytlarz				INT										
48		S&PS ECG Project Management	Marek Babicz, Tadeusz Głowacz														
49		S&PS Electrical Distribution Systems W/H Design (EDS W/H Design)	Jarosław Matusiak														
50		S&PS Engineered Components Group- Connection Systems Product Design (incl. FMEA)	Andrzej Damek														
51		S&PS Engineered Components Group- Electrical Centers Product Design (incl. FMEA)	Tomasz Świerczyński														
52		S&PS Common Engineering Services (Matirial Data Reporting)	Zenon Harasiuk														
53		S&PS Advanced Engineering & Engineering Services (AE&ES)	Wojciech Kuś														
54		S&PS Cable & Material Engineering	Grzegorz Paletko														
55		S&PS EDS PUR components design	Szymon Bąk														
56		S&PS European Drawing Control Centre & Part Number Assigment (EDCC&PNA)	Rafał Deka														
57		S&PS New component development (incl. FMEA)	Wojciech Leśniak														
58		S&PS MEC Process Engineering	Marek Manterys														
59		S&PS MEC Laboratories	Andrzej Bąkiewicz														
60		S&PS Engineering Systems & Support	Radosław Lebiest														
61		S&PS Product Validation & Testing (PV&T)	Paweł Zielniok														
62		S&PS SCM Category - Sourcing EDS	Zbigniew Sołek		INT												
63		S&PS SCM Category - Sourcing ECG	Mikołaj Duczmal														
64		S&PS SCM Advanced Quality Engineering (AQE)	Magdalena Grela														

Audits program - Cover page | Risk and Opportunities | Prioritization and Freqency | CSR Audit Schedule | 3 year cycle audit program | Annual audits program for TCK | Lessons Learned | Program_Rev_Records

9.3 Management Review

- Management reviews of the QMS are done at scheduled intervals.
- Carried out at least once a year.
- Documented information must be maintained as evidence of the results of the management review.

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Local prcedure HOEP_0-2_CS-TCK_01_EN Management Review / Przegląd Zarządzania

Reports from previous management reviews are stored as Quality SP link.

Outputs from management reviews are supervised in TCK_AMR_Actions_tracker.

Management Review

Purpose: To ensure the Quality Management System's suitability and effectiveness

Organization Name:	
Time period:	
Management Review date(s):	

MANAGEMENT REVIEW - INPUTS

A. Follow-up actions from previous Management Reviews
(Review of open items from previous meeting(s))

Action related to	Action Plan	Responsible	Due Date	Status	Comments
Opportunities for improvement					
Any need for changes to the QMS					
Resource needs					

Reference documentation:

Topics requiring action:

B. Compliance with Quality Policy
(List activities initiated to ensure the Quality Policy is communicated)

Quality Policy ***was| wasn't (unnecessary remove)*** reviewed for adequacy and suitability for organization and ***is/isn't (unnecessary remove)*** carried out by all employees.

Activities below were performed to aware employees about Quality policy and quality management system:	
Activities	

Reference documentation:

Topics requiring action:

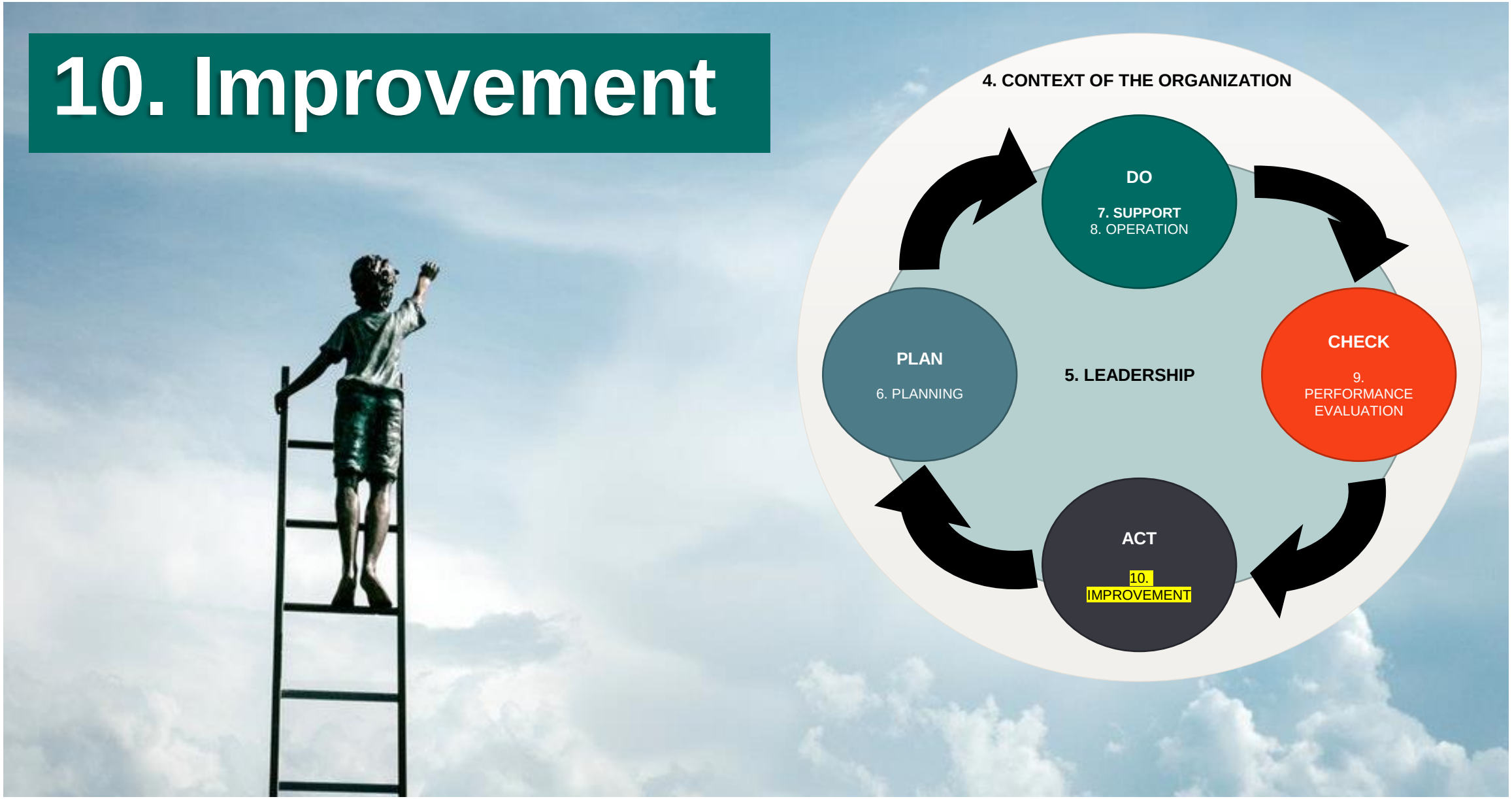
C. Changes in external and internal issues that are relevant to the quality management system

Type of change	Identified changes (description)
External Changes:	
Changes to Customer Requirements / Customer Specific Requirements	1. 2. **Reference documentation:**

1

Technical Center Krakow	HOEP_0-2_CS-TCK_01-F02_EN Aptiv Internal – Not for disclosure outside of Aptiv.	Rev:17 Rev. date: 09.12.2021

10. Improvement



APTIV

10. Improvement

10.1 General

10.2 Nonconformity and Corrective Action

10.3 Problem solving

APTIV

10.2 Non-conformity and corrective action

When a nonconformity occurs, including any arising from complaints, the organization shall:

a) react to the nonconformity and, as applicable:

1. take action to control and correct it;
2. deal with the consequences;

b) evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by:

1. reviewing and analyzing the nonconformity;
2. determining the causes of the nonconformity;
3. determining if similar nonconformities exist, or could potentially occur;

c) implement any action needed;

d) review the effectiveness of any corrective action taken;

e) update risks and opportunities determined during planning, if necessary;

f) make changes to the quality management system, if necessary.

APTIV

Aptiv Krakow/ Aptiv implementation

HOEP_0-3_CS-TCK_03_EN
Corrective and preventive actions / Działania korygujące i zapobiegawcze

HOEP_0-3_CS-TCK_03-A01_EN
Corrective and preventive actions – inputs and methods

B13

AREA	RELATED DOCUMENTS WITH DESCRIPTIONS OF METHODS (e.g. for problem solving, risk analysis)
CORP	HOGP_0-3_CS_01_EN Structured Problem Solving and Prevention
SPS	EAGP_0-3_CS_04_EN Preventive Action/Potential Problem Solving EAGP_0-3_CS_03_EN Select Problem Solving Tool and Determine Action Plan EAGP_0-3_CS_03-A01_EN Guidelines for Selecting Problem Solving Tools EAGP_0-3_CS_12-F03_EN DELPHI 3L-5Why Analysis Form
SPS TCK WH Design group	HOEW_0-3_CS-TCK_04-01_EN Szacowanie i postępowanie z ryzykiem w bezpieczeństwie informacji/ ISMS risk assessment and treatment
ASUX	ESGP_0-3_CS_04_EN Corrective and Preventive Action ESGW_0-3_CS_04-01-F01_EN 5-Why Analysis ESGP_5-4_CS_06_EN Aptiv Problem Resolution & Tracking System (DPRTS) ESGP_3-6_PM_02_EN PDP Project Risk Management
ASUX TCK Validation - EMC Laboratory	ESEL_4-4_PE-TCK_01_PL TCK Validation - EMC Laboratory Quality Manual
TCK	HOEP_0-3_CS-TCK_04_EN Risks and opportunities assessment

INPUT | METHODS & TOOLS | Revision summary

10.2.3 Problem solving

The organization shall have documented processes for problem solving which prevent(s) recurrence, including:

a) defined approaches for various types and scale of problems (e.g., new product development, current manufacturing issues, field failures, audit findings);

b) containment, interim actions, and related activities necessary for control of nonconforming outputs (see ISO 9001, Section 8.7);

c) root cause analysis, methodology used, analysis, and results;

d) implementation of systemic corrective actions, including consideration of the impact on similar processes and products;

e) verification of the effectiveness of implemented corrective actions;

f) reviewing and where necessary, updating the appropriate documented information (e.g. PFMEA, control plan).

Where the customer has specific prescribed processes, tools, or systems for problem solving, the organization shall use those processes, tools, or systems unless otherwise approved by the customer.

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Aptiv Krakow/ Aptiv implementation

Problem solving methods:

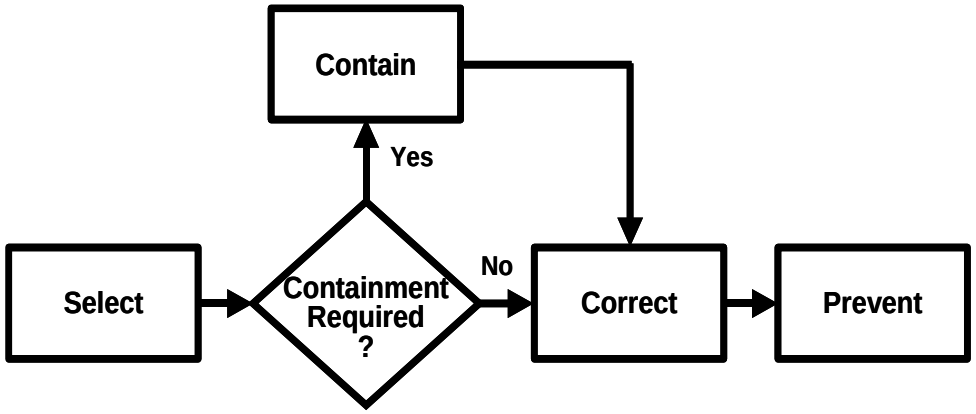
DRIVE Problem Solving for Engineering

DPS, PDCA, Raport 8D, FTA.

Tools: 5 Why, 5W2H, Ishikava diagram, Pareto-Lorenza diagram, Histogram, Brain storm.

Tecnics: measurements, records, test regards.

HOGP_0-3_CS_01_EN Structured Problem Solving and Prevention



HOGP_0-3_CS_01-F01_EN Disciplined Problem Solving Summary Form

1a. Problem Description
1b. Measurement Method and Goal Statement
2. Containment
3a. Cause Analysis for Problem Correction
3b. Evaluation and Selection of Solution(s)
3c. Planning for Problem Correction
3d. Verification of Problem Correction
4. Control and Standardization to Prevent Reoccurrence

10.2.5 Warranty management systems

- The organization shall implement a warranty management process.
- The organization shall include in the process a method for warranty part analysis, including NTF (no trouble found).
- When specified by the customer, the organization shall implement the required warranty management process.

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10.2.6 Customer complaints and field failure test analysis

- The organization shall perform analysis on customer complaints and field failures, including any returned parts, and shall initiate problem solving and corrective action to prevent recurrence.

- Where requested by the customer, this shall include analysis of the interaction of embedded software of the organization's product within the system of the final customer's product.

- The organization shall communicate the results of testing/analysis to the customer and also within the organization.

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Aptiv Krakow/ Aptiv implementation

ESGP_5-4_CS_12_EN

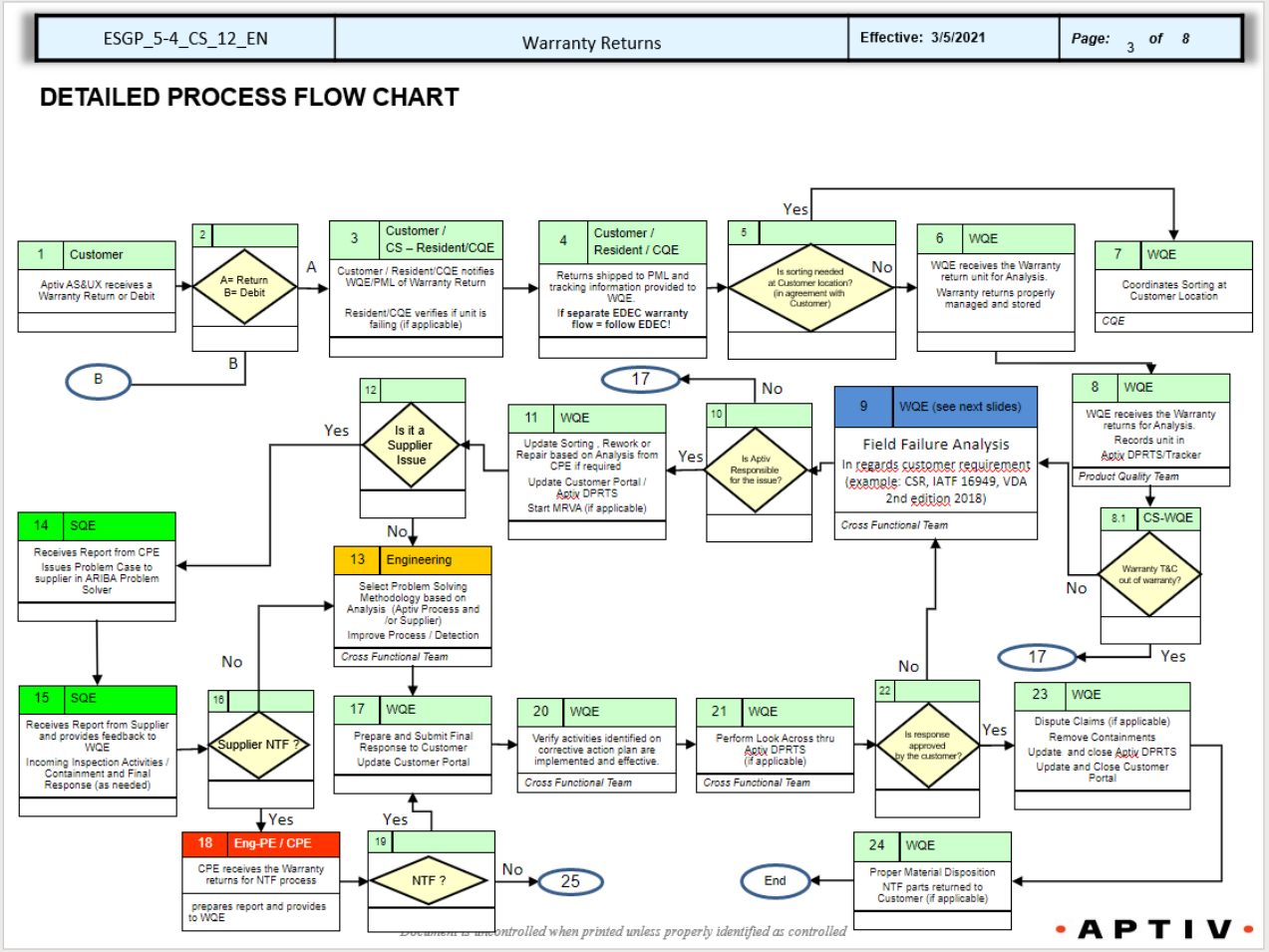
Warranty Returns

EAGP_5-4_CS_05_EN

Warranty Analysis and Improvement

Please note that CSR often have additional warranty management requirements (e.g. BMW: GS 95004 Failure analysis; VW: VDA Volume “Field Failure Analysis“)

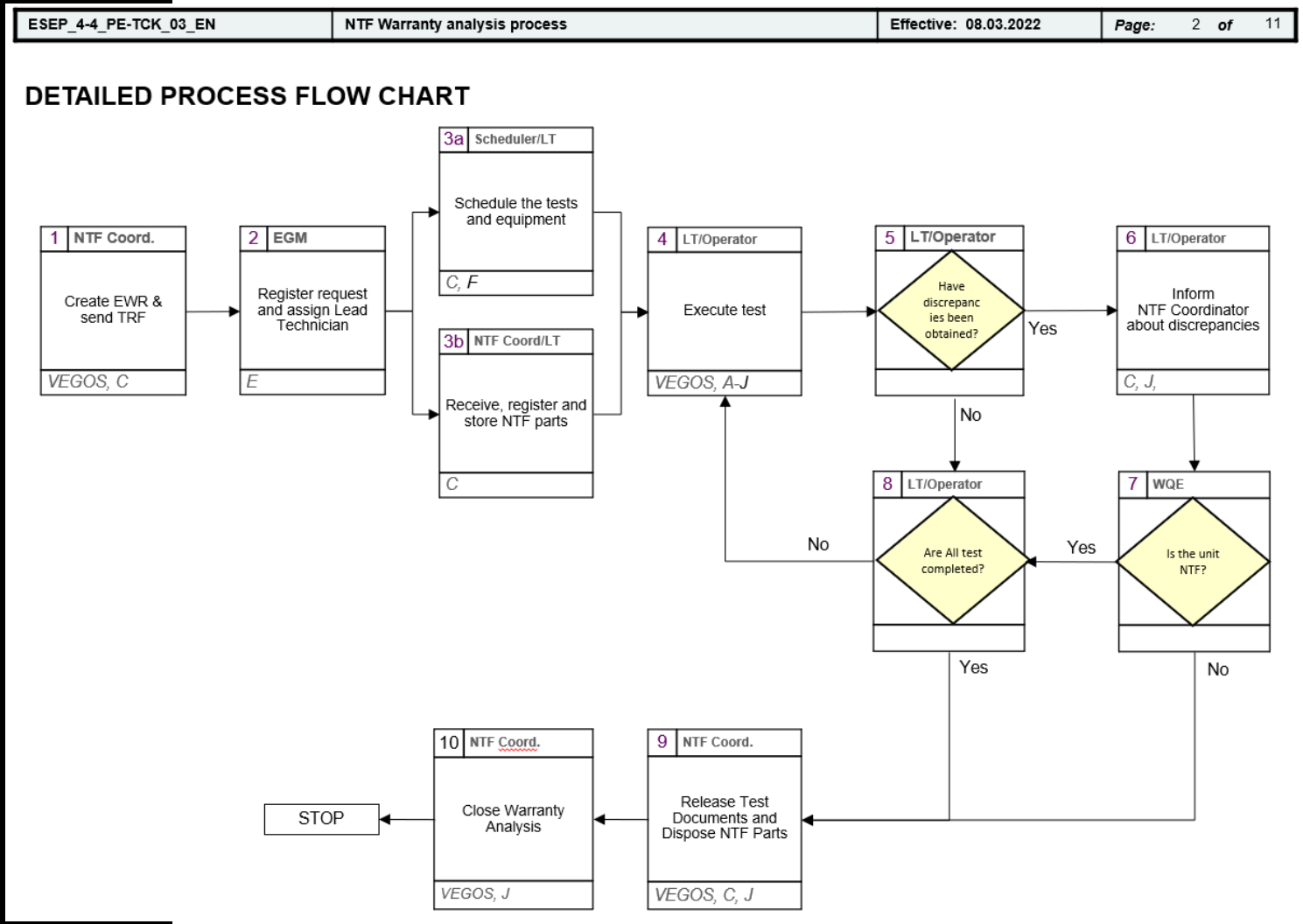
ASUX:



Aptiv Krakow/ Aptiv implementation

ESEP_4-4_PE-TCK_03_EN

NTF Warranty analysis process



10.3 Continual Improvement

The organization shall have a documented process for continual improvement

The organization shall continually improve the suitability, adequacy and effectiveness of the quality management system.

NOTE: Continual improvement is implemented once manufacturing processes are statistically capable and stable or when product characteristics are predictable and meet customer requirements.

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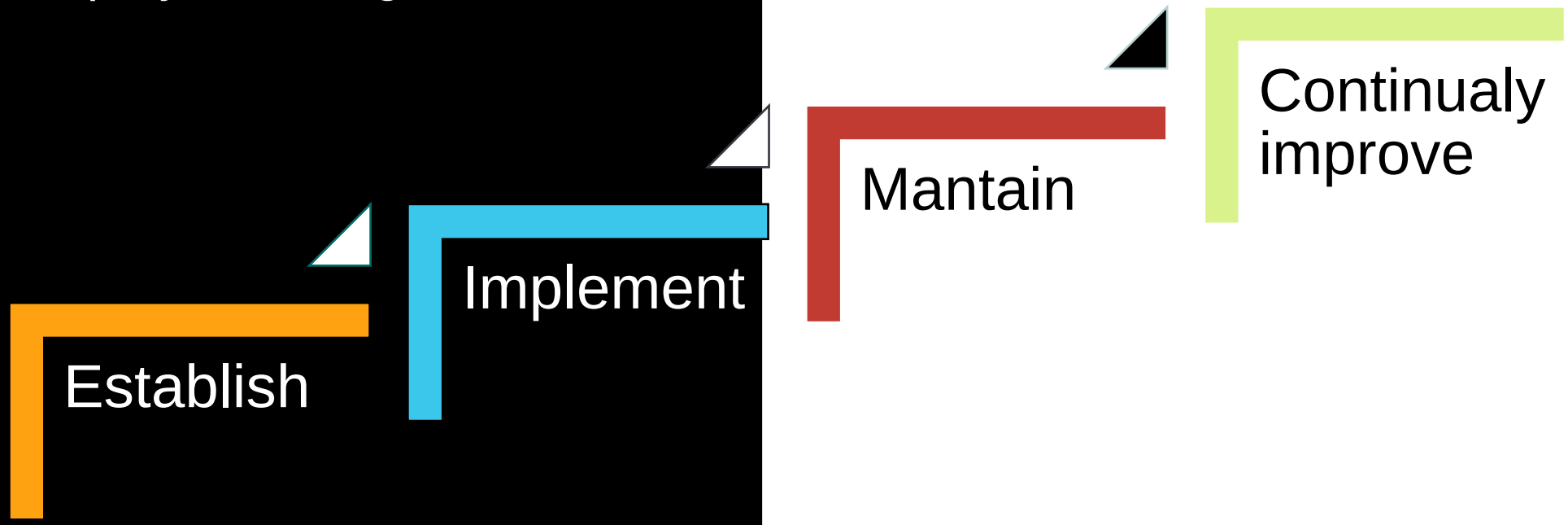
Aptiv Krakow/ Aptiv implementation

Continuous improvement is a repeated action to improve performance.

Examples: project six sigma, lessons learned

ESGP_5-3_CS_04_EN Continuous Improvement

EAGP_4-3_CS_10_EN Maintain/Improve the Process Capability



Dziękuję / Thank You.

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