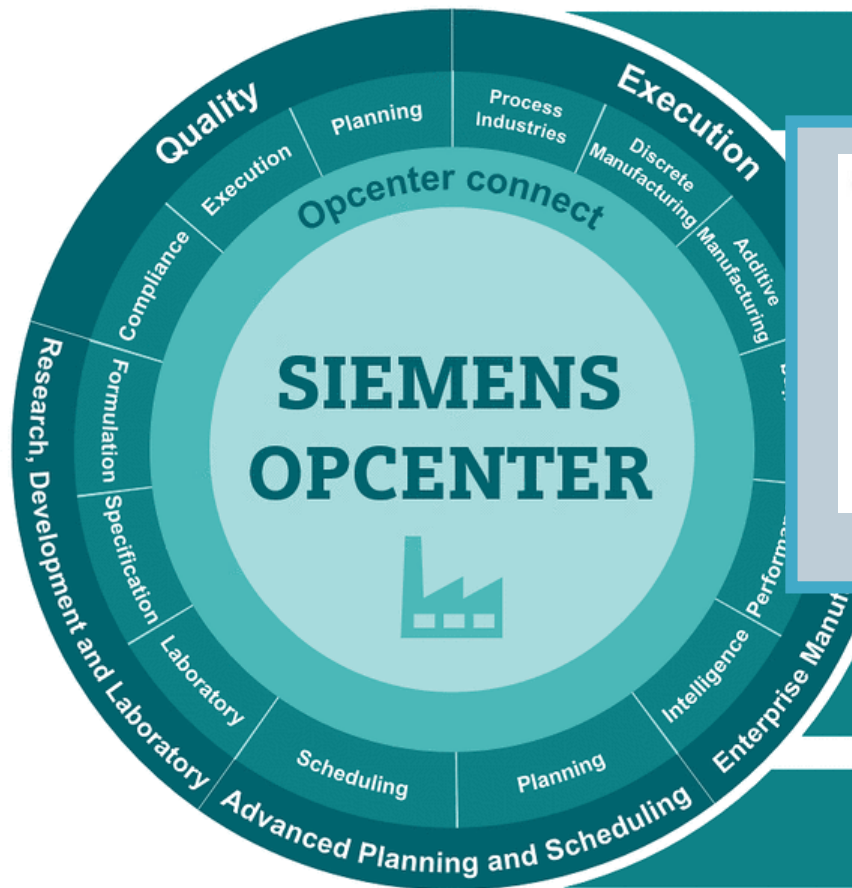


What's new in QMS Professional?

Katrin Triebel

MOM Portfolio overview – Holistic SW suite for Manufacturing Operations Management: Siemens Opcenter



Implementation of the Digital Twin in the real production

Opcenter Quality

From	Date	TO
QMS Professional	Oct 2019	Opcenter Quality
Quality Center	Dec 2019	Teamcenter Quality

New name with same content!

With version 10.08 → 11.x
We'll use it now.

Transforming big data into IoT actionable information (smart data)

Data integration, data analytics and reporting for operational and Enterprise Intelligence

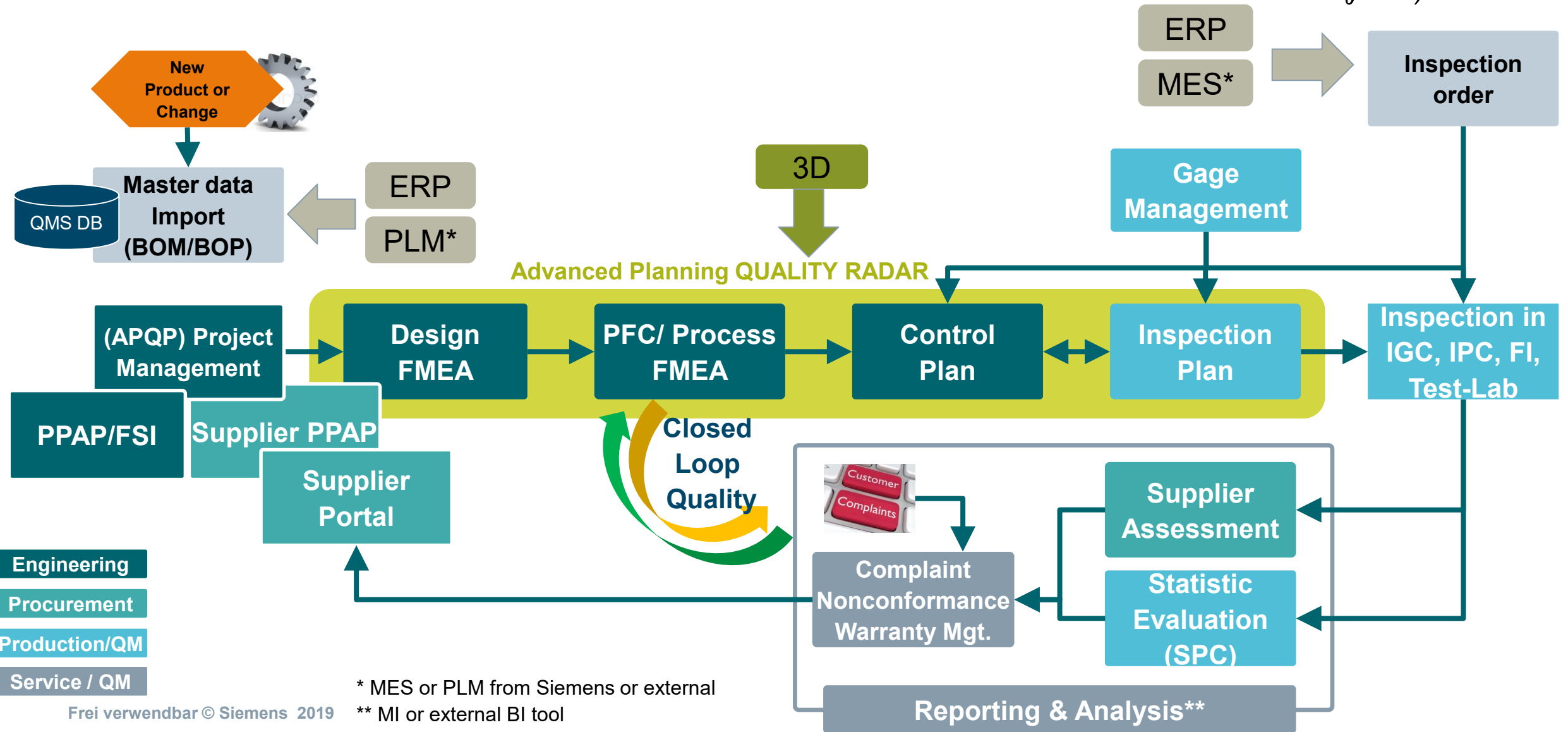
Agenda:

- What's new in QMS Professional – high level presentation of new technology and functionalities
- AIAG-VDA Harmonization and Implementation in QMS Professional
- QMS Professional – Roadmap
- What about Teamcenter Quality and Compliance Suite?

**What's new in QMS Professional – high level presentation
of new technology and functionalities**

What is new in QMS Professional?

SIEMENS
Ingenuity for life



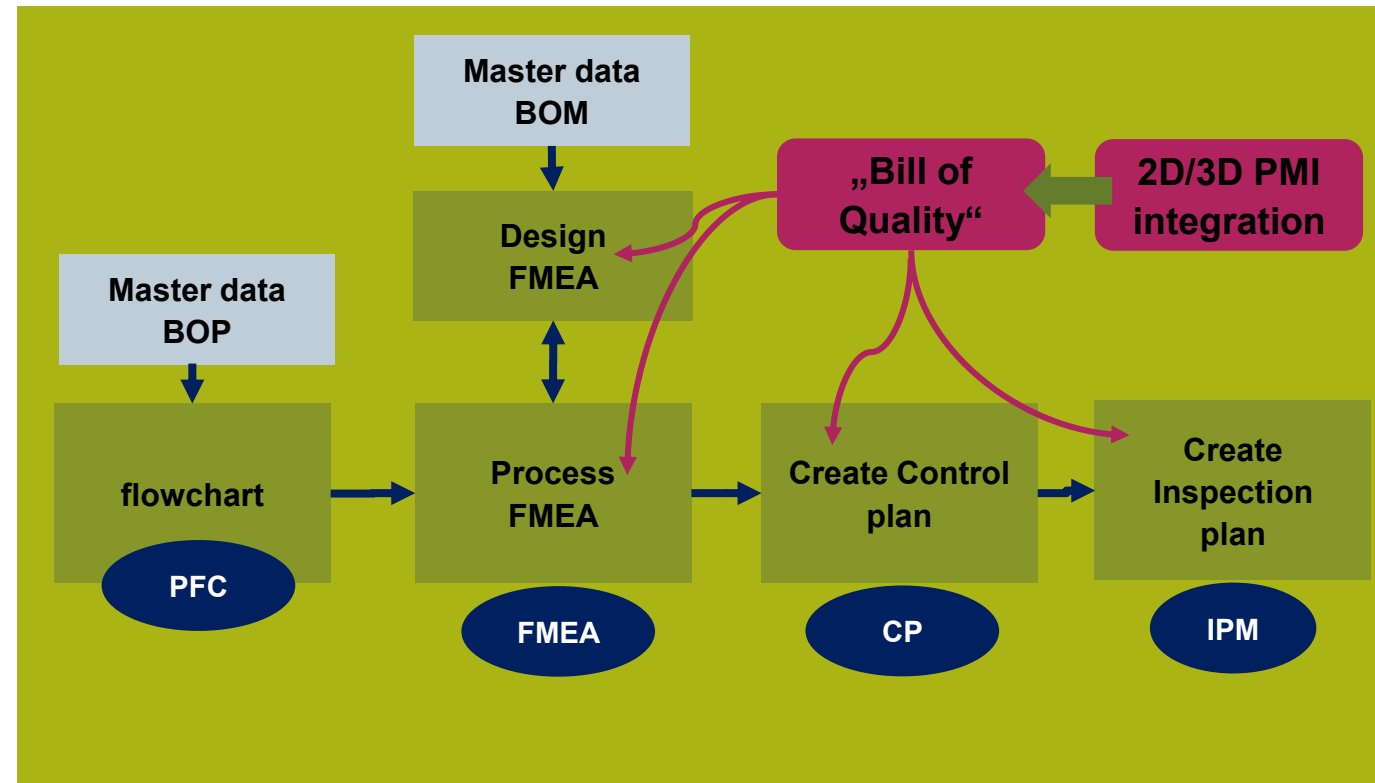
* MES or PLM from Siemens or external

** MI or external BI tool

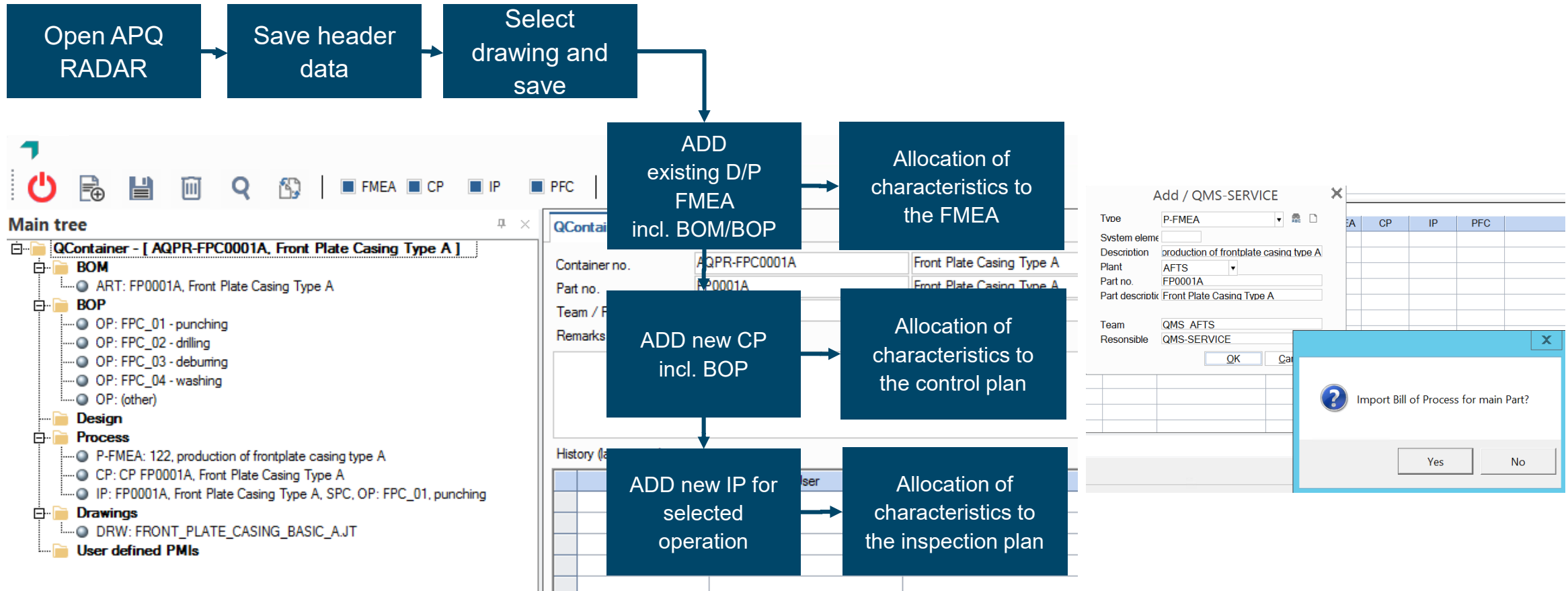
APQR: Advanced Planning Quality Radar

Closed Loop Quality in Excellence

- Importing a 2D drawing (DXF) or a 3D model (JT) into a neutral table (similar to a bill of quality).
- Possibility to create new Design FMEA, Process FMEA, Control plan and Inspection plans directly from quality radar.
- Very good overview of the linked characteristics
- Support of the well-known change management process in QMS Professional



Advanced Planning Quality RADAR Process and functionalities



Advanced Planning Quality Radar Process and functionalities

Main tree

- QContainer - [AQPR-FPC0001A, Front Plate Casing Type A]
 - BOM
 - ART: FP0001A, Front Plate Casing Type A
 - BOP
 - OP: FPC_01 - punching
 - OP: FPC_02 - drilling
 - OP: FPC_03 - deburring
 - OP: FPC_04 - washing
 - OP: (other)
 - Design
 - Process
 - P-FMEA: 122, production of frontplate casing type.
 - CP: CP FP0001A, Front Plate Casing Type A
 - IP: FP0001A, Front Plate Casing Type A, SPC, OP.
 - IP: FP0001A, Front Plate Casing Type A, SPC, OP.
 - Drawings
 - DRW: FRONT_PLATE_CASING_BASIC_A.JT
 - User defined PMIs

Type	Item no.	Description	Plant	Op. no.	Op. descr.	Module	Updated	Revision	Released	Responsible	Part no.	Part descr.
P-FMEA	122	production of frontplate casing type A	AFTS				10/16/2018	0	No	QMS-SERVICE	FP0001A	Front Plate Casing Type
CP	CP FP0001A	Front Plate Casing Type	AFTS				10/16/2018	0	No	QMS-SERVICE	FP0001A	Front Plate Casing Type
IP	FP0001A	Front Plate Casing Type	AFTS	FPC_01	punching	SPC	10/16/2018	0	No	QMS-SERVICE	FP0001A	Front Plate Casing Type

#	Element	Position	Mm-Nr.	Mm-Bez.	MAt	Sollwert	UT	OT	Einheit	Wicht.	OK	nOK	Prüfanw.	Drawing	D-FMEA	P-FMEA	CP	IP	PFC
1	SE: 122 production of frontplate casing type																		
2	SE: 122 FPC_01, punching																		
3	FN: 123.1 correct punching of the parts																		
4	CH: Feature Control Frame (30), Feat	1	Feature Contr	Feature Control Frame (30)	VAR	0	0	.2500000000	mm	Minor				FRONT_PLATE_CASIN		2	+	+	
5	CH: Radial Dimension (29), Radial D	2	Radial Dimen	Radial Dimension (29)	VAR	4.5000000000	0	.1000000000	mm	Minor				FRONT_PLATE_CASIN		+	+	+	
6	CH: Linear Dimension (20), Linear Di	12	Linear Dimen	Linear Dimension (20)	VAR	164.3000000000	000000	.1000000000	mm	Minor				FRONT_PLATE_CASIN		+	+	+	
7	SE: 124 FPC_02, drilling																		
8	FN: 124.1 correct drilling all holes																		
9	CH: Radial Dimension (25), Radial D	13	Radial Dimen	Radial Dimension (25)	VAR	3.2000000000	0	.1000000000	mm	Minor				FRONT_PLATE_CASIN		+	+		
10	CH: Feature Control Frame (26), Feat	14	Feature Contr	Feature Control Frame (26)	VAR	0	0	.2500000000	mm	Minor				FRONT_PLATE_CASIN		+	+		
11	CH: Radial Dimension (27), Radial D	15	Radial Dimen	Radial Dimension (27)	VAR	3.2000000000	0	.1000000000	mm	Minor				FRONT_PLATE_CASIN		+	+		
12	CH: Feature Control Frame (28), Feat	16	Feature Contr	Feature Control Frame (28)	VAR	0	0	.2500000000	mm	Minor				FRONT_PLATE_CASIN		+	+		
13	SE: 125 FPC_03, deburring																		
14	FN: 125.1 deburring the parts																		
15	CH: Feature Control Frame (32), Feat	17	Feature Contr	Feature Control Frame (32)	VAR	0	0	.2000000000	mm	Minor				FRONT_PLATE_CASIN		+	+		
16	CH: Feature Control Frame (21), Feat	18	Feature Contr	Feature Control Frame (21)	VAR	0	0	.2000000000	mm	Minor				FRONT_PLATE_CASIN		+	+		
17	CH: Feature Control Frame (30), Feat	1	Feature Contr	Feature Control Frame (30)	VAR	0	0	.2500000000	mm	Minor				FRONT_PLATE_CASIN		2	+	+	
18	SE: 126 FPC_04, washing																		
19	FN: 126.1 -																		

PMI assignment: 15 - Radial Dimension (27)

Apply Discard Reset

Not applicable: P-FMEA CP IP PFC

Design

- List of operations
 - OP: FPC_01 - punching
 - P-FMEA: 122 - production of frontplate casing type A
 - SE: FPC_01, punching
 - FN: correct punching of the parts
 - CP: CP FP0001A - Front Plate Casing Type A
 - IP: FP0001A - Front Plate Casing Type A
 - OP: FPC_02 - drilling
 - P-FMEA: 122 - production of frontplate casing type A
 - SE: FPC_02, drilling
 - FN: correct drilling all holes
 - CP: CP FP0001A - Front Plate Casing Type A
 - OP: FPC_03 - deburring
 - P-FMEA: 122 - production of frontplate casing type A
 - SE: FPC_03, deburring
 - FN: deburring the parts
 - CP: CP FP0001A - Front Plate Casing Type A
 - OP: (other)

Main tree with
general
Overview

Overview PMI's/ characteristics and
existing connections to Quality items
(FMEA, CP, IP)

Define a connection
via activation a
checkbox

Inspector

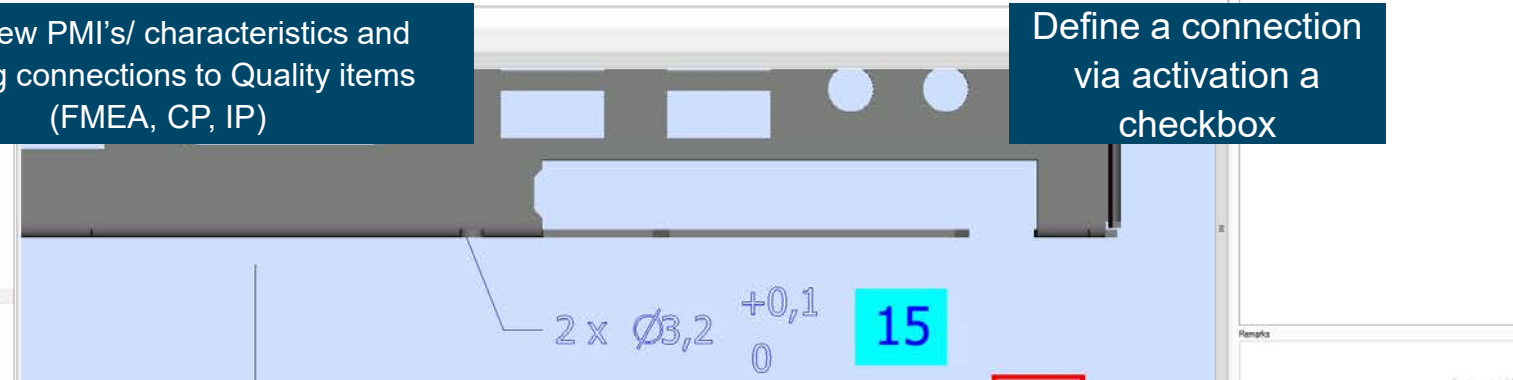
Show Drawings Show CH Table Zoom Region Zoom In Zoom Out

FRONT_PLATE_CASING_BASIC_A

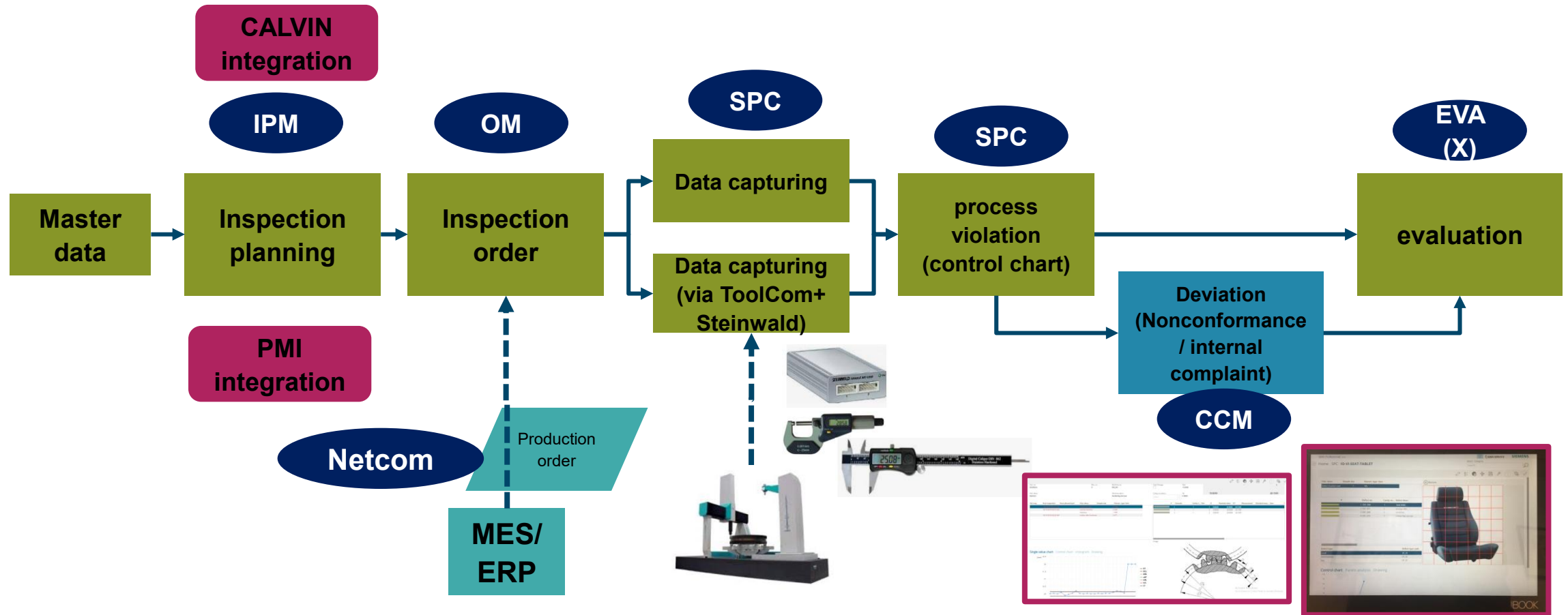
Product Structure

Item Name

- FRONT_PLATE_CASING_BASIC_A
 - Annotations
 - Datum Feature Symbol A (19)
 - Datum Feature Symbol B (22)
 - Datum Feature Symbol C (31)
 - DATUM_CSYS(0)
 - Feature Control Frame (21)
 - Feature Control Frame (28)
 - Feature Control Frame (30)
 - Feature Control Frame (32)
 - Linear Dimension (20)
 - Radial Dimension (23)
 - Radial Dimension (27)
 - Radial Dimension (29)
 - Views
 - FRONT_PLATE_CASING_BASIC_A_269_A160272811_GEN



What's new in the quality process: In Process Control (SPC)

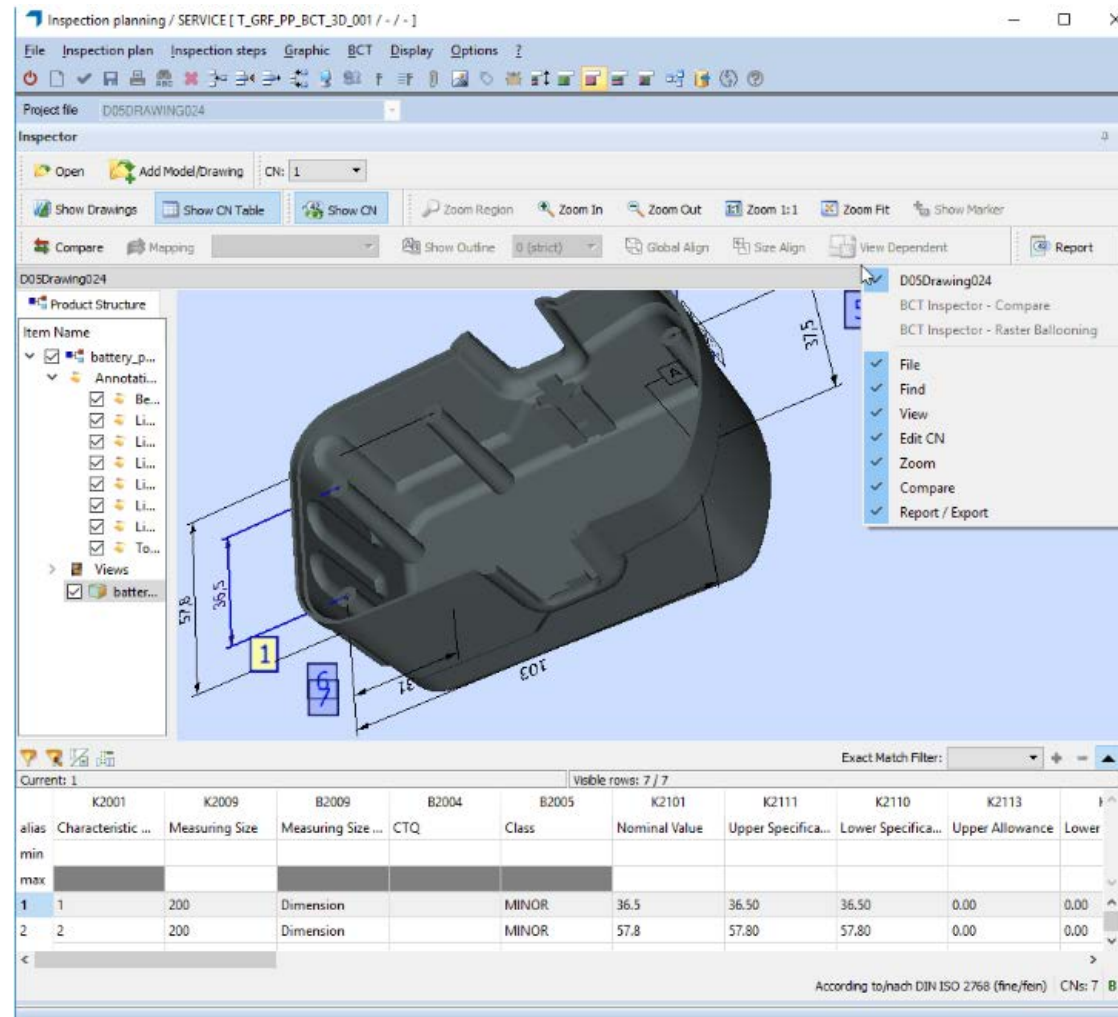


IPM: Graphical inspection planning with BCT introduction (10.04)

BCT Inspector can be used for graphical inspection planning in the IPM module - as an alternative to PLM Vis.

The new functionality is based on the creation of markups - starting from BCT (only in one direction: BCT -> QMS).

Via BCT Inspector, so-called CN are created manually or automatically. These are then imported into the inspection plan as inspection steps.



CN is the BCT-side abbreviation for **Characteristic Numbers**. A CN in the BCT Inspector corresponds to the same number in the Test Step No. column in the test plan. In the drawings, the test points are stamped with the CN (= markup, also called balloon in BCT).

The files are stored in the database - without reference to a local directory.

BCT Inspector supports the following formats:

for graphical inspection planning / 2D:

- TIFF files (*.TIF)
- Acrobat Reader files (*.PDF)
- DXF files (*.DXF)

for graphical inspection planning / 3D:

- Jupiter tessellation (*.jt)

Created CN are saved in a project file (*.ipxml).

Defect acquisition and evaluation with photo, grid and defect pattern (10.01)

QMS Professional includes a quality in-process control (SPC-statistical process control).

To support a rapid defect acquisition in the manufacturing area, a photo and grid functionality is now available.

As photos are much easier to work with than textual descriptions, the new capability significantly reduces the work load of each operator or quality inspector.

Quality inspections can now be performed with one-click to a defined area on a picture to record a defect location and type effectively.

Picture allocated to the currently selected defect. If no picture is allocated to the defect, the picture allocated to the inspection step (without grid)

Picture allocated to the inspection step in the inspection plan (with grid)

The screenshot shows the 'Acquisition / SERVICE' window with the following data:

Insp. order	PA_SP_CD_01_1		
Part no.	CD_0735_RL	Autor 0735	
Insp. plan no.	SP_CD_01	SP_CD_01	
Formula			
Sampling	01.12.2019 10:39:59	Machine no.	

The 'Assignment of defect type and location / SERVICE' dialog box shows a grid over a car door image. A red dot is placed on the grid, and a red arrow points to it from the 'Defect type' column of the table below.

No.	Defect type code	Defect type	Defect locat. cd	Defect locat. Info 1	Info 2	Info 3	No. 1	No. 2	No. 3	Date 1	Date 2	Date 3
1	01	Materialfehler	A2	Sektor A/2								
2	04	Fertigungsfehler	D4	Sektor D/4								
3	04	Fertigungsfehler	D4	Sektor D/4								

The 'Defect code' table at the bottom shows the following data:

Defect code	Defect descr.	Importance	Amount
OF_01	Kratzer	Critical	0
OF_02	Blasen	Main	0
OF_03	Schlieren	Main	0
OF_04	Faltfehler	Main	0
OF_05	Nasen	Main	0

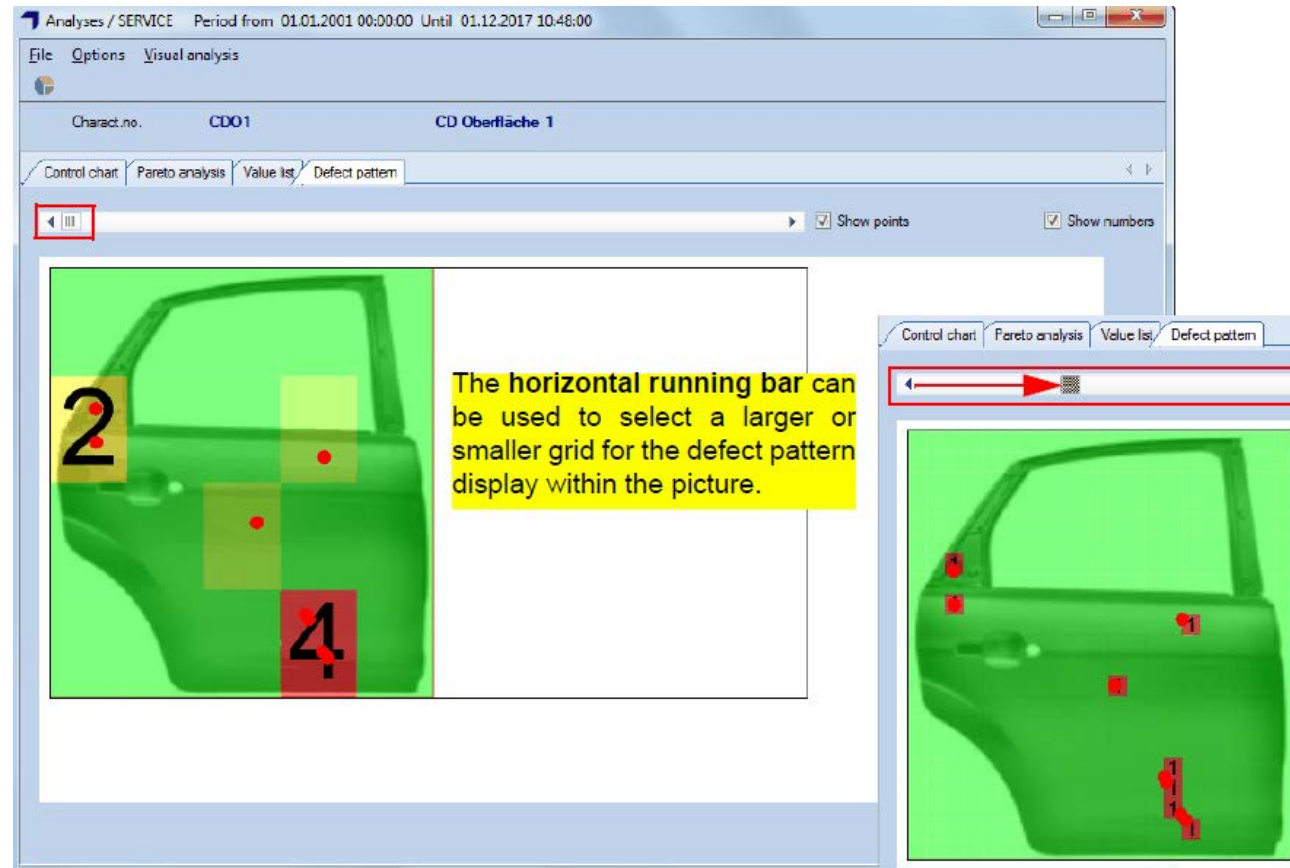
Defect acquisition and evaluation with photo, grid and defect pattern (10.01)

This easy-to-use defect acquisition is also supported in the QMS Professional Evaluation (EVA) as a defect pattern.

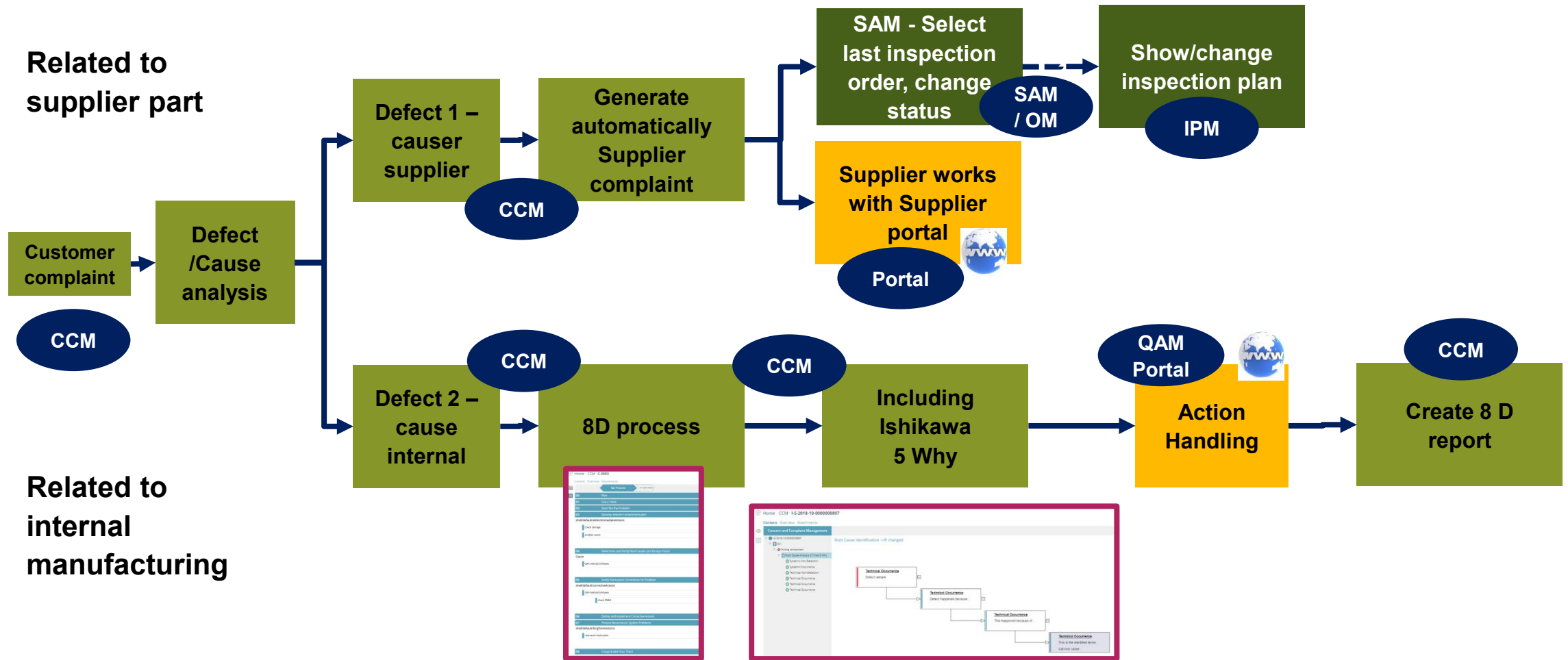
The Defect pattern tab shows the Defect locations allocated to the individual defects of the visual characteristic during Defect type/ defect location acquisition in the SPC module.

Activating/ deactivating the *Show points* checkbox enables you to show or hide the points.

- Activating/ deactivating the *Show numbers* checkbox enables you to show or hide the quantity.



What's new in the quality process: Complaint management and collaborative Quality Improvement



CCM (Concern- and Complaint Management) HTML5 / Web – new technology combined with new functionality

The screenshot displays the Siemens QMS Professional 10.04 interface for Concern and Complaint Management (CCM). The main window shows the '8D Process' for a defect 'DEF_009 - noises'. The process steps are: D1 (Use a Team), D2 (Describe the Problem), D3 (Develop Interim Containment plan), D4 (Determine and Verify Root Causes and Escape Points), D5 (Verify Permanent Corrections for Problem), D6 (Define and Implement Corrective Actions), D7 (Prevent Recurrence/ System Problems), and D8 (Congratulate Your Team). A 'Cause dialog' window is open, showing a 5-Why analysis for the defect. The analysis starts with 'Why does the seat have a noise?' and leads to 'Why weren't the drawings correct?'. A 'Cause dialog' window is also open, showing details for the defect, including 'Cause', 'Processing in plant', 'Remark', and 'Remark Supplier'.

8D Process Steps:

- D0 Plan
- D1 Use a Team
- D2 Describe the Problem
- D3 Develop Interim Containment plan
- D4 Determine and Verify Root Causes and Escape Points
- D5 Verify Permanent Corrections for Problem
- D6 Define and Implement Corrective Actions
- D7 Prevent Recurrence/ System Problems
- D8 Congratulate Your Team

5-Why Analysis:

- 1. Why? Why does the seat have a noise?
- 1. Why? Why is the seat not correctly assembled?
- 1. Why? Why were wrong parts used?
- 2. Why? Why was the BOM faulty? The wrong parts were used.
- 2. Why? Why weren't the drawings correct?

Defect Details:

- DefectCatalog: VIS_SEAT - Seat_defects
- Defect 1: DEF_009 - noises
- Defect Location: [Empty]
- Repeated defect: [Empty]
- Remark: [Empty]

Interim Containment Actions:

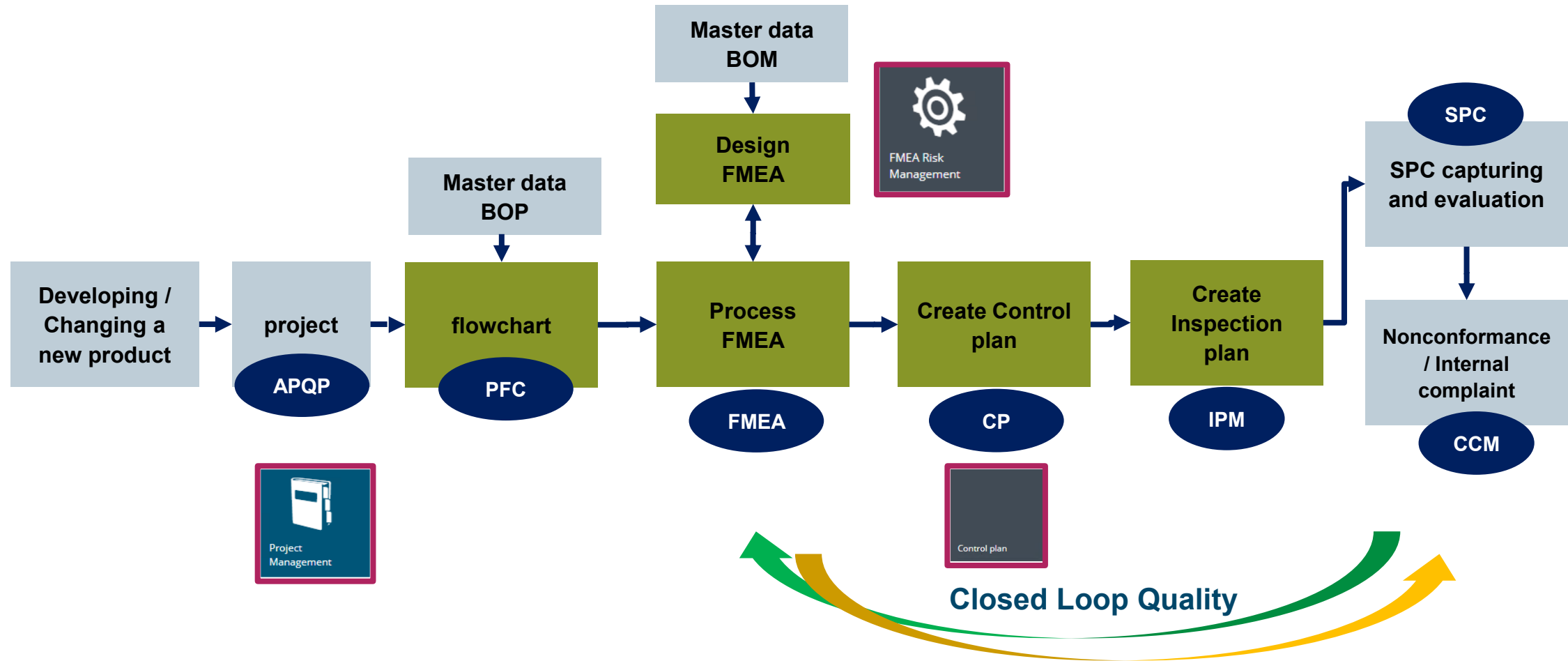
- check storage
- analyse cause
- line hold
- process 8D report

Corrective Actions:

- QM method Ishikawa
- check FMEA

What's new in the quality process: APQP / CLQ

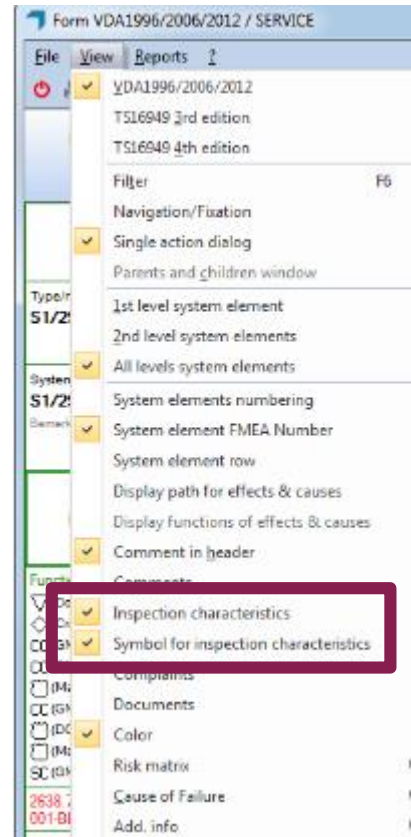
Advanced Product Quality Planning / Closed Loop Quality



FMEA Form: Display classification symbols for characteristics (10.03)

New menu option in the menu: Symbol for characteristics for displaying or hiding the classification symbols for the characteristics.

If the menu option characteristics is activated, you can also activate the menu option Icon for characteristics symbols.



The image shows a screenshot of the FMEA form interface. A red rectangular box highlights a portion of the table, specifically the 'Requirement' and 'Potential Failure Mode' columns for several rows. The table contains the following data:

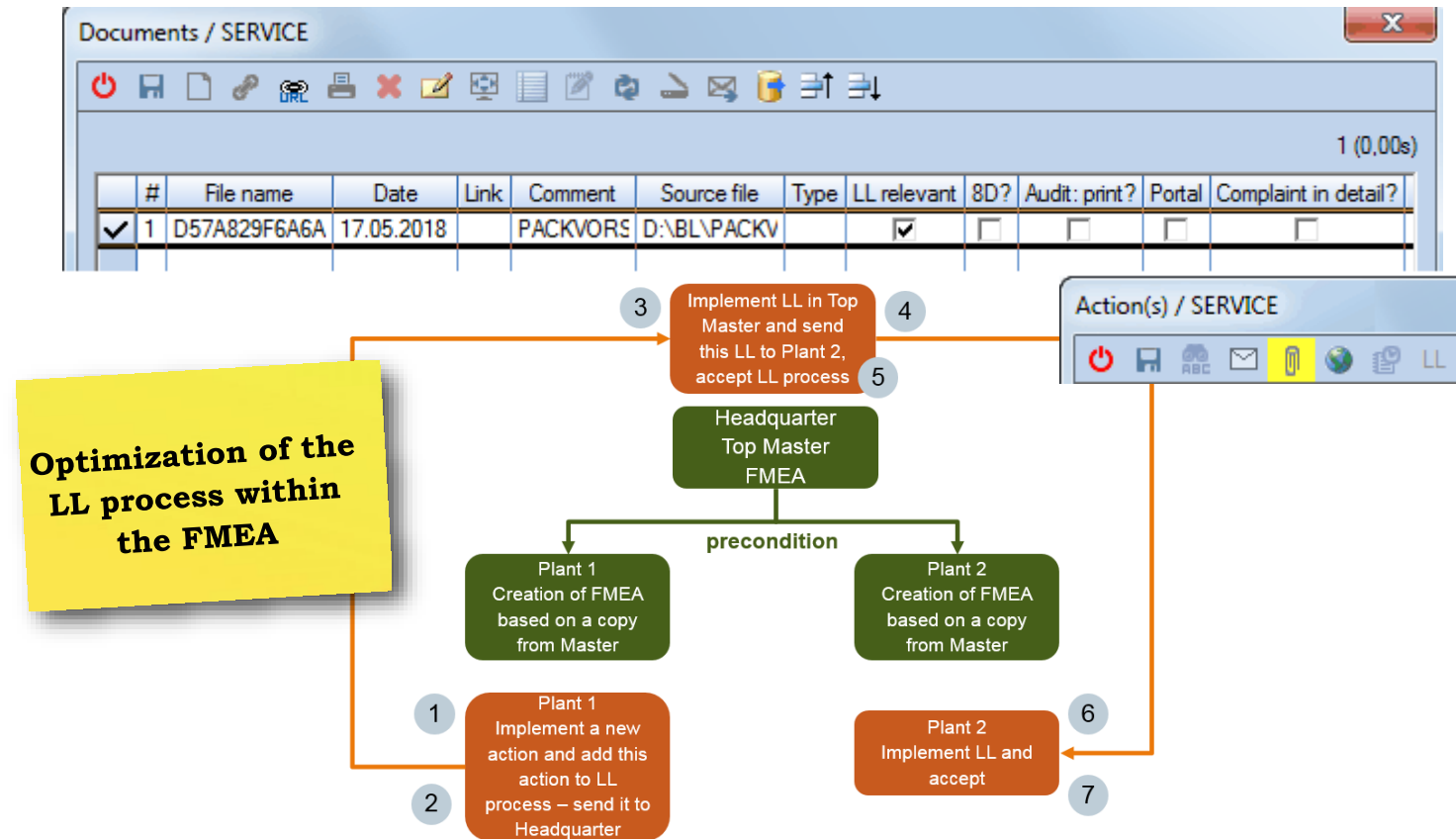
Item	Requirement	Potential Failure Mode	Potential Effect(s) of Failure	Severity Classification	Potential Cause(s) of Failure	Controls Prevention	Occurrence	Controls Detection	Detection	RPN
2638.7004.798	2638.7004.798 F007-modified/Additional information	2638.7004.798 Scuffs/F-001/1	2638.7003.7983 001-BL-ENG/001-BL	9	2638.7002.7981 005-BL/005-BL	- ENDERGEBNIS: KON-Ziel wird nicht gefordert WeWe Closed 17.06.2013	9	None	3	243
	∇ (Dokumentationspflicht) 001-BL, 11.000 mm (0.110/-0.110)		2638.7003.7985 Schlieren/FE-002b	4	2638.7002.7982 Scuffs/SC 02	Sicherheitsschaltung. Nur Betrieb möglich, wenn Betriebstemperatur erreicht	7	None	9	(567)
	◇ (Kritisch) T.001, 11.000 mm (0.200/-0.100)		2638.7003.7986 Scuffs/SC 02	1		Bernhard Laborte Closed 13.07.2016				
	CC (GM kritisch) Kopfauflage, 11.000 mm (0.030/-0.030)		>>2641.7008.7993 Scuffs/F-001	3		Verdrehsymmetrischer Aufbau des Dampfers. Bernhard Laborte Date 13.07.2016 (0%)				
	CC (GM kritisch) Fase angepresst, i.o		>>2641.7008.7992 FF2.1	3		Coordination with coupling supplier André Moskopp	2	Test installation	6	108
	(Haupt) ABH Auslösehub 14,9(+2,1;-0,7)mm, 14,900 MM (0.200/-0.020)					Identische Bauteile für linke und rechte Reingbefestigung Bernhard Laborte				
	CC (GM kritisch) Fase angepresst, i.o									
	(Haupt) Eindrehtiefe, 3.000 cm (0.500/-0.500)									
	SC (GM Main 2) Schlitz gratfrei, i.o									

Lessons Learned: Extension to include LL-relevant documents

Lessons Learned: Sending e-mails when initiating an LL process (10.03)

When appending documents to tasks in LL mode, you can specify whether a document LL is relevant, that is, whether it is to be copied to all target system elements or not.

A switch in the System Profiler can be used to configure whether an e-mail should be sent automatically when an LL process is triggered - with a QDX attachment that refers to the master system element - and if so, to which addressee



FMEA Approval procedures for (inactive) top system element revisions (10.03)

For not active top system element revisions, the approval procedure is available as an option, which can be activated in the FMEA settings in connection with the revision of top system elements.

(functionality in first development stage, extensions for the next versions are planned)

The screenshot displays the Siemens FMEA software interface. The 'FMEA settings' window is open, with the 'Revisions' and 'Approval process' checkboxes highlighted in red. The 'FMEA system element history / SERVICE' window shows a table of revisions for system element '6098 T-GV (2) - S1'. A yellow callout box states: 'QMS fulfil with this function one of the requirements coming from IATF 16949:2016.' A context menu is open over the system element data, with the 'Initiate approval' option highlighted in red.

Date	User	Modification
25.04.2018 15:54:08	SERVICE	Approved
25.04.2018 15:43:12	SERVICE	Approval requested
25.04.2018 14:49:19	SERVICE	Approval request recalled
25.04.2018 14:40:01	SERVICE	Approval recalled
25.04.2018 14:26:34	SERVICE	Approved

Name	Role descr.	Phone	Department descr.
Bernhard Laborte	Projektmitarbeiter	-220	Produktionsleitung-2


FMEA Lessons Learned (LL)

LL functionality can be combined with revisions (10.04)

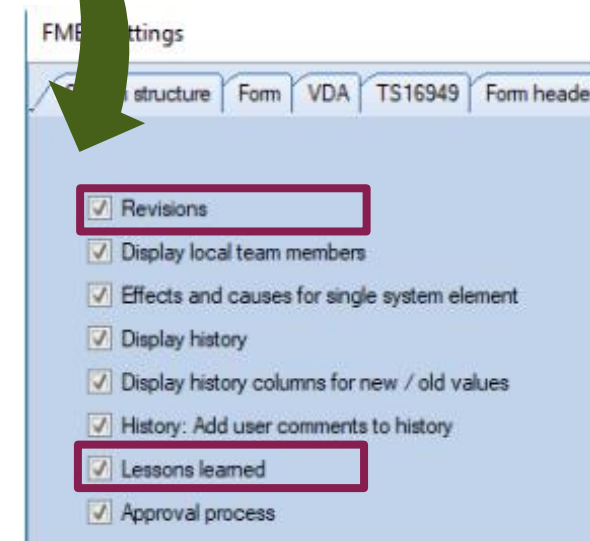
In the current FMEA versions is not possible to work with revisions **and** lessons learned process in parallel.

Now the lessons learned functionality and revisions can be combined with each other.

The system transfers the existing external links of the lessons learned elements to the new revision. This means that the LL actions and the master FMEA concept can be used with the new revision.



A screenshot of a software settings dialog box. The 'Revisions' checkbox is checked and highlighted with a red box. The 'Lessons learned' checkbox is unchecked and also highlighted with a red box. Other options include 'Display local team members', 'Effects and causes for single system element', 'Display history', 'Display history columns for new / old values', and 'History: Add user comments to history'.



A screenshot of a software settings dialog box titled 'FMEA settings'. The 'Revisions' checkbox is checked and highlighted with a red box. The 'Lessons learned' checkbox is also checked and highlighted with a red box. Other options include 'Display local team members', 'Effects and causes for single system element', 'Display history', 'Display history columns for new / old values', 'History: Add user comments to history', and 'Approval process'. A green arrow points from the 'Revisions' checkbox in the first screenshot to the 'Revisions' checkbox in this one.

A lot of customers will be happy with this enhancement - Working with revisions using lessons learned processes!

And QMS Professional fulfills with this point a requirement from IATF 16949!

FMEA Structure: Open list of characteristics directly (10.03)

To view the inspection characteristics that are assigned to a function or to assign inspection characteristics to a function, you no longer need to call the Inspection Characteristics window from the Function / Request window.

The screenshot shows the FMEA / SERVICE software interface. The main window displays a system structure tree on the left and a table of inspection characteristics at the bottom. A yellow callout box with the text "small but fine..... Every user will be happy!" is positioned over the right side of the interface. A red box highlights the "Inspection characteristics" menu option in the context menu.

No.	Linked to	Charact. status	Item	Characteristic no.									
1	PFCI, CPI, F		23	Eindrehtiefe	Drill depth	0			Main	<input checked="" type="checkbox"/>			
2	PFC, CP, IP			0010	Einsenkung	0			Main	<input type="checkbox"/>			
3	PFCI, CPI, F			50000025	ABH Auslöse	0				<input type="checkbox"/>			
4	PFC, CP		21	0112	Bohrung gratf	4			Critical	<input checked="" type="checkbox"/>			
5	CPI, FMEA*			0204	Schlitz gratfre	0			Main	<input type="checkbox"/>			
6	PFCI, CPI, F		7	0014	Kopfauflage	5			Critical	<input type="checkbox"/>			
7	PFC, CP, FI		31	0054	Chamfer pres	6		GM_critical	CC	Critical	<input checked="" type="checkbox"/>		
8	CP, IPM		17	50000025	ABH Auslöse	0		02	{ }	Minor	<input type="checkbox"/>		

FMEA C/S: visual characteristics now available (10.06)

- In the Inspection characteristics window it is now possible to assign visual characteristics to a function.
- The functionality corresponds to that of variable and attributive characteristics.
- This means that the visual characteristics are also optionally displayed in the form and also transferred to the control plan.

**Finally,
visual characteristics can
be used in the FMEA.**

No.	Linked to	Charact. status	Item	Characteristic no.	Char. descr.	Revision no.	Charact. type	Classification	Classi- fication Symbol	Importance	Documentation duty	Specification
1	PFCI, CPI			001-BL	001-BL	16	VAR	Documentatio	▽	Critical	<input checked="" type="checkbox"/>	11,000 mm (0,110/-0,110)
2	PFCI, CPI			T-001	T-001	6	VAR	Critical	◇	Critical	<input type="checkbox"/>	11,000 mm (0,200/-0,100)
3	PFCI, CPI, FMEA!, IPM!		7	0014	Kopfauflage	5	VAR	GM critical	CC	Critical	<input checked="" type="checkbox"/>	11,000 mm (0,030/-0,030)
4	PFC, CP		31	0054	Chamfer pre	6	ATI	GM critical	CC	Critical	<input checked="" type="checkbox"/>	OK / not OK
5	PFCI, CPI, FMEA!			50000025	ABH Auslös	0	VAR	Main	☐	Main	<input checked="" type="checkbox"/>	14,900 MM (0,000/0,000)
6	PFC, CP, FMEA, IPM		31	0054	Chamfer pre	6	ATI	GM critical	CC	Critical	<input checked="" type="checkbox"/>	OK / not OK
7	PFCI, CPI			0824	Teile besch	0	ATI	DC DF eng	☐	Main	<input type="checkbox"/>	OK / not OK
8	PFCI, CPI, FMEA!, IPM!		23	0204	Endrehtiefe	0	VAR	Main	☐	Main	<input checked="" type="checkbox"/>	3,000 cm (0,500/-0,500)
9	CPI, FMEA!			0204	Schlitz gratf	0	ATI	GM Main 2	SC	Main	<input type="checkbox"/>	OK / not OK
10	CP			001-BL	001-BL	16	VAR	Critical	◇	Critical	<input type="checkbox"/>	11,000 mm (0,110/-0,110)
11	CP			T-001	T-001	6	VAR	Critical	◇	Critical	<input type="checkbox"/>	11,000 mm (0,200/-0,100)
12	CP		7	0014	Kopfauflage	5	VAR	Critical	◇	Critical	<input type="checkbox"/>	11,000 mm (0,030/-0,030)
13	CP			50000025	ABH Auslös	0	VAR	Minor	☐	Minor	<input type="checkbox"/>	14,900 MM (0,000/0,000)
14	CP		23	0204	Endrehtiefe	0	VAR	Main	☐	Main	<input checked="" type="checkbox"/>	4,000 cm (1,000/-1,000)
15	PFCn, CPn, FMEAn, IPMn			FKT-001	Oberfläche	2	VIS			Main	<input type="checkbox"/>	Cracks; Bubbles; Unebenhe

FMEA HTML5 / Web – new technology AND providing graphical nets, in which you can edit...



QMS Professional 10.04

Home / FMEA / 103002 production of Skoda cargo rail

Content Overview Attachments Where Used History

103002 production of Skoda cargo rail System element net

New Pending Appro...

103002 production of Skoda cargo rail

- 103002.121002 fullfill dimension specification
- 103002.122002 surface of the profile meets ...
- 103002.123002 surface of the cut
- 104002 Sawing
- 105002 De-burring
- 106002 Punching
- 107002 operated control
- 108002 transfer to next operation
- 109002 Powder coating

103002 production of Skoda cargo r ...

- fullfill dimension specificatio ...
- length too long
- length too short
- angle out of spec
- hole dimension out of spec
- hole is missing
- surface of the profile meets r ...
- scratches
- damages
- surface of the cut
- burr out of spec
- step in cut

Failure net

New Pending Appro...

103002.121002.149002 length too long

104002.124002.156002 wrong setup of program

104002.124002.157002 wrong fixation of the part

106002.126002.180002 Noise in roll

104002.127002.166002 setup sheet is missing

104002.127002.167002 operator not following instru...

104002.127002.168002 instruction not properly defi ...

104002.127002.169002 end stop in wrong position

104002 Sawing

- create lengths and angles a ...
- wrong setup of program
- wrong fixation of the part
- lubrication is insufficient
- wrong sawblade
- Causes of Failure
- setup sheet is missing
- operator not following instru ...
- instruction not properly defi ...
- end stop in wrong position
- wrong position of lubricant ...
- lubricant tank is empty

105002 De-burring

- remove burrs
- wrong brush
- Causes of Failure
- tool is not available
- tool is worn out

106002 Punching

- punching holes according t ...
- wrong setup of program
- skip operation
- defected punching tool
- Causes of Failure
- Noise in roll
- setup sheet is missing
- operator not following instru ...
- instruction not properly defi ...
- lack of maintenance
- design of punching tool
- material of the tool

107002 operated control

108002 transfer to next operation

109002 Powder coating

SIEMENS

POTENTIAL FAILURE MODE AND EFFECTS ANALYSIS (Design FMEA)

Process responsibility: ...

Name	Function	Potential Failure Mode	Effects	Severity	Classification	Potential Cause of Failure	Countermeasures			RPN	Recommended Action	Responsibility and target completion date	Status			Action/Result
							Occurrence	Detection	Current prevention				Control detection	Security	Overseen	
104002.127002.166002	setup sheet is missing	wrong setup of program	length too long	7	A	wrong setup of program	10	1	70	20	20	20	1	1	1	20
104002.127002.167002	operator not following instru...	operator not following instru...	length too short	6	B	operator not following instru...	10	1	60	20	20	20	1	1	1	20
104002.127002.168002	instruction not properly defi...	instruction not properly defi...	length too long	7	A	instruction not properly defi...	10	1	70	20	20	20	1	1	1	20
104002.127002.169002	end stop in wrong position	end stop in wrong position	length too short	6	B	end stop in wrong position	10	1	60	20	20	20	1	1	1	20

AIAG-VDA Harmonization and Implementation in QMS Professional

Official approval of AIAG-VDA FMEA harmonization is done

AIAG / VDA harmonization

- New form sheet
- Action Priority instead of RPN
- New ranking tables for Design and Process
- New FMEA type – Monitoring System Response (MSR)
- Boundary diagram & Parameter diagram

Current status:

Official release via approval by both the AIAG QSC and VDA QMA is done; publication is available since approx 2 weeks



AIAG-VDA FMEA Handbook Status Februar 2019

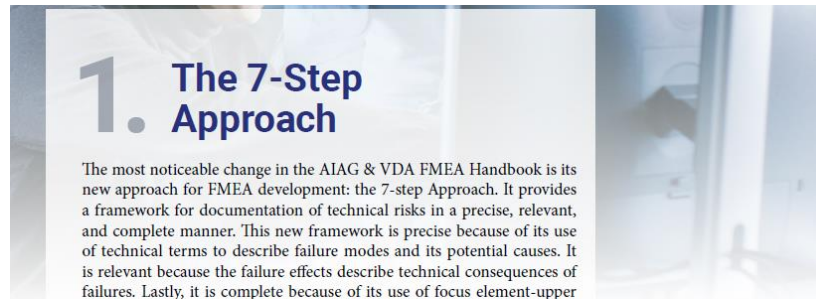


Ergebnis der QMA Sitzung am 13. Februar 2019

- **AIAG-VDA FMEA Handbuch, englische Ausgabe**
 1. Überarbeitung des Handbuchs bzgl. OEM Themen bis zum 04. März 2019
 2. Redaktionelle und grafische Fertigstellung des Handbuchs bis zum 18. März 2019
 3. Finale englische Ausgabe des Handbuchs zum 28. März 2019
 4. Vorlage zur Freigabe beim AIAG QSC
- **AIAG-VDA FMEA Handbuch, deutsche Ausgabe**
 1. Die deutsche Übersetzung des Handbuchs bis zum 18. März 2019
 2. Anpassung der deutschen Ausgabe an die englische Ausgabe
 3. Fertigstellung des deutschen Handbuchs bis zum 28. März 2019
 4. Vorlage zur Freigabe beim VDA QMA
- **Gesamtfreigabe und Veröffentlichung**
 1. Gesamtfreigabe durch Freigabe durch AIAG QSC und VDA QMA
 2. Veröffentlichung frühestens im April 2019

**finally
released**

7 Steps Approach



1. The 7-Step Approach

The most noticeable change in the AIAG & VDA FMEA Handbook is its new approach for FMEA development: the 7-step Approach. It provides a framework for documentation of technical risks in a precise, relevant, and complete manner. This new framework is precise because of its use of technical terms to describe failure modes and its potential causes. It is relevant because the failure effects describe technical consequences of failures. Lastly, it is complete because of its use of focus element-upper level-lower level approach enabling a comprehensive review of the risks.



The Benefit:

The 7-step Approach is more structured, and highly instrumental in increasing a multidisciplinary team's effectiveness and efficiency:

- More risks can be addressed in a comprehensive manner
- Multidisciplinary reviews of the FMEA become engaging "technical guided reflections" instead of an "unfocused brainstorm", avoiding a discouragement attitude related to FMEA
- Enables senior management to comprehend and review necessary actions and resources to mitigate technical risks

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Include 7 steps instead of 5 steps



Steps: 1st Planning & Preparation and 2nd Structure Analysis



2. Enhanced FMEA Planning & Preparation

Another major difference is the enhanced direction of FMEA Planning and Preparation; the 1st step of FMEA development. While defining the scope has always been part of the FMEA development, the AIAG & VDA FMEA Handbook gives it increased prominence. For example, determining analysis boundaries (what is included and what is excluded), application of 5Ts (FMEA Intent, Timing, Team, Tasks, Tools), preparation of baseline FMEAs with lessons learned, and clear definition of roles and responsibilities (management, technical lead, facilitator, team members) are now more explicitly included in FMEA preparation.

The Benefit:
Enhanced planning and preparation will allow you to avoid wasting time of the multidisciplinary team due to lack of focus (Why are we here? What is the technical risk in discussion now? Who should do what?) and relevant information availability.

The benefits of organizing lessons learned into baseline FMEAs are:

- Mitigate the risk of past failures recurrences due to loss of knowledge related to turnover and retirement
- Save time in FMEA preparation as the baseline FMEA is a robust starting point for FMEA in similar products and processes
- Enable practicality in the concept of "FMEA as a living document"
- Clarity for management to estimate and allocate resources to standardize lessons learned

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- DFMEA 2nd Step – Structure Analysis. DFMEA form starts with the understanding of the system structure. After the breakdown of the design into system, sub-system, and component the Focus Element, the Next Higher Level, and Next Lower Level is described in the form. Additional clarification on tools to support the structure analysis before completing the DFMEA is provided (Block Diagram, Structure Tree).

1. Step: First Step Renamed to Planning and Preparation

- Project Plan via APQP
- Boundary Diagram (out of scope Elements) **new**
- Baseline FMEA
- Lessons Learned
- Fill the header of the FMEA (teams, customer, company, subject, engineering location etc.) **new**

2. Step: Structure Analysis

- Option A: use boundary diagram **new**
- Option B: use tree structure or net view (former VDA user)
- Option C: directly view the form sheet that includes the higher/lower level columns as well as the focus element and enter data directly in form

Steps: 3rd Function Analysis and 4th Failure Analysis

- DFMEA 3rd Step – Function Analysis. Deeper explanation on how to describe properly a function, including tools to support the function analysis (P-Diagram).

- DFMEA 4th Step – Failure Analysis. Concepts of types of failures and failure chain model are described to support a more comprehensive (more failures described) and consistent (internal consistency between FE, FM, FC) failure description.

3. Step: Function Analysis

Option A: use P-Diagram to make the function analysis new

- On each system element that is been defined by the boundary diagram/tree/net view/form sheet a parameter diagram will be generated.
- Option B: use tree or net view to add functions
- Option C: use form sheet to add new functions
- Definition of Characteristics and Requirements according to the function new

4. Step: Failure Analysis

- Failure tree and net view

Steps: 5th Risk Analysis and 6th Optimization and 7th Result Documentation

- DFMEA 5th Step – Risk Analysis. Further differentiation between Prevention Controls (PC) and Detection Controls (DC). The confirmation of PC and DC effectiveness needs to be considered before selecting the Occurrence and Detection ratings. More specificity in the criteria to determine levels for Severity, Occurrence, and Detection ratings and the replacement of RPN to DFMEA Action Priority (AP). Low, Medium, and High AP levels drive the determination of action priority.
- DFMEA 6th Step – Optimization. Recommended Action replaced with Prevention Action and Detection Action. Added the columns: Status (planned, decision / implementation pending, completed, discarded), and Action Taken with pointer to evidence.

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5. / 6. Step: Risk Analysis and Optimization

- Action Priority / new assessment tables new
- New AIAG&VDA form new
- Action Status (Open, Decision pending (optional), Implementation pending (optional), Completed, Discarded)

7. Step: Result Documentation

- Customer View (different master data)
- Statistics Changes (Risk Matrix) to display Action Priority new
- Changes of existing reports new

That's our plan to implement the new requirements. 10.07 will be released shortly, 10.08 is planned, the confirmation is expected for 10.09

	No.	AIAG&VDA Request	Status	HTML5	C/S
Step1: Planning&Preparation	1	Project Plan in APQP	implemented	X	X
	2	Baseline FMEA	implemented	X	X
	3	Lessons Learned	implemented	X	X
	4	Header Data of FMEA	planned	10.08/09	10.08/09
	5	Boundary Diagram (scope)	implemented	10.07	-
Step2: Structure Analysis					
	6	Tree Structure	implemented	X	X
	7	Boundary Diagram (scope)	implemented	10.07	-
	8	Process Flow Diagram in APQP	implemented	tbd	X
Step3: Function Analysis					
	9	Function tree/net view	implemented	X	X
	10	Characteristics	implemented	X	X
	11	Requirements	implemented	10.07	-
	12	Parameter Diagram	implemented	10.07	-
Step4: Failure Analysis					
	13	Failure Mode, effect, cause	implemented	X	X
	14	Failure tree/net view (f. chain)	implemented	X	X
Step5&6: Risk Analysis&Optimization					
	15	Action Priority Assessment Scheme	planned	10.08/09	10.08/09
	16	AIAG&VDA forms (4different ones)	planned	10.08/09	10.08/09
Step7: Result Documentation					
	23	FMEA Report	planned	10.09	10.09

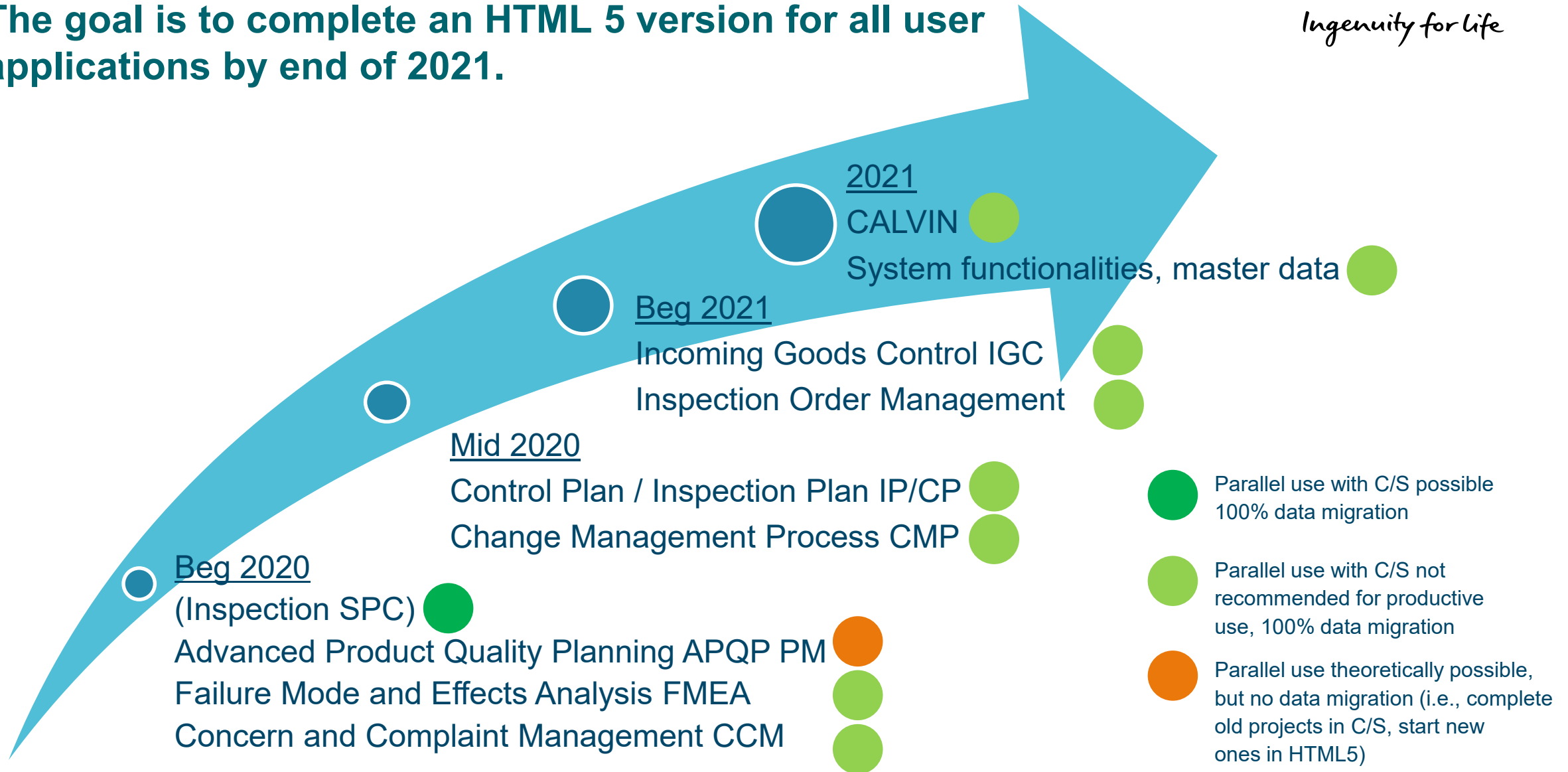
QMS Professional Roadmap

The published roadmap is **NOT A COMMITMENT FOR DELIVERY** but rather a forward looking view to communicate the product directions and plans

- The products organization reserves the **rights to adjust the roadmap** at any time and in any way
 - as refinements to the requirements and costs are better understood
 - to accommodate changing priorities, technologies and commitments
- When a customer requires a commitment for a future deliverable, there is a formal **commitment request process**
 - This process requires that a specification is agreed upon between the requesting party and the products organization along with an approval process that considers the assesses the risk of making the commitment to the overall plans and roadmap

QMS Professional mid-term roadmap (Replicate status)

The goal is to complete an HTML 5 version for all user applications by end of 2021.



QMS Professional: Inspection module for SPC/IGC/OGC HTML5

SPC 10.06

- SPC Stabilization
- Performance Improvements
- SWAC container with all needed parameters for an SPC SWAC call
- Customer Support
- SIT UA interface enhancements

SPC 10.07

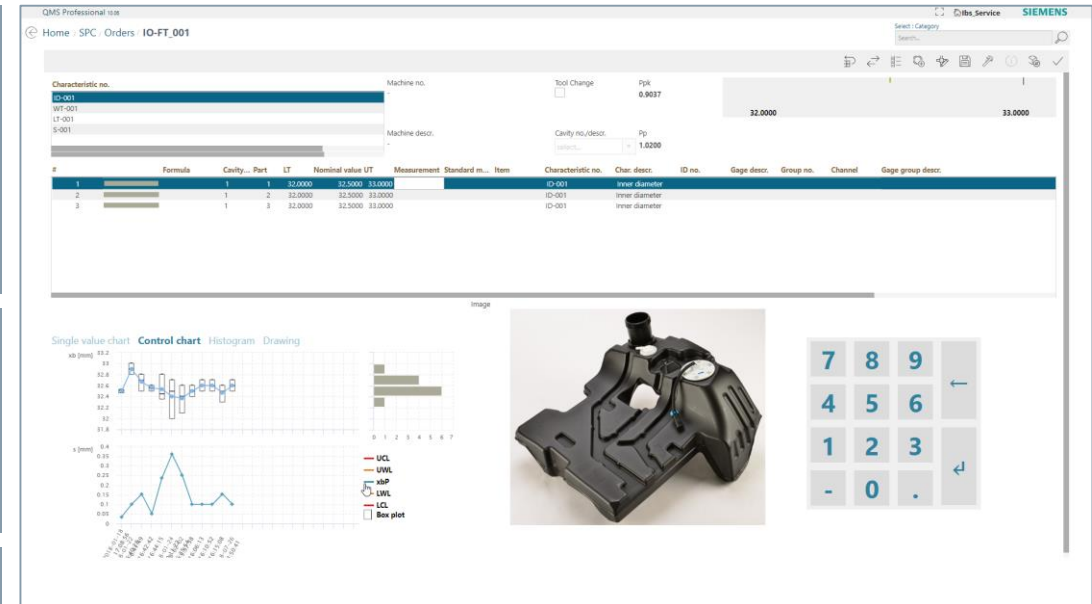
- Support 2.58 sigma
- Support sigma calculation in inspection plan
- Probability-Net
- Support Johnson distribution

SPC 10.08

- Incoming Goods Control / Outgoing Goods Control - First step
- Integrate BCT Web component to use graphical acquisition
- Control chart Weibull

SPC 10.09

- Incoming Goods Control / Outgoing Goods Control - Second step



- **Activated touchpad to enter the measurement values via a touchscreen**
- **You can use the box plot in the control chart for variable characteristics**
- **Special layout for the integration with UADM without header data, because this data is already shown in UADM**

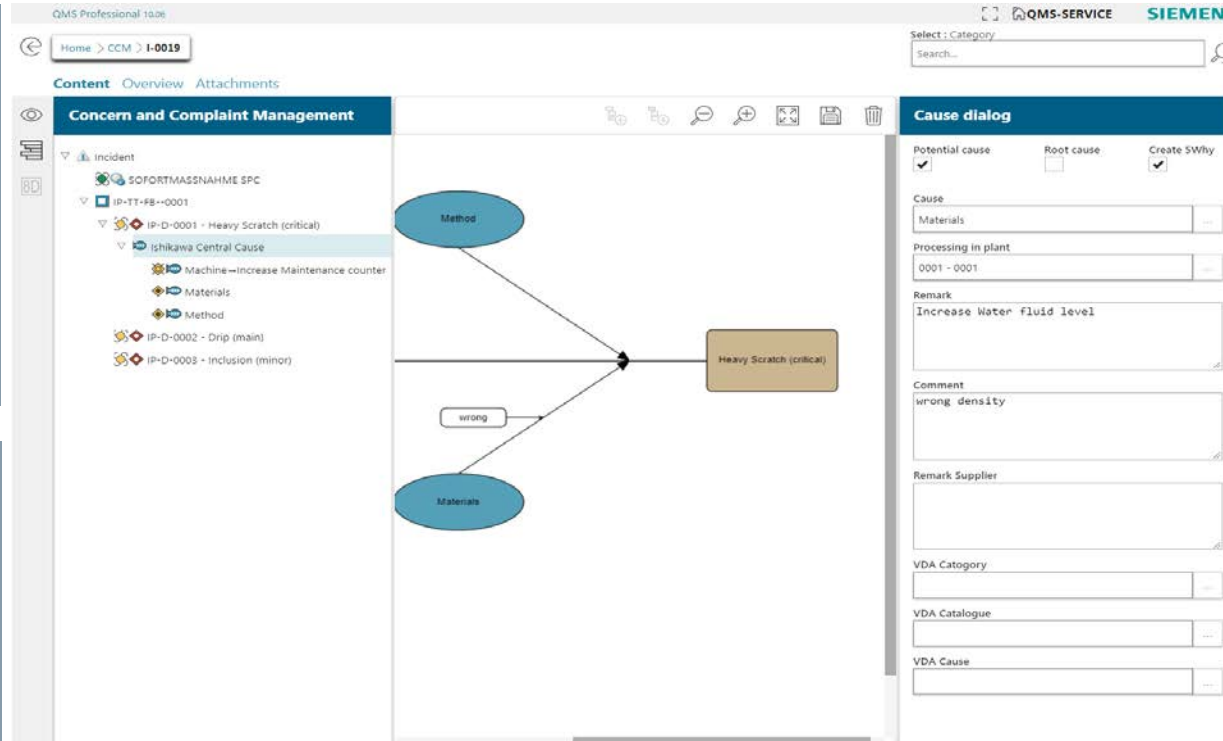
CCM

CCM 10.06

- Ishikawa
- Problem Solving Process (Master 8D)
- Portable Layouts
- Escalation Emails
- Integrate SPC Defect Picture Functionality

CCM 10.07

- New: UX/UI Alignment
- Functions needed by 1st tier suppliers to support the complaint process including 8D process modeling
- VDA-request: Triggering Level 1 and Level 2 Checks
- Extensibility



New Brainstorming Component to support the QM Ishikawa in 10.06:

- Allow you to combine several methods, for example, the result of an analysis in Ishikawa becomes the starting point for a 5Why method

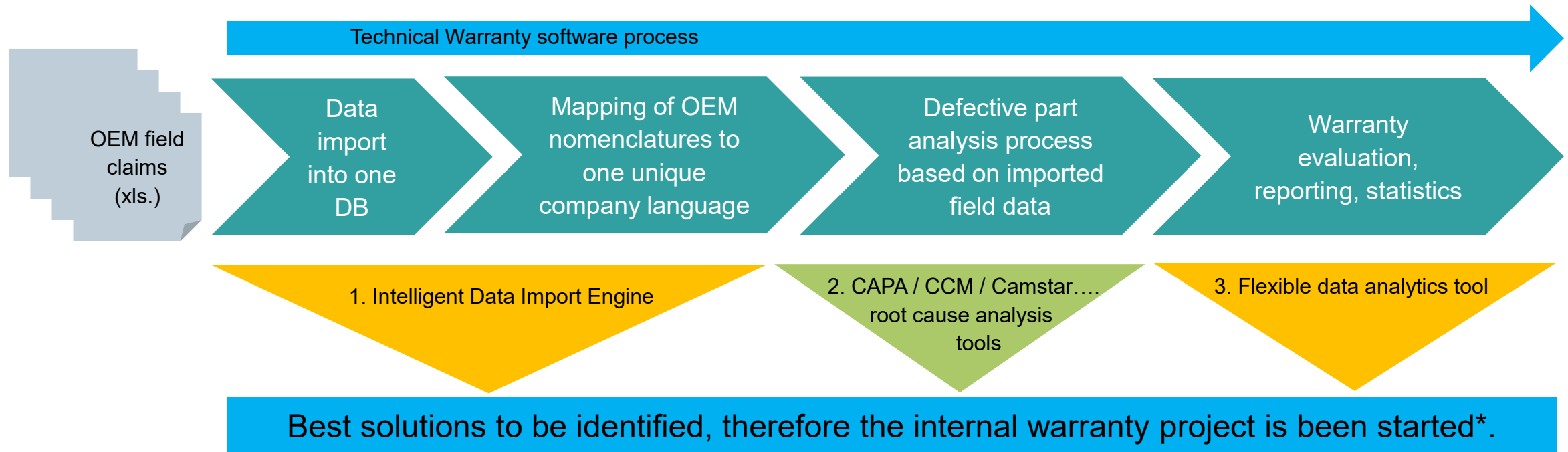
CCM 10.08

- Collective complaint including serial number handling
- New concept for linked complaints
- Link Defect - Cause - Action
- Manufacturing Reporting (Integration of List and Label)
- Tasks for a Team

CCM 10.09

- FMEA and CCM linkage
- SAP-Interface for cost handling
- Cost accounting
- Multitenancy support
- Data Glasses

Siemens Warranty will be an new add-on tool to QMS Professional



*Internal consulting project with the Institute für Qualitäts- und Zuverlässigkeitsmanagement GmbH, IQZ startet to deliver:

(1) Gap Analysis: Assessment of the current MOM QMS Warranty Software features

done

(2) Change Requests: Creation of software change requests for the existing Siemens software by showing up alternative technologies and rewriting existing software processes according the actual industry requested warranty processes;

done

(3) Software Specifications: documentation of missing software features on a detailed level the product owner and R&D team can work with to finally build a marketable warranty software.

done

(next steps) Identify the most beneficial technology for the import engine and the data analytics tool

FMEA

FMEA 10.06

- Configuration of the header of the form sheet
 - Definition of visual characteristics in the FMEA
- Ongoing: Increase functional depth
- Classification enhancements
 - Boundary enhancements
 - Status of FMEA harmonization

FMEA 10.07

- New Parameter Diagram
- History tab implementation
- Enhanced CCM Interface to FMEA
- Change Management from Boundary Diagram to FMEA

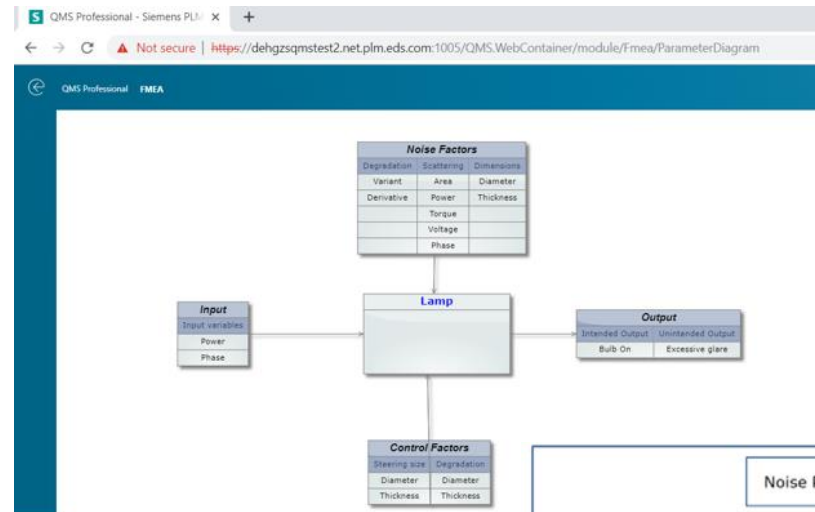


Fig. 1: System Function, FMEA (Source: DC)

FMEA 10.08

- VDA&AIAG Harmonization (part 1)
- One new form sheet for VDA and AIAG
 - New Rating: Action Priority instead of RPN and new ranking tables

FMEA 10.09

- VDA&AIAG Harmonization (part 2)
- 3 M Matrix
 - New Action categories (e.g. carry over, benchmark, calculation)
 - New FMEA type: MSR Monitoring System Response (MSR) incl. form

▪ Example for a Parameter diagram

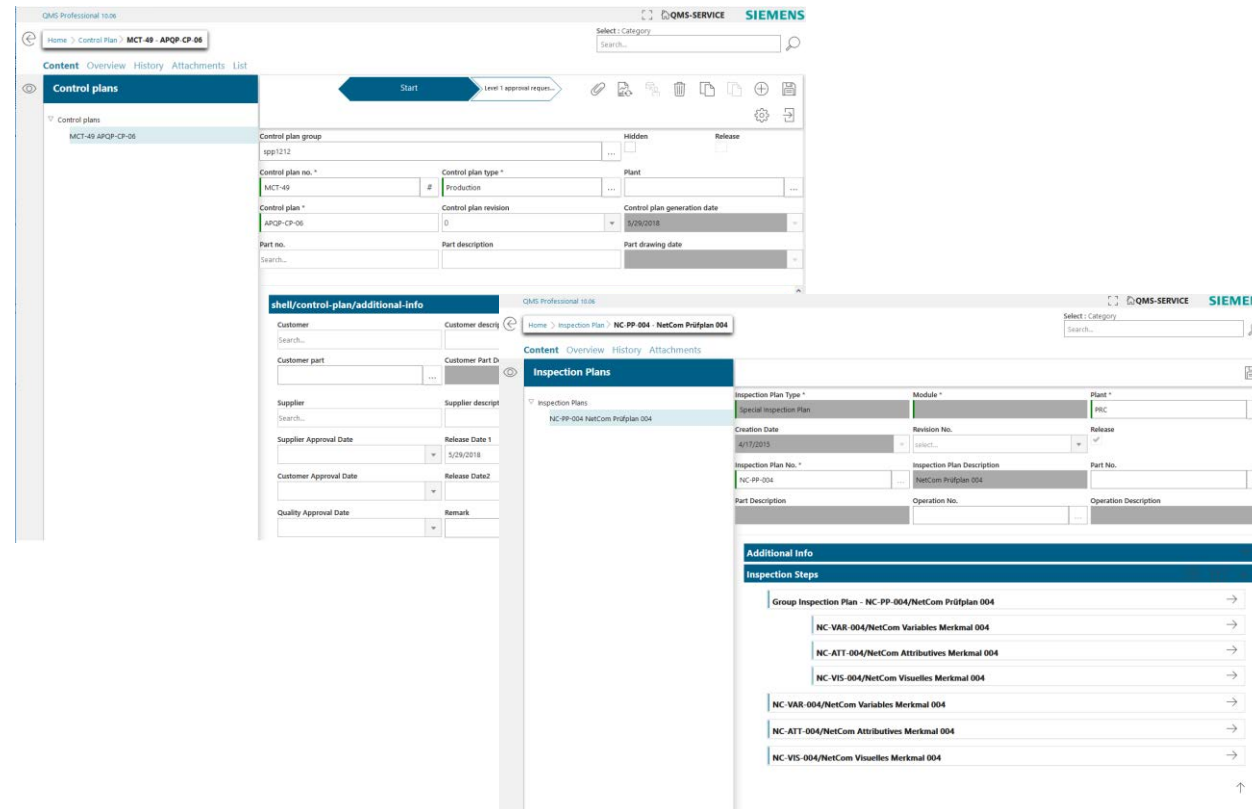
Control plan / Inspection plan

CP 10.06

- Performance Improvement for Control Plan Detail view
- CP/IP - Read data of existing inspection plans using CP
- Creating/Updating Inspection Plans and Inspection Steps

CP 10.07

- CP-IPM-connection established
- Optimization of the release process flow
- Better integration with CP and IP (from 10.08)
- New: UX/UI Alignment



CP 10.08

- Improvement of history display (from 10.07)
- CP- ex- and import functionality
- Possibility to easily display alternative operations in the flow
- Mass release of inspection plans

CP 10.09

- Define CMP Matrix
- Lessons Learned (push functionality) from line CPs to part CPs
- Documents as part of the CMP

APQP Project Management

APQP 10.06

- Basic Support of PPAP Type and Print Matrix
- Requirements for APQP PM with PPAP checklists for first sample inspection
- Common Cost Comp.

APQP 10.07

- New: UX/UI Alignment
- Alignment project tree view and Gantt chart

QMS Professional 10.06

Home > Project > P-000250 - Demo-QProject

Select: Category

Search...

Content Overview History Attachments

Project

Part List Rejected

Project no. P-000250 Project name * Demo-QProject Project type Project type save Test 1

Description Testing 1 Mandant

Company APQP - APQP Customer part Zahnrad 5

Part 000026 - MTU Part1_A Phase

Planned start date 1/1/2018 Planned end date 1/1/2019 Backward planning Confidential

Teams

Creator

Admin Gerald Brauneck

Everyone

Report creator

Responsible QMS-SERVICE

E/E Planner

Signature

Creation user QMS-SERVICE Creation date 7/27/2018 Last change user QMS-SERVICE Last change date 1/18/2019

Released by Released on Close user Close date

APQP 10.08

- Inform about modifications in allocated QMS data
- Dynamic lists for additional information (Add. info + QSYS)
- Printing the Gantt chart

APQP 10.09

- Support Change Management Process
- Handling of Requirements within a project (Polarion, Doors, ...)

Calvin

- ### CALVIN within QMS Professional 10.06
- Complete integration of user administration into QMS
 - Header masks as MDI tab
 - Modernization of many head masks (e.g. inspection mask, output/return, additional masks for inspection)
 - Subsequent Clients and Library Assignment to Users
 - Improvements in automatic wildcard searches
 - Improvements in order management
 - High-DPI support (System DPI)

Client	Name of Client	Ident No. 1	Date	Ident.	Ident.	Barcode	Last Ev.	Event Type	Lib.	Library Desc.	Group	Group Description	Type	Type Description	Designation	Result	Result	Date	Date	Next Due	Interval	Time Type	Last Time	Usage (in %)	Usage		
000	SINEC Example Data	1204000001	2018-03-01	000	000		EXT9001	Extern / Neu	SINEC	Inspection pl.	MS	Messscheiber	Form. A.	Messscheiber	Form. A.	30	30	In Ord.	30	In Ord.	8/11/2018	6	Month	8/11/2018	0.00	0.00	
000	SINEC Example Data	1 GMS-Aufl.	2018-03-01	000	000	4444	A0 01 0	MGA	MGA / PMP	SINEC	Inspection pl.	CPM_AH	Drehmomentaufnehmer	CPM_A	Aufnehmer	Rotier	50	50	In Ord.	30	In Ord.	4/13/2018	3	Month	4/13/2018	0.00	0.00
000	SINEC Example Data	1 Gewinde L	2018-03-01	000	000		GGL	AUSG	Ausgabe	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	2/4/2018	6	Month	2/4/2018	0.00	0.00
000	SINEC Example Data	1 Messuhr	2018-03-01	000	000		72 CR E	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	4/13/2017	0.00	0.00	0.00	0.00	
000	SINEC Example Data	1 MS	2018-03-01	000	000		146	AUSG	Ausgabe	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	5/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	1 Prüflin	2018-03-01	000	000		DA 7A	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	5/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	1 Sachverhalte	2018-03-01	000	000		2101 01750	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	5/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	CALIPER 001	2018-03-01	000	000			DOKU	Dokumentation	SINEC	Inspection pl.	CAL	Caliper	MS	without depth	MS	30	30	In Ord.	30	In Ord.	5/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	D-901 0	2018-03-01	000	000		ad	AUSG	Ausgabe	SINEC	Inspection pl.	DRMS LR	Drehmoment-Werkzeug	Gedre	Gedre 30 Nm	TSA	30	30	In Ord.	30	In Ord.	4/13/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	ER35 Einstell.	2018-03-01	000	000		00005	DOKU	Dokumentation	SINEC	Inspection pl.	ER	Einstellung	ER		24	24	In Ord.	30	In Ord.	4/13/2018	0.00	0.00	0.00	0.00		
000	SINEC Example Data	ER08.000 Einr.	2018-03-01	000	000		Az-3	DOKU	Dokumentation	SINEC	Inspection pl.	ER	Einstellung	ER		8	8	In Ord.	30	In Ord.	4/13/2018	0.00	0.00	0.00	0.00		
000	SINEC Example Data	001122	2018-03-01	000	000		001122	DOKU	Dokumentation	SINEC	Inspection pl.	ER	Einstellung	ER		8	8	In Ord.	30	In Ord.	4/13/2018	0.00	0.00	0.00	0.00		
000	SINEC Example Data	Gewinde-Gr	2018-03-01	000	000		Bea	KAL	Kalibrierung	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	1/14/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	HR-01	2018-03-01	000	000			DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	9/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	HR-02	2018-03-01	000	000			DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	9/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	Messuhr HDY	2018-03-01	000	000			DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	9/22/2018	0.00	0.00	0.00	0.00	
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000	SINEC Example Data	MS-3	2018-03-01	000	000			DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	9/22/2018	0.00	0.00	0.00	0.00	
000	SINEC Example Data	Raf-1	2018-03-01	000	000			DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	8/13/2019	0.00	0.00	0.00	0.00	
000	SINEC Example Data	test	2018-03-01	000	000		test	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	8/13/2019	0.00	0.00	0.00	0.00	
000	SINEC Example Data	test	2018-03-01	000	000		test	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	8/13/2019	0.00	0.00	0.00	0.00	
000	SINEC Example Data	Verfahren Welle	2018-03-01	000	000		test	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	4/12/2012	0.00	0.00	0.00	0.00	
000	SINEC Example Data	Verfahren Welle	2018-03-01	000	000		test	DOKU	Dokumentation	SINEC	Inspection pl.	MS	Messscheiber	MS	Messscheiber	MS	30	30	In Ord.	30	In Ord.	4/12/2012	0.00	0.00	0.00	0.00	

- Modern look & feel for CALVIN
- High-DPI support (System DPI) and new skin for optimized display on High-DPI monitors

- ### CALVIN within QMS Professional 10.07 ...
- VDI 2623 import with configurable protocol path (VDI 2623 defines the Calibration Data Exchange-Format (CDE-Format))
 - VDI 2623 Export/Import with ZIP support
 - SIEMENS License Server Integration
 - New test step type Graphic
 - Import of measuring clouds from contour measuring devices for e.g. thread measurements

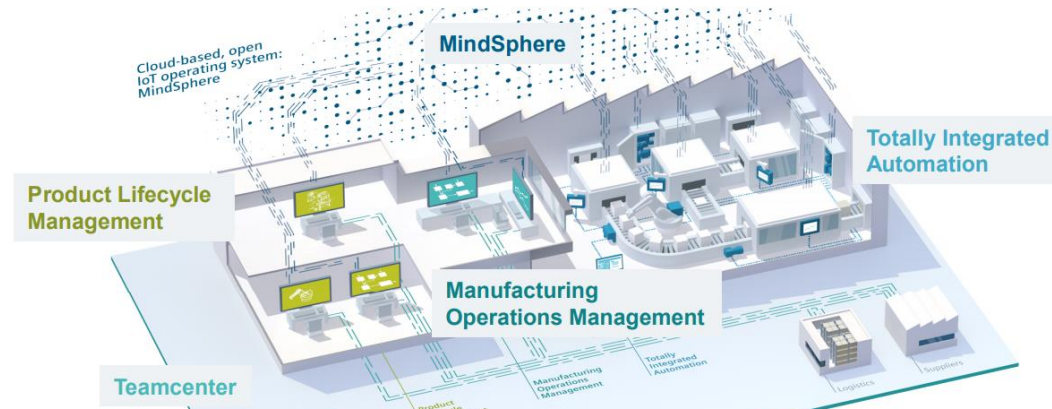
What about Teamcenter Quality and Compliance Suite?

Target Customers to implement Industry 4.0 projects including Closed Loop Manufacturing



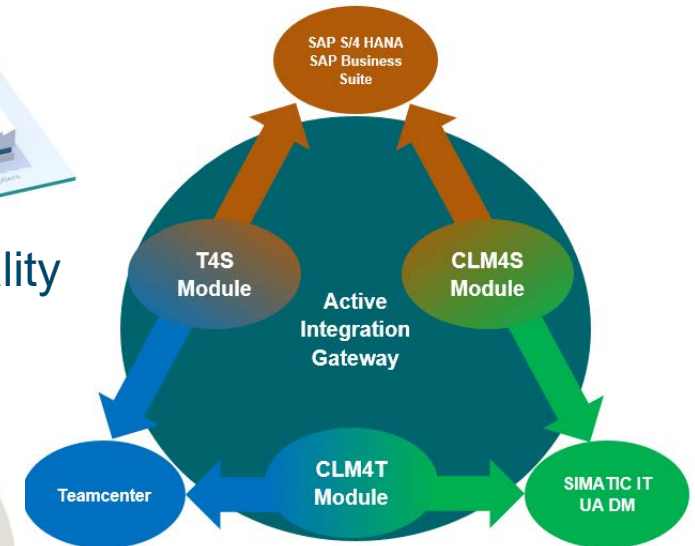
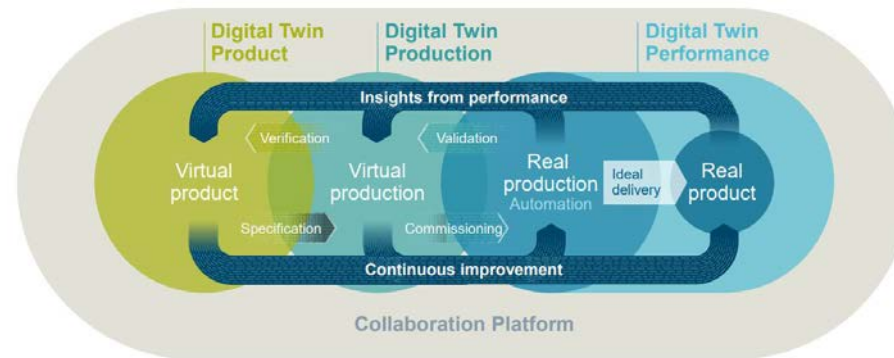
The Digital Enterprise Suite provides an integrated portfolio of Industrial Software and Automation for the discrete industry.

This allows product manufacturers, machine and line builders to integrate and digitalize their entire value chain – including their suppliers.

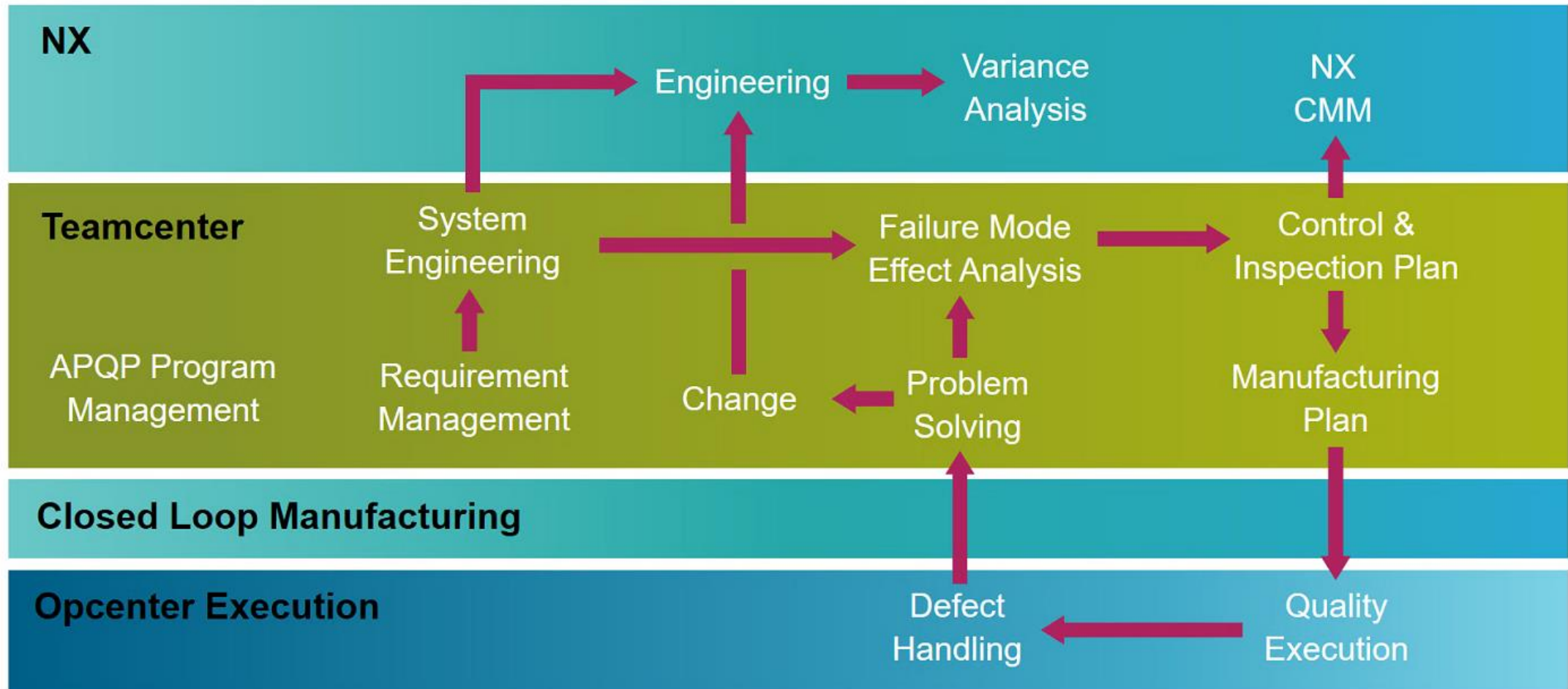


Shifting the Digital Twin from virtual to reality

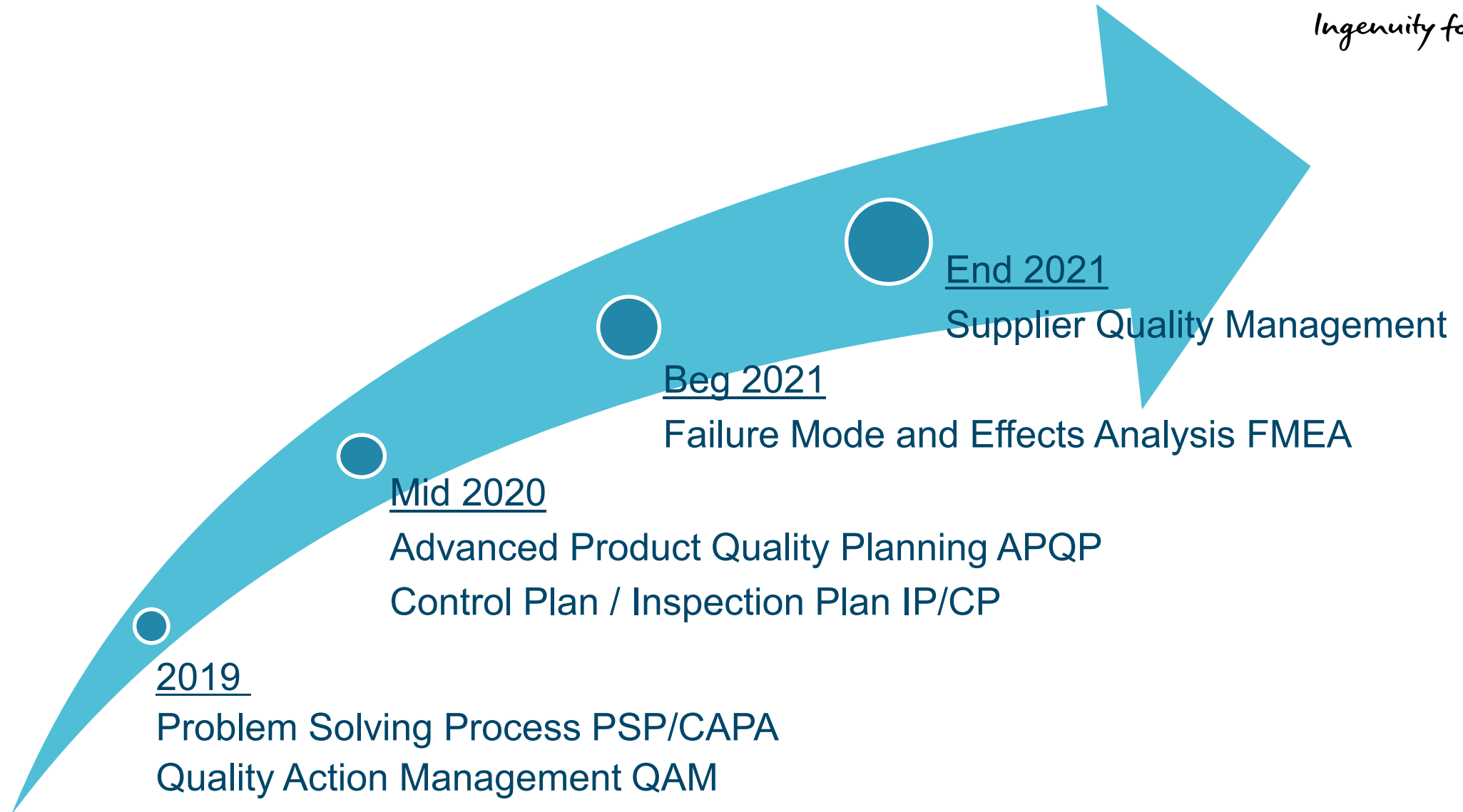
Realize the full value of digitalization



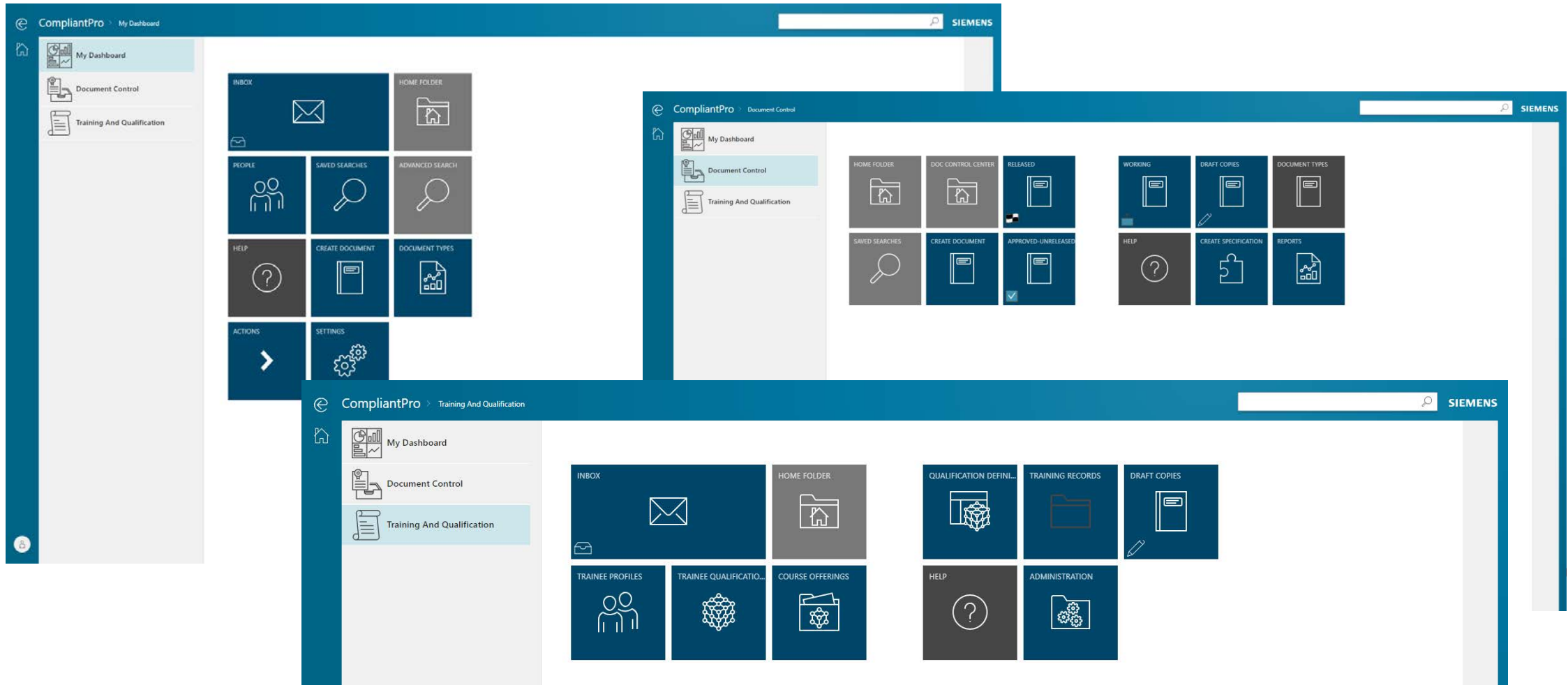
Siemens Teamcenter Quality Vision



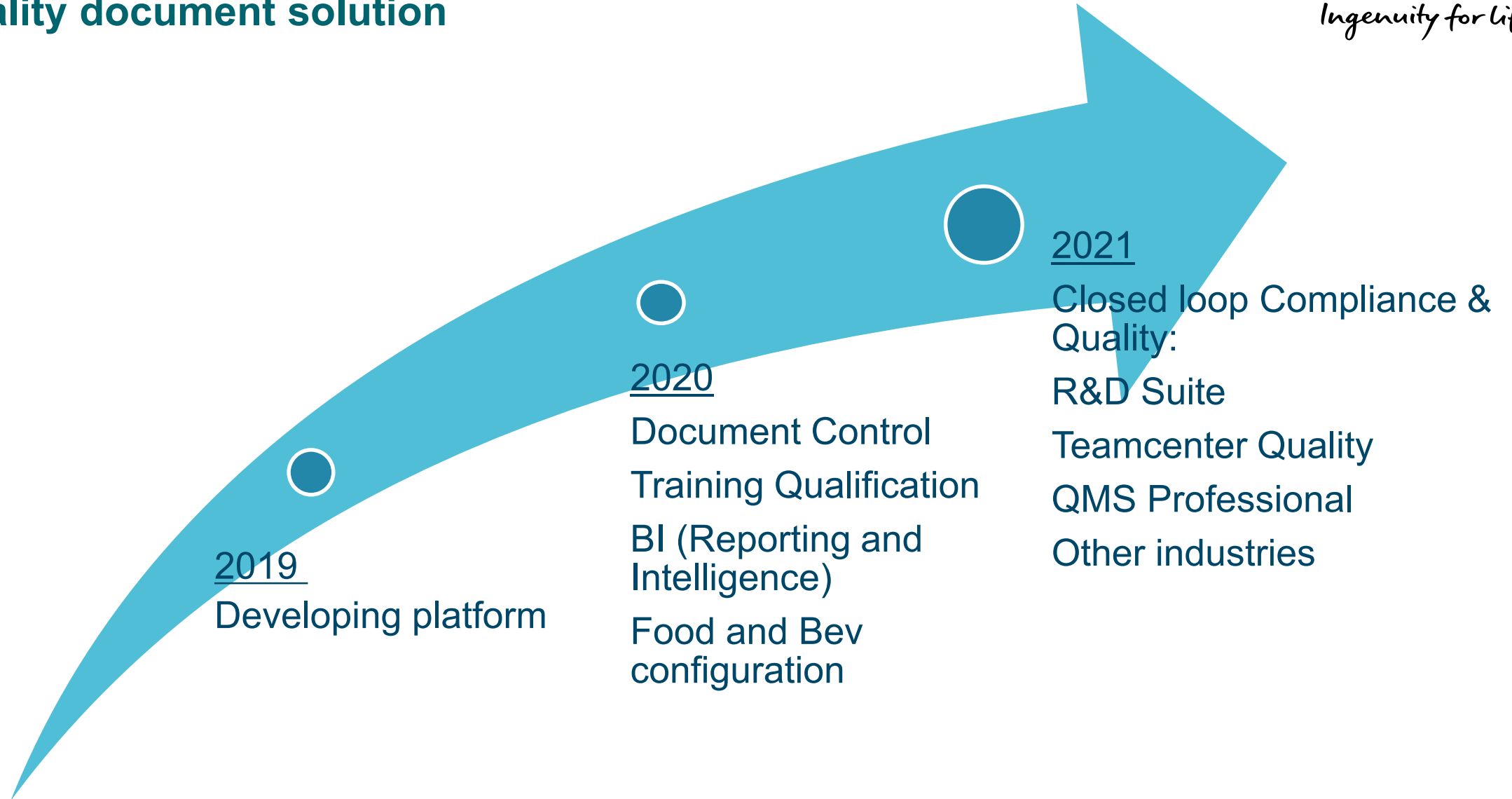
Teamcenter Quality – mid-term roadmap status May 2019



Compliance Suite: cloud based Document Control and Training & Qualification



Compliance suite – mid-term roadmap for cloud based Quality document solution



Thank you!

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