Das intelligente Manufacturing Execution System für den Anlagen- und Sondermaschinenbau

THE BEST RUN SAP

Webseminar-Serie Sondermaschinen- und Anlagenbau

Model Once – Configure Anywhere: Wie Modellbasiertes Systems Engineering Prozesse in Sales, Service & Logistik vereinfacht

03.09.2021 10:00 - 11:15 Uhr

Guided Selling mit der SAP MOCA Methodologie für den Maschinenbau im CTO und CTO+

10.09.2021 10:00 - 11:15 Uhr

Die Zukunft des Servicegeschäfts im Maschinenbau: Guided Selling, Design and Maintenance for Serviceability

17.09.2021 10:00 - 11:15 Uhr

Hochprofitabel und kundenspezifisch produzieren - Integration aller Change Prozesse im Maschinenbau

24.09.2021 10:00 - 11:15 Uhr

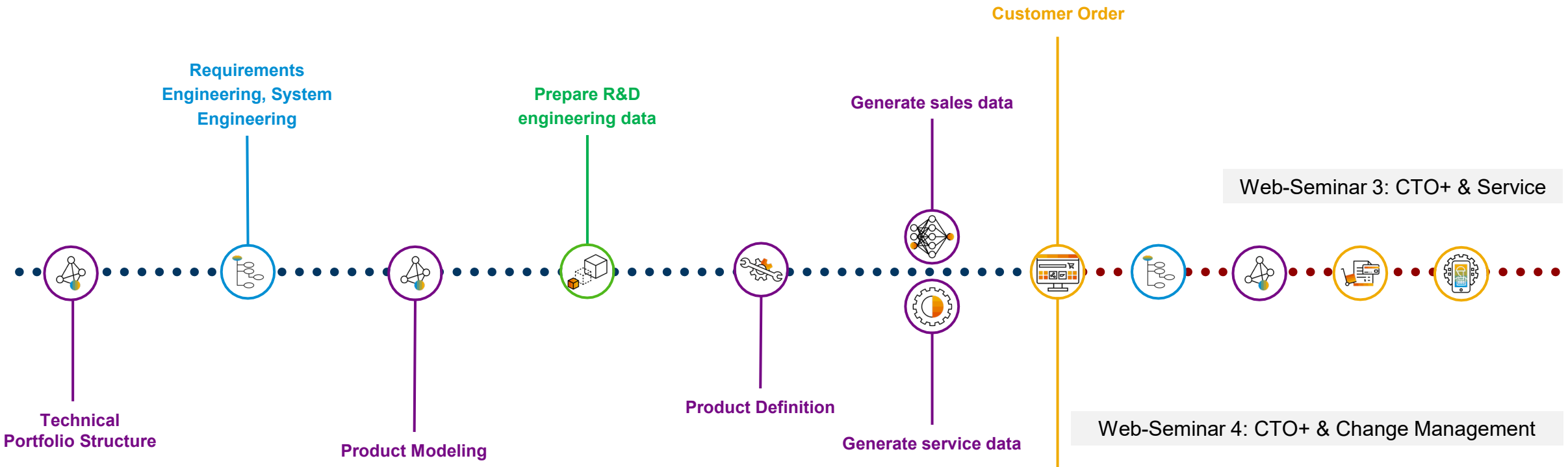
Das intelligente Manufacturing Execution System für den Anlagen- und Sondermaschinenbau

01.10.2021 10:00 - 11:15 Uhr

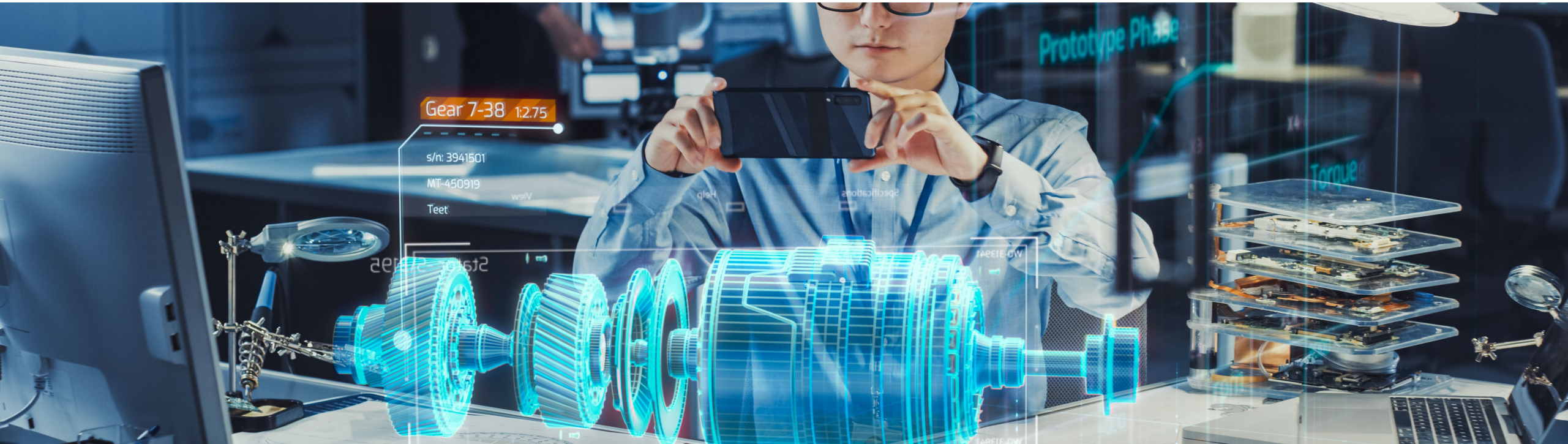
End-to-End Scenario

The „Blue“ Process
Order Neutral Product Development & Design

The „Red“ Process
Order Engineering and Order Management



Recap


Gear 7-38 1:2.75
s/n: 3941501
MT-450919
Teet
Prototype Phase
Torque

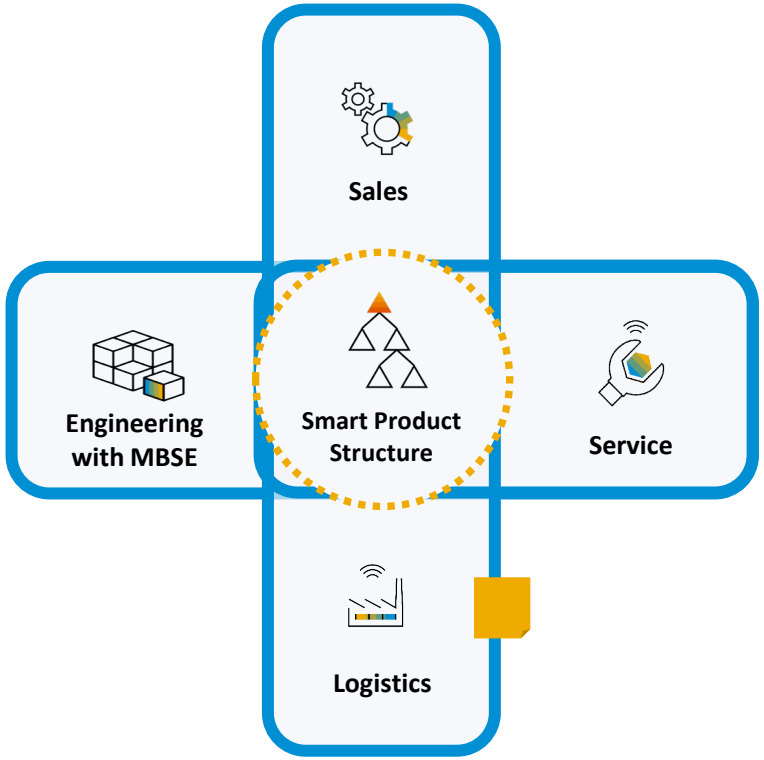
SAP IM&C Architecture fit for high agility

Change affecting execution directly:

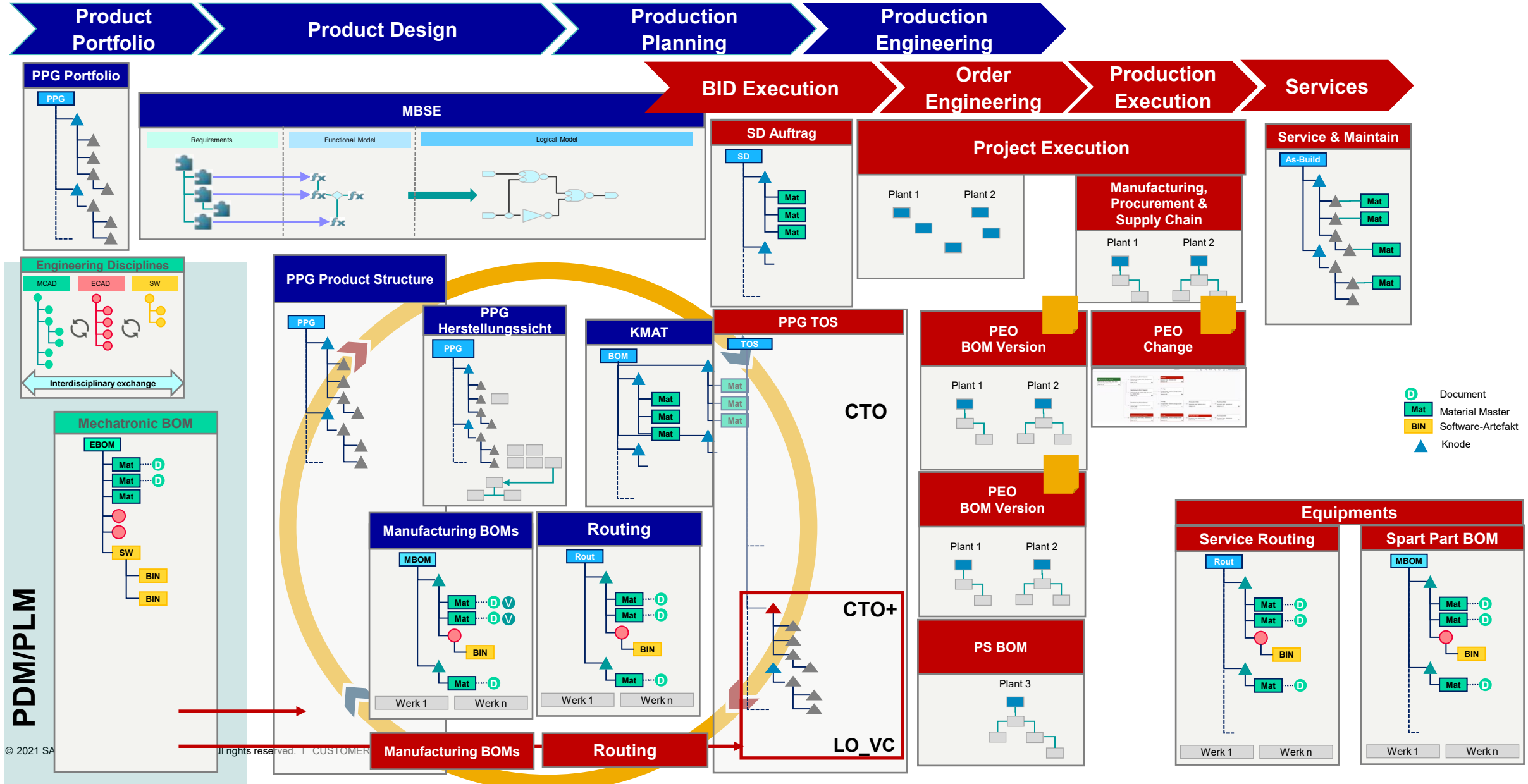
- Harmonization of customer driven processes across the enterprise (TOS)

Change affecting execution indirectly:

- Centralized product configuration and knowledge management



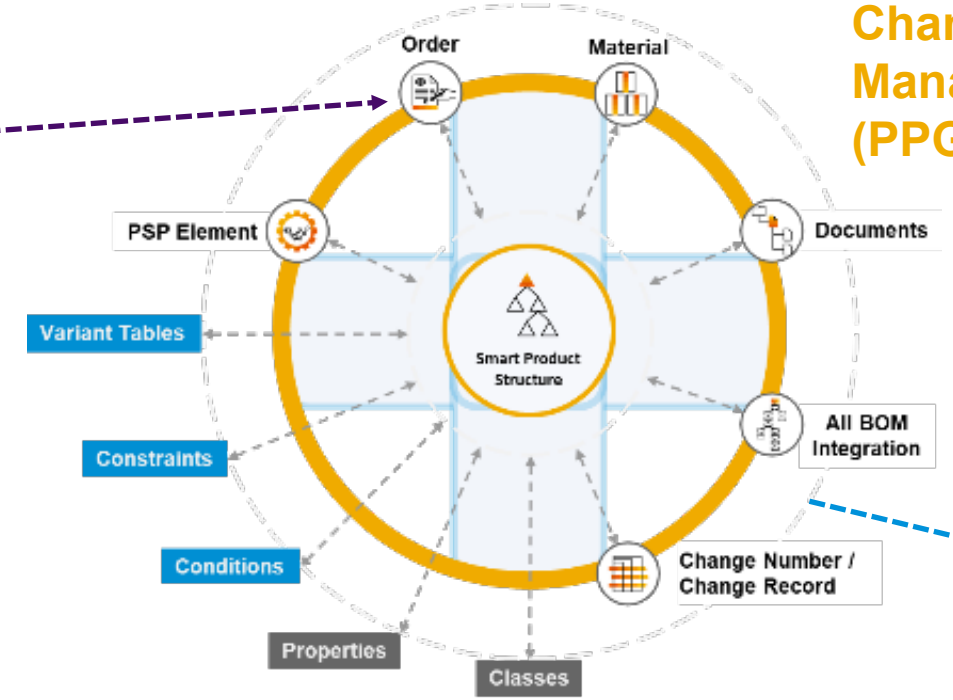
The agile Digital Thread



How to execute changes with high agility in IM&C

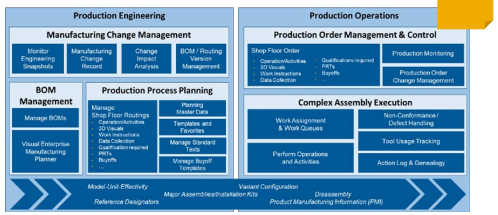
Change Request

- Change CTO
- Change CTO+
- Change ETO
- Change Production
- …

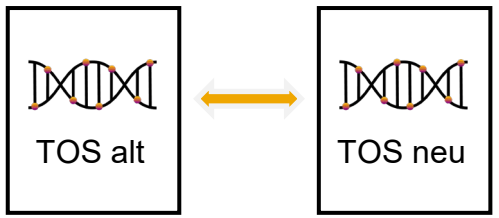


Change Manager (PPG)

Execution of Change Request (PEO)



Change Data Model



Terminology

PPG (previously PCC)	Production Process and Goverance
S/4HANA PEO	**Production Engineering and Operations**
MBSE	Model Based Systems Engineering
TOS	Technical Order Structure

End-to-End Scenario 1: Initial Start with Customer Order (CTO)

The „Blue“ Process
Order Neutral Product Development & Design

The „Red“ Process
Order Engineering and Order Management

Web-Seminar 1: CTO

Web-Seminar 4: CTO+ & Change Management

Technical Portfolio Structure

Requirements Engineering, System Engineering

Product Modeling

Prepare R&D engineering data

Product Definition

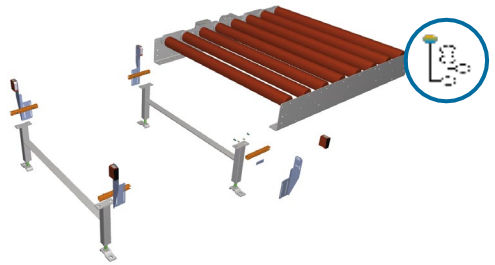
Generate sales data

Customer Order

TOS

PEO ver1 OrderBOM

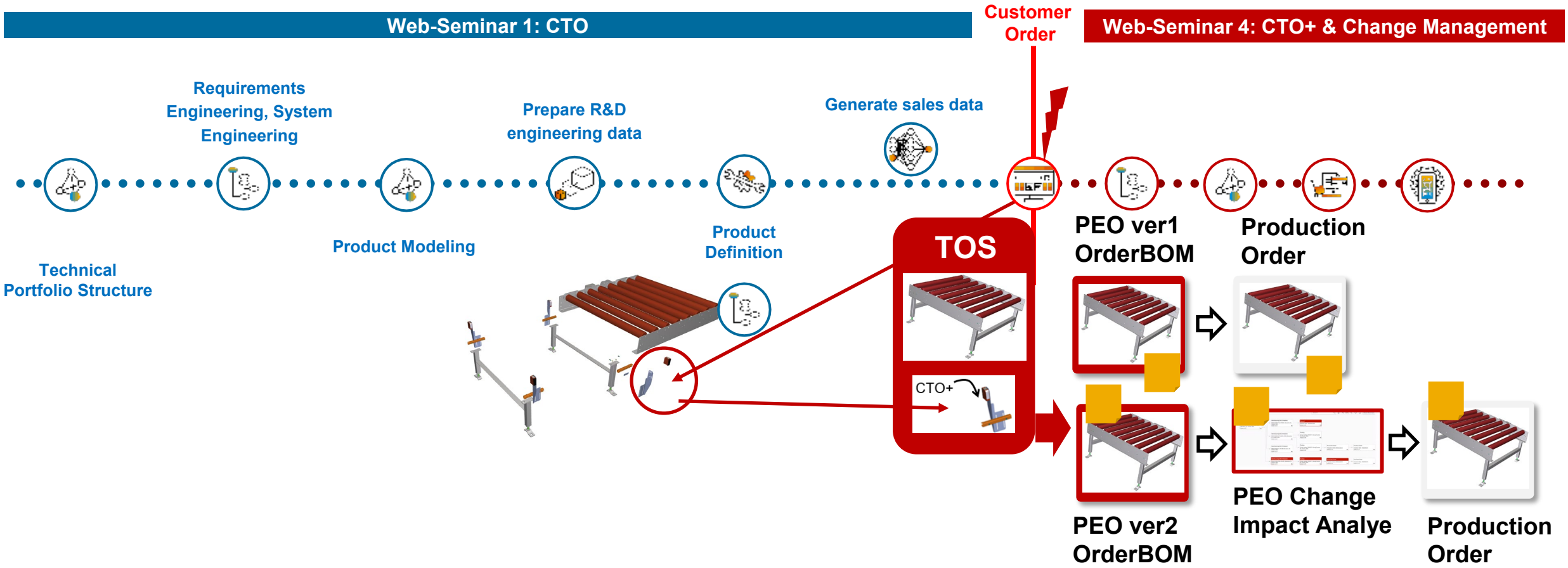
Production Order



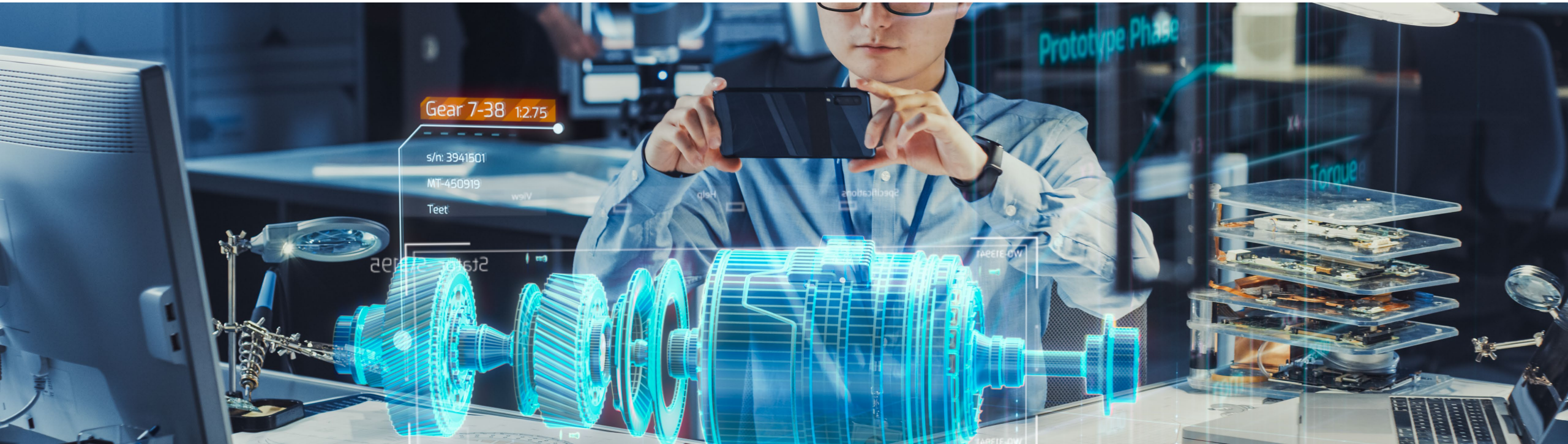
End-to-End Scenario 2: New Customer Requirement (CTO+)

The „Blue“ Process
Order Neutral Product Development & Design

The „Red“ Process
Order Engineering and Order Management



S/4HANA PEO Deep Dive



PEO Deep Dive

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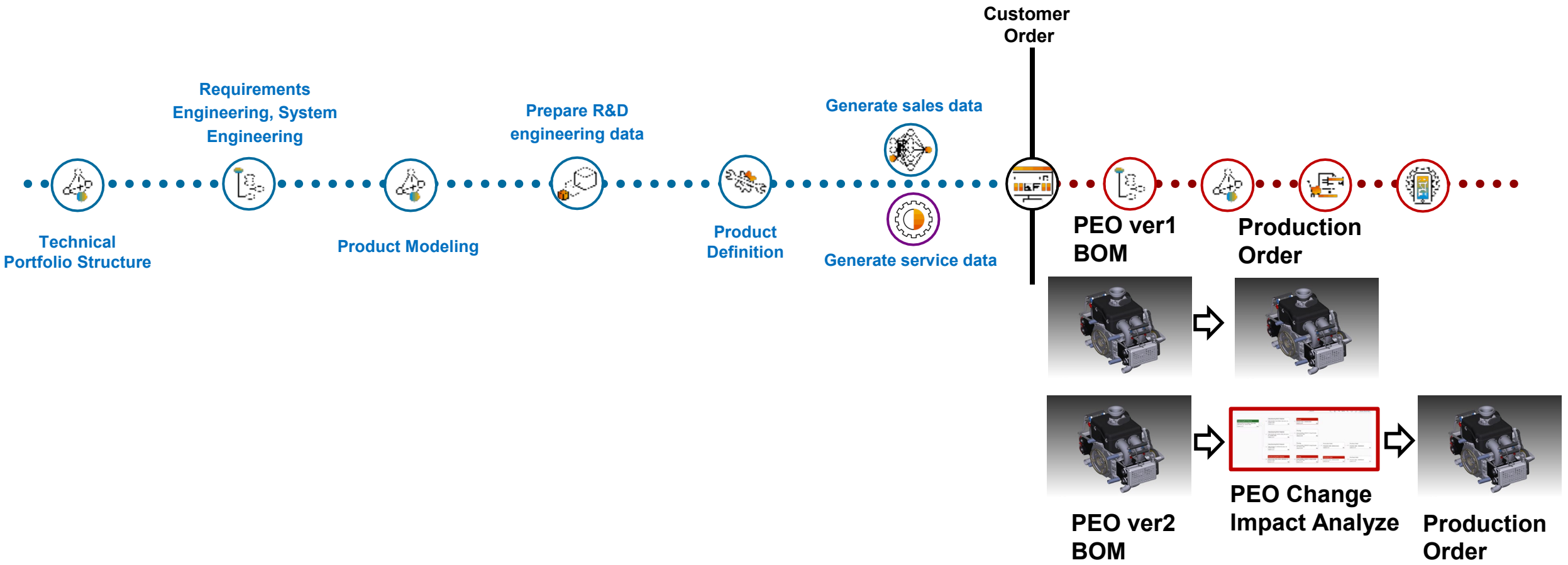
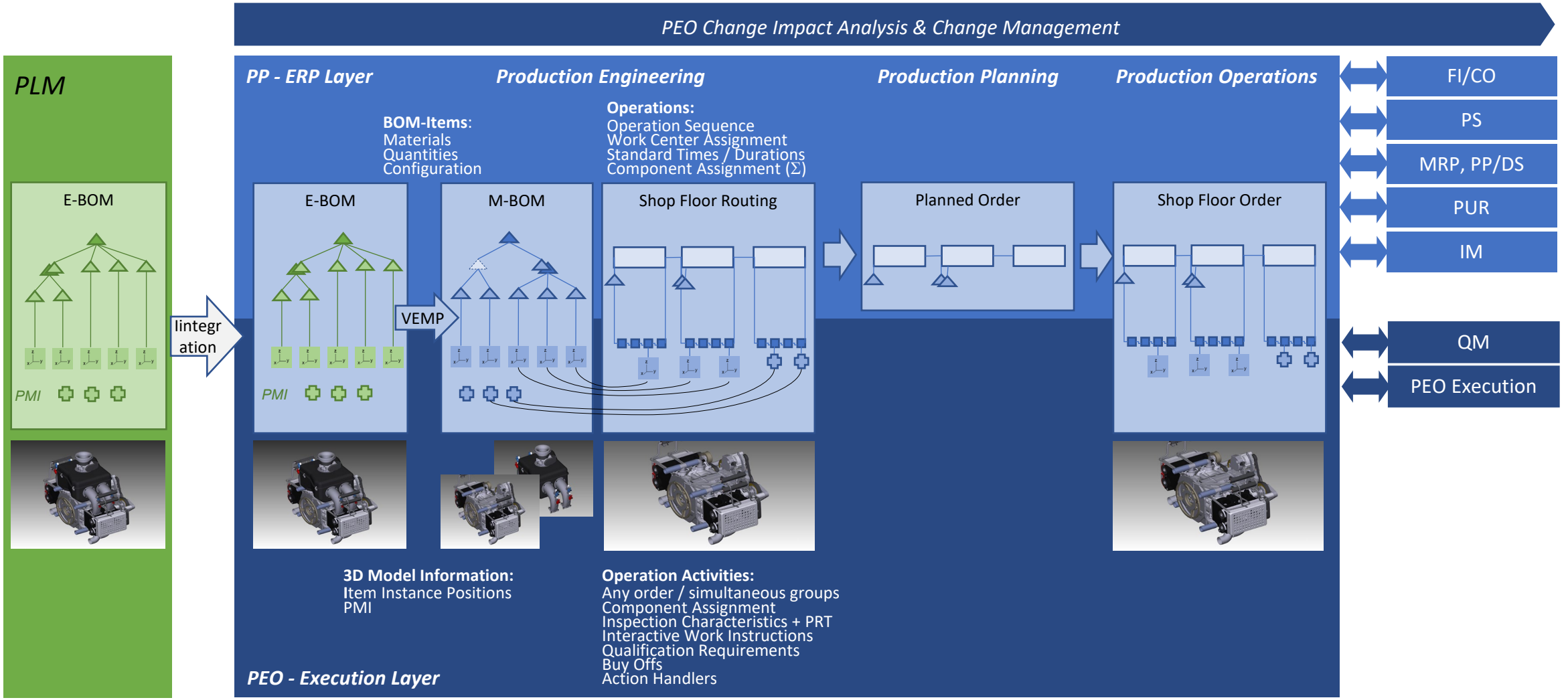


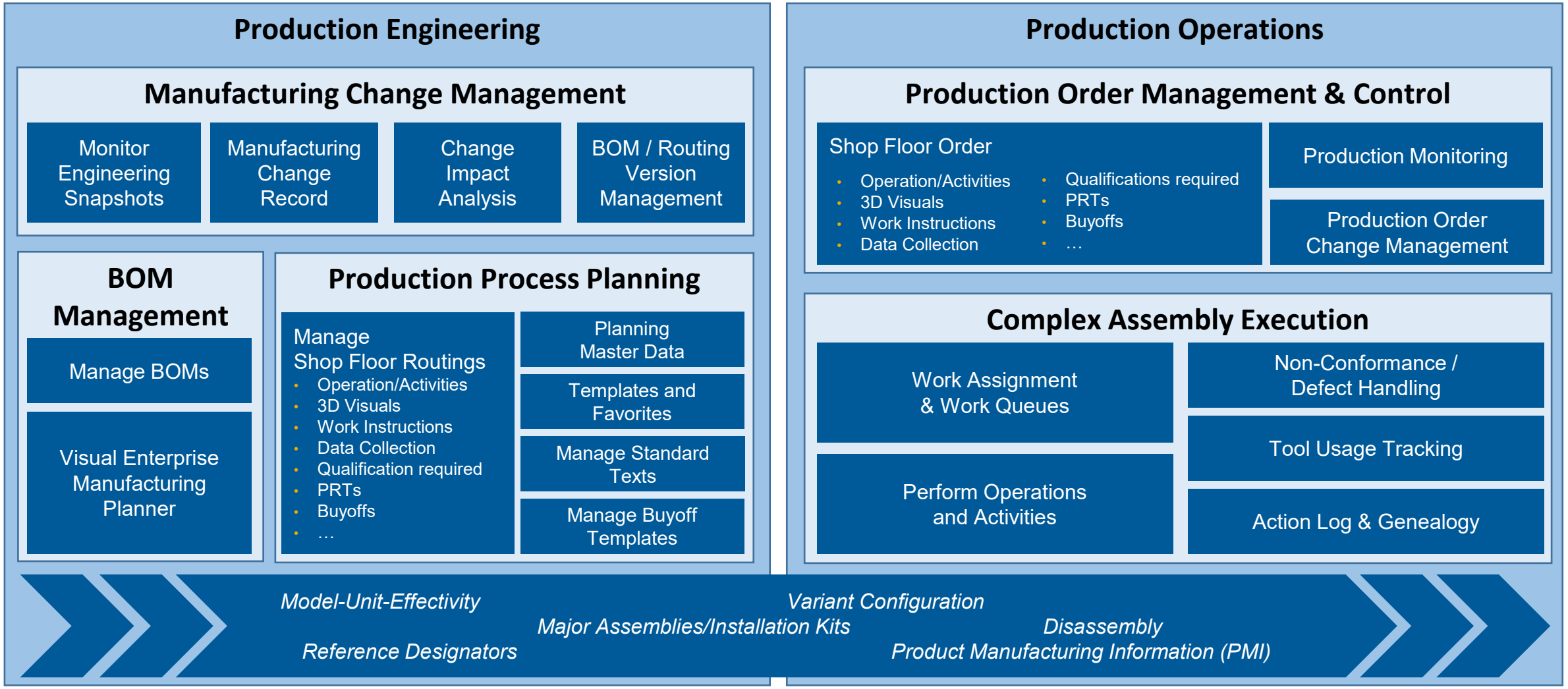
Production Engineering and Operations

Combining PP-ERP and new Execution Layer in S/4HANA



SAP S/4HANA Manufacturing for Production Engineering and Operations

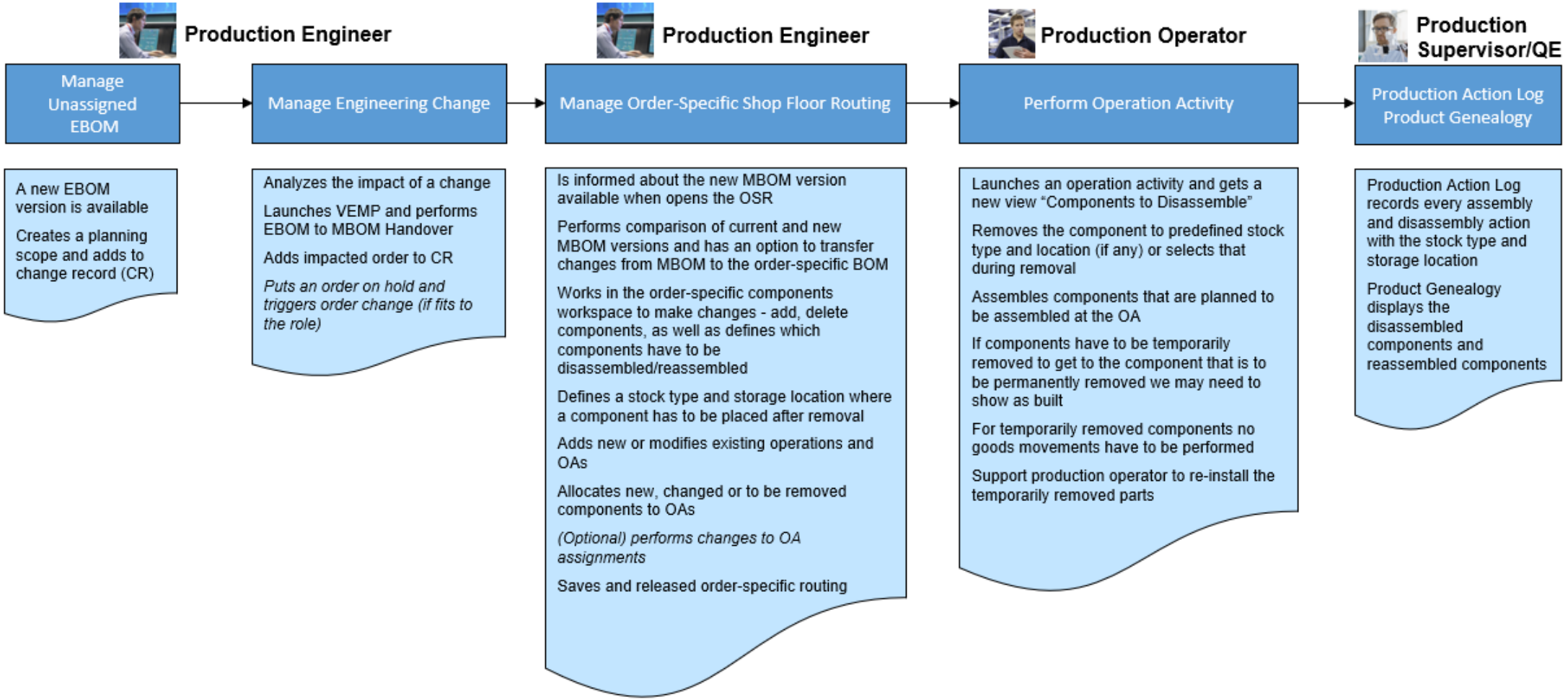
Apps and Capabilities



Disassembly

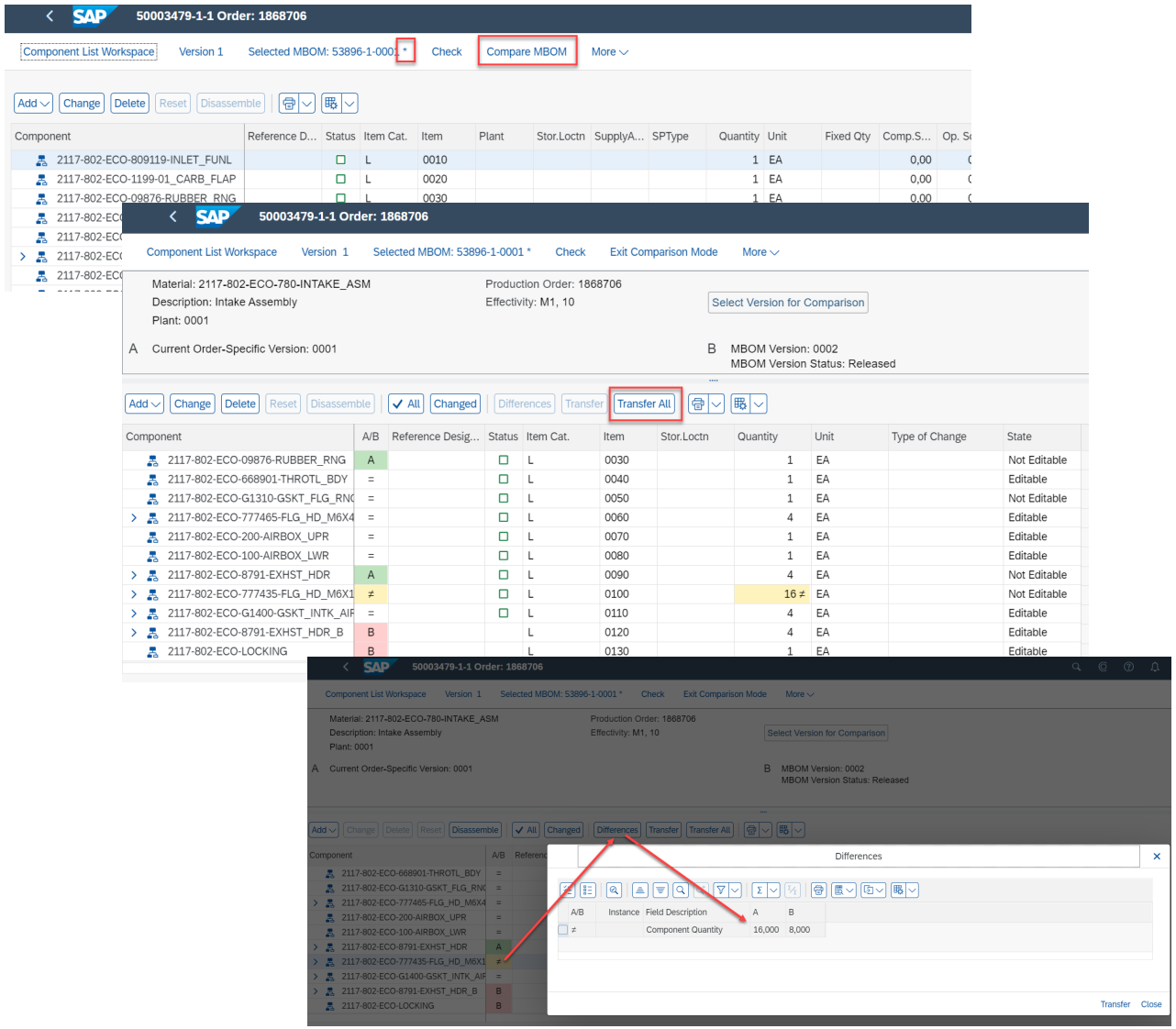
Disassembly due to Engineering Change

Engineering changes may affect an order at any time during production execution. The impacted order may include parts that have been already installed at operations and operation activities that have been already completed or partially processed. S/4HANA PEO 2020 FPS0 release allows the production engineer to incorporate late engineering changes that require temporary or permanent disassembly of components with or without predefined stock type and storage location for return.



Disassembly

Disassembly due to Engineering Change



An order change for the in-process order can be triggered from the Manage Production Orders app using the Change Order button. As in the previous PEO release, the system will create an order-specific routing and puts all or selected operations on hold.

In the PEO 2020 FPS0 release is it now possible to run comparison between a new version of the MBOM and the current order BOM while planning the change to the in-process order in the order-specific routing.

The changes may include:

- A component exists in the new MBOM and is not available in the order BOM
- A component exists in the order BOM and is not available in the new MBOM
- Component quantity in the new MBOM is either increased or decreased

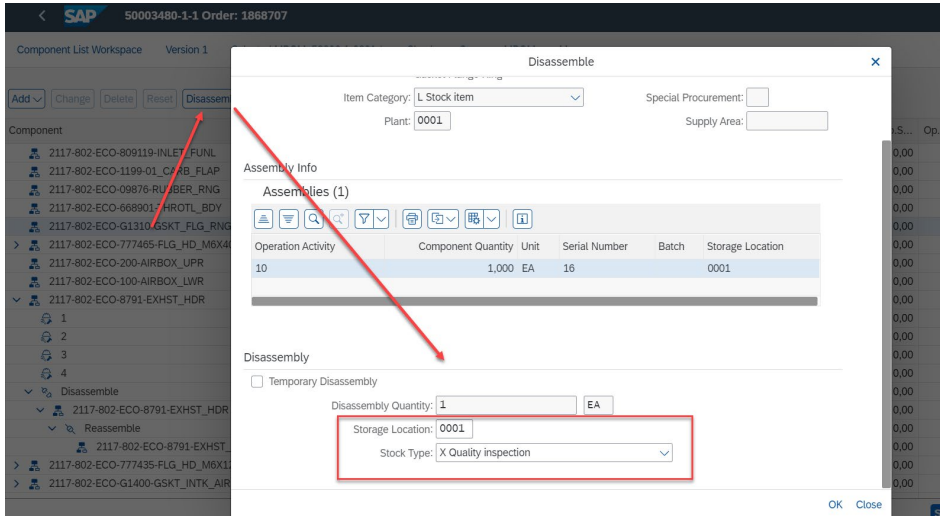
After getting an overview of all changes which are highlighted in the comparison screen, the user is able to either transfer them individually or use the Transfer All button to automatically transfer all changes to components from the new version of MBOM into the current order BOM.

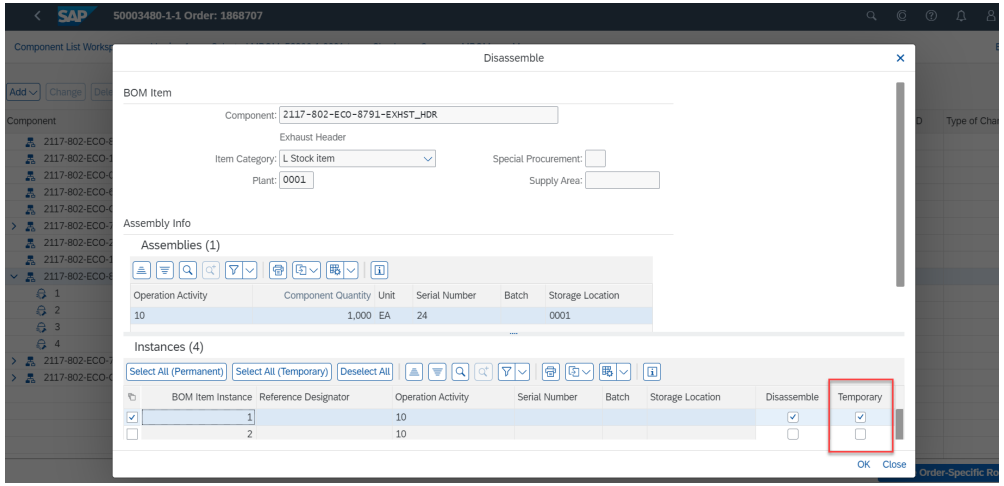
Having done changes to the components, it is still possible to perform further changes to operation activities or the structure of the order-specific routing:

- Add/delete operations and operation activities (they shall not be started though!)
- Change assignments to a not started operation activities such as qualifications, work instructions, buyoffs, PRTs, action type handlers, inspection characteristics, etc.

Disassembly

Disassembly due to Engineering Change





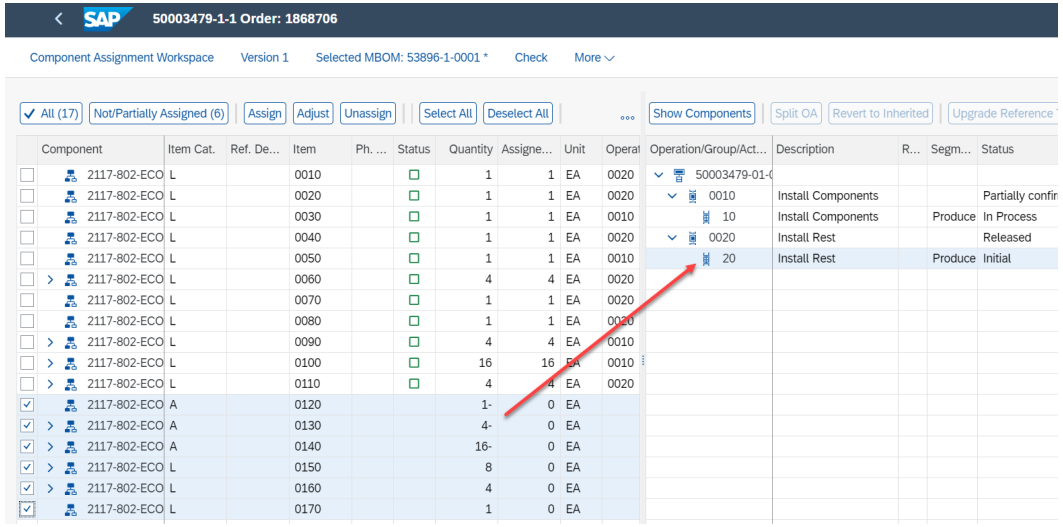
After changes from the new MBOM are incorporated into the order-specific routing, you can see them in the Component List Workspace.

You can select the component marked for disassembly and click the Disassemble button in the menu above. In the dialog that appears, you can:

- Define whether the component shall be temporarily or permanently disassembled
- Pre-define stock type (blocked, inspection, general use or undefiled) and storage location for components to be disassembled

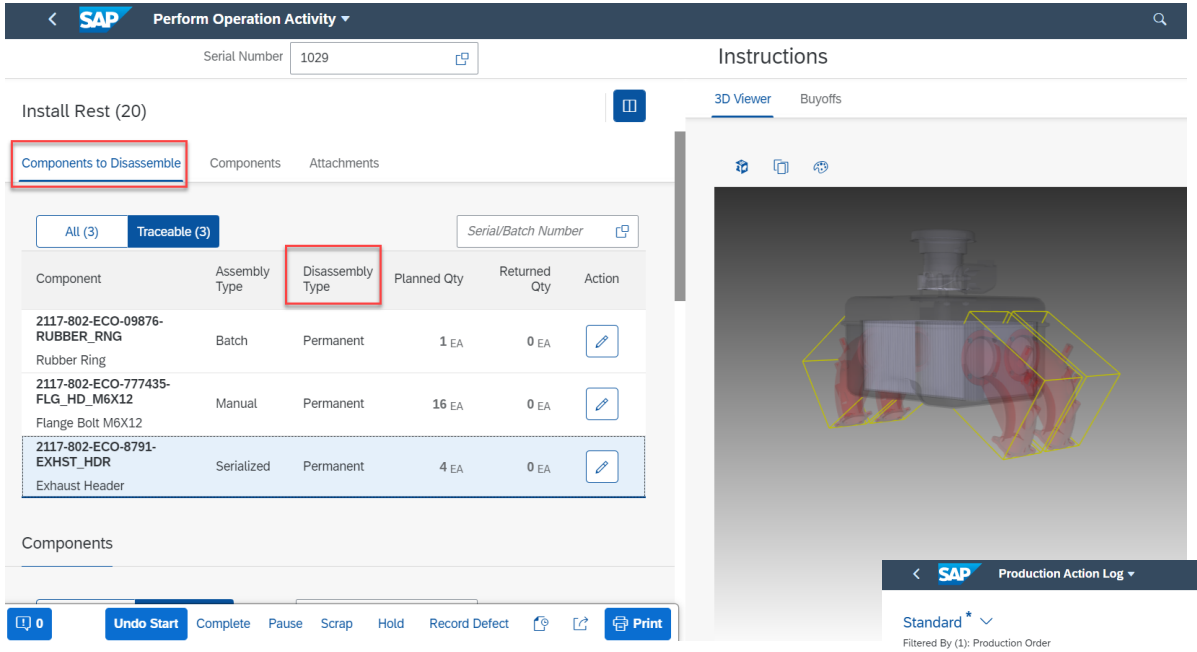
In case the stock type is set to Undefined in the order-specific routing for a component, the operator will be asked where to return the component and will have to pick the stock type from the drop-down list during disassembly action.

If there were new components added or some components marked for disassembly (they will have "-" negative qty) they will be also listed in the Component Assignment Workspace and must be assigned to existing or new operation activities.



Disassembly

Disassembly due to Engineering Change

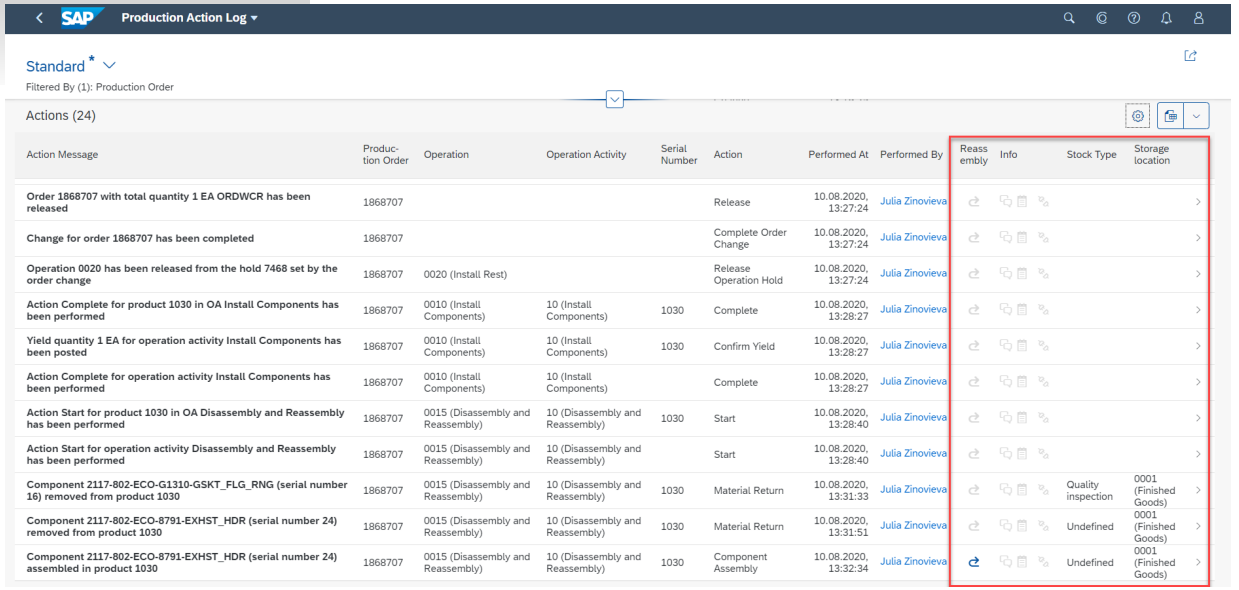


The Perform Operation Activity app has been enhanced to support disassembly scenarios with the ability to view the list of components to be disassembled via the new view “Components to Disassemble”. The column Disassembly type shows to the user whether this component shall be permanently or temporarily removed.

In case of temporary disassembly, the same component will appear under Components view at the same or different operation activity as it must be reassembled back.

Every assembly, disassembly and reassembly with the stock type and storage location for return is recorded into the Production Action Log report.

Product Genealogy allows to track the history of component disassembly and reassembly including serial, batch numbers, quantities as well as stock type and storage location information for returns.



RFC-enabled Function Modules Available in S/4HANA PEO 2021 OP

Remotely Trigger S/4HANA PEO Actions for Operation Activities

Manufacturers of complex products may use surface-mount technology (SMT) machines or other equipment in production lines to produce subassemblies. The machines perform automated actions such as start and complete, assembly of components, and collection of inspection data, etc. To support automation scenarios PEO provides the following remote-enabled function modules that you can use to remotely trigger actions for operation activities in the segment type **Produce** without any user action.

MPE_OA_EXEC_SAS_ACTION (Executes SAS Action)
Trigger this function module remotely from a smart tool or machine on the shop floor to execute actions from a status and action schema (SAS) in the system based on the import parameters.

MPE_COMPONENT_ASSEMBLY (Posts a Component Assembly)
Trigger this function module remotely from a smart tool or machine on the shop floor to post goods movements for components in the system based on the import parameters.

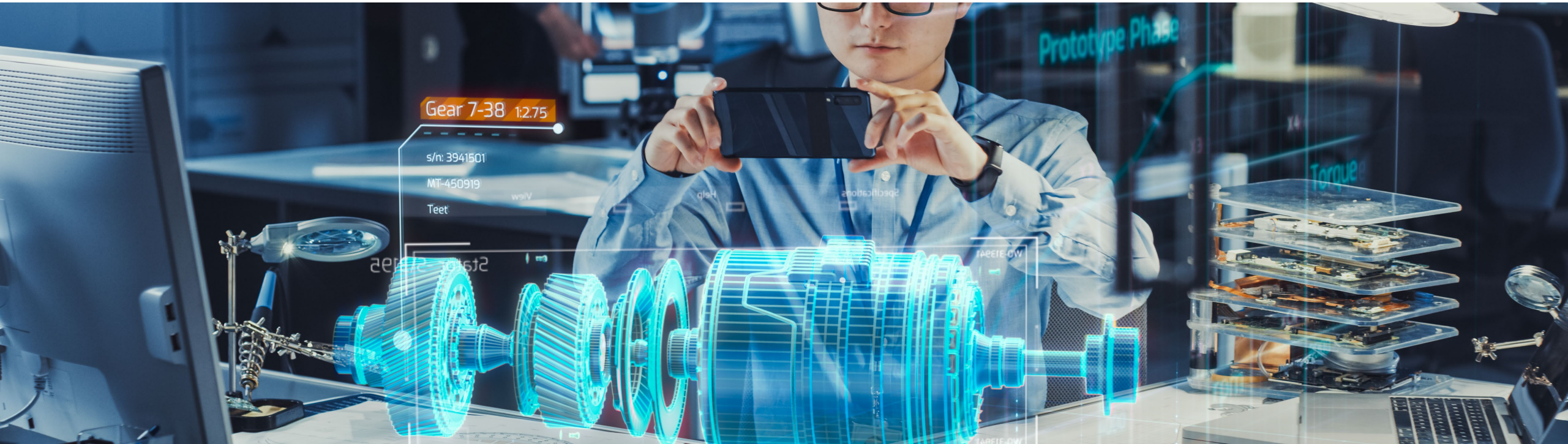
MPE_OA_EXEC_GETINSPCHAR (Get Inspection Characteristics of an Operation Activity)
Trigger this function module remotely from a smart tool or machine to retrieve inspection characteristics for operation activities from the system based on the import parameters.

MPE_OA_EXEC_RECORDRESULTS (Record Results for Inspection Characteristics of an Operation Activity)
Trigger this function module remotely from a smart tool or machine to record inspection characteristics in the system based on the import parameters.

MPE_OA_EXEC_DEFECT_CREATE (Create a Defect for an Operation Activity)
Trigger this function module remotely from a smart tool or machine to create a defect for an operation activity in the system based on the import parameters.

Note: The provided RFC-enabled function modules are all synchronous and single-action RFCs.

Machine Integration with PEO



NOVOMATIC

MES (PEO) im Rahmen der S/4HANA Implementierung

OKTOBER 2021

FACTS & FIGURES • H1 2021

NOVOMATIC AG-KONZERN

UMSATZERLÖSE
629,3
IN MIO. EUR

EBITDA
162,9
IN MIO. EUR

CASHFLOW AUS BETRIEBSTÄTIGKEIT
87,5
IN MIO. EUR

MITARBEITER WELTWEIT
21.028

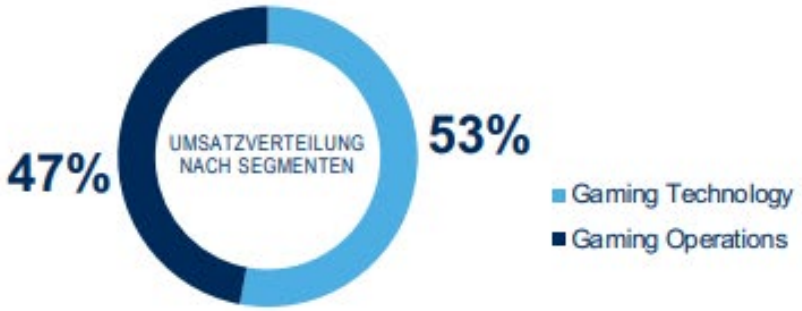
MITARBEITER ÖSTERREICH
~3.000

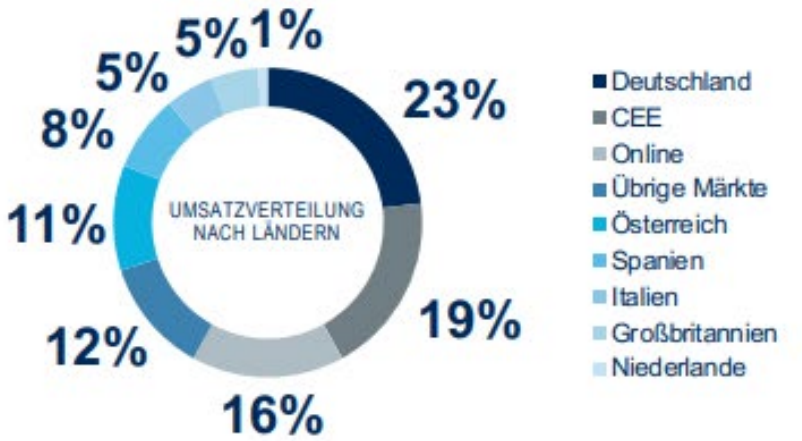
MITARBEITER HEADQUARTER
~1.000

EXPORTLÄNDER
~90

LÄNDERSTANDORTE
>45

OPERATIV TÄTIG SEIT
1980





PRODUKT & FERTIGUNGSTIEFE

STARK AUSGEPRÄGTE WERTSCHÖPFUNGSKETTE

Druckerei

Tischlerei

Metalltechnik

SGT inkl. Werkzeugbau

NOVOSTAR® V.I.P. Royal 2.65

Panthera™ Curve 1.43

Refurbishment BGR

Kabel-baum

Platinen-fertigung

PCB Endtest & Programierung

PC-Bau

Gehäuse-fertigung (EDP)

Montage

Geräte-Endtest & Game

SAP S/4HANA IMPLEMENTIERUNG

EINE KURZE ENTWICKLUNGSGESCHICHTE

(1) (2) (3)

NOVOSAP Phase 2 "PROD-Template"

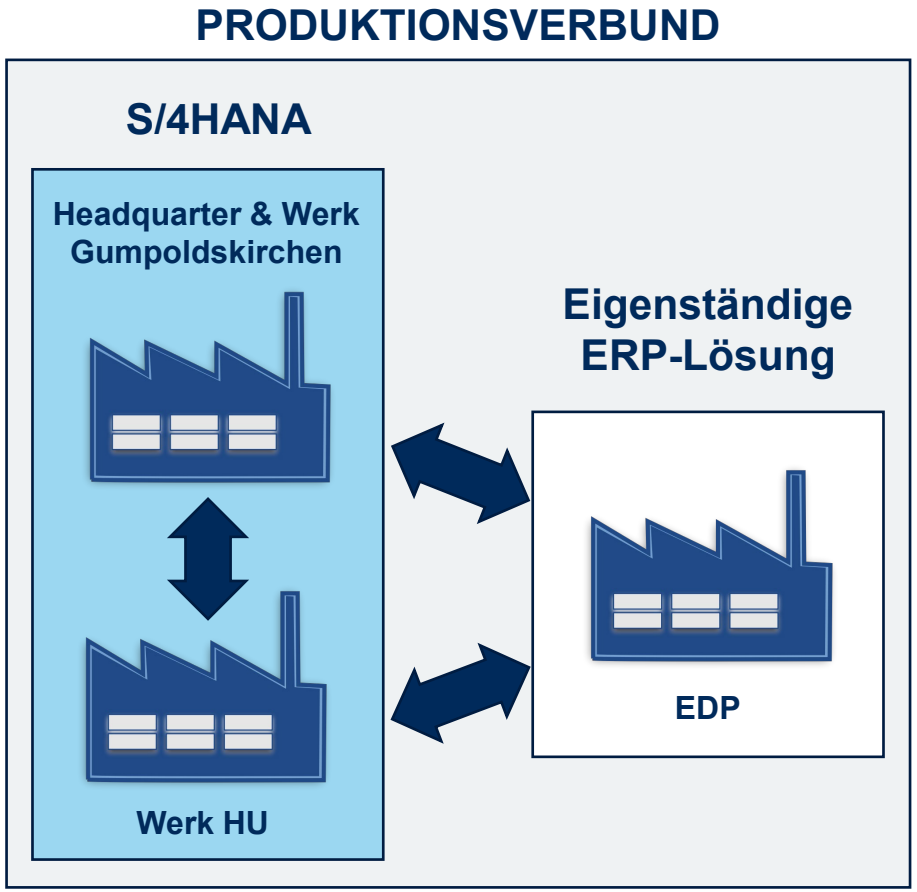
SOP 01/2022

SAP-Module

- FI/CO
- SD
- EK
- MM
- PLM
- PP
- QM

IMPACTS

(1) **EWM**
(2) **PP/DS & PEO**
(3) **TM / COVID**



PEO-INTEGRATION

PEO-ABWICKLUNG IN VERBINDUNG MIT…

- Kundenauftragsstückliste
  - Kundeneinzelfertigung mit Variantenkonfiguration und ergebnisorienterter Stücklistenauflösung
  - SNR-Erfassung
- Maschinenanbindung von Platinenbestückungsanlagen mittels WebService
  - Erfassung von Maschinenzeiten, Verbrauchsmeldung chargengeführten Material und Vorgangsrückmeldungen
- PP/DS (Produktions- und Feinplanung)
  - MTS (Platinenfertigung, SGT, …)
  - CTO (Montage)
- Umbauaufträge
  - Umbau von Halb- und Fertiggeräten
- QM-Integration
  - Fehlerabwicklung
  - Nacharbeit

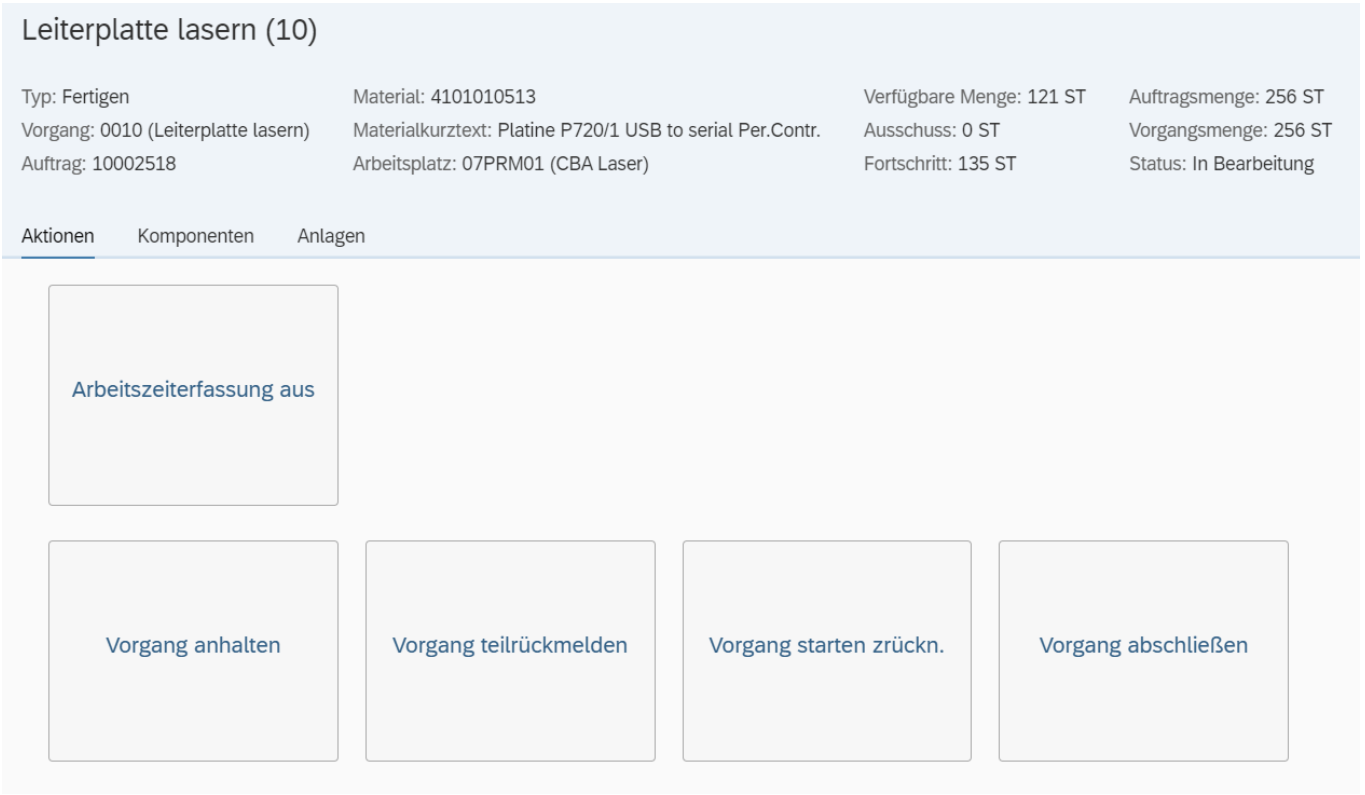
PEO WORKER INTERFACE

NOVOMATIC WORKER USER INTERFACE

SPEZIELL DESIGNTES WERKER-UI FÜR DIE ABWICKLUNG VON FERTIGUNGSAUFTRÄGEN AM SHOPFLOOR

Verwendung am Shopfloor

- Vorgangsrückmeldungen
- Zeiterfassung von Mitarbeitern
- Entnahme von Komponenten (z.B. chargengeführtes Material)
- Visualisierung von Arbeitspapieren (z.B. Arbeitsanweisungen)
- Bewertung von QM-Prüfmerkmalen
- FHM
- …

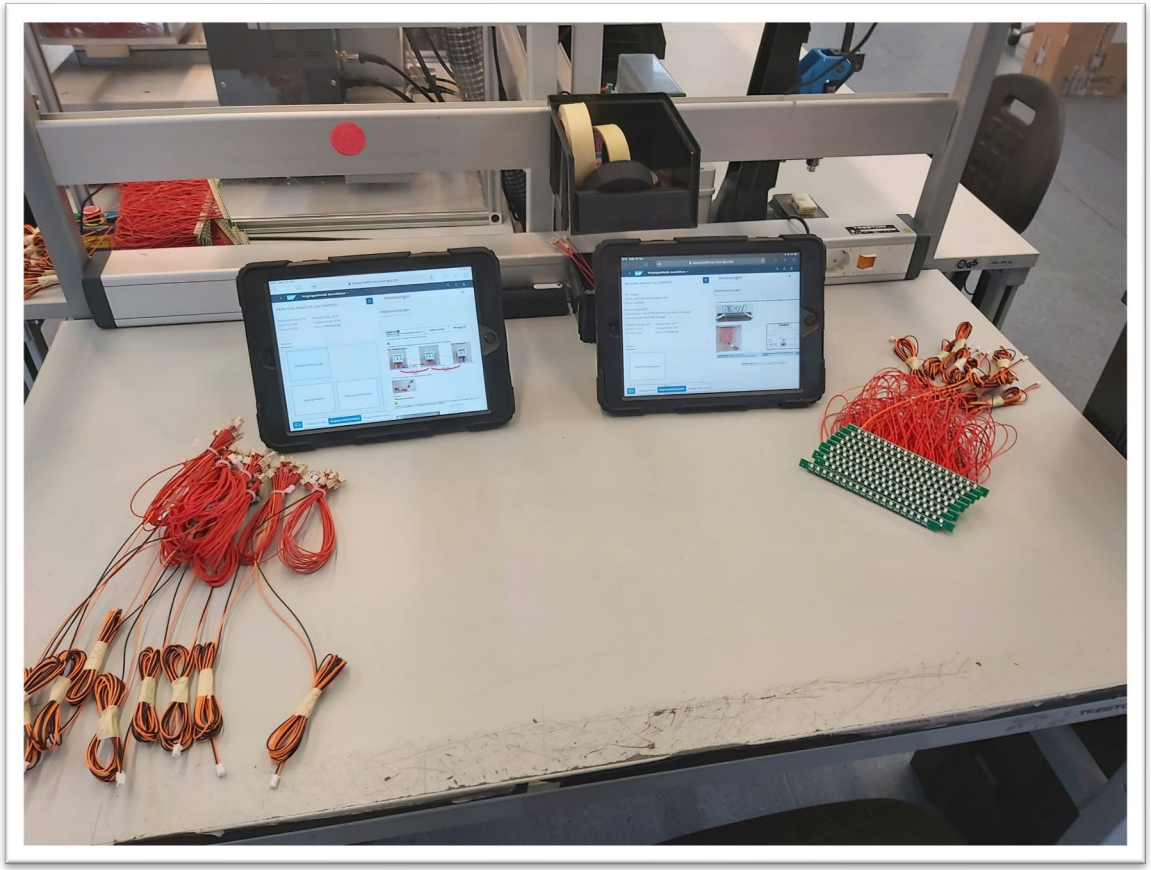


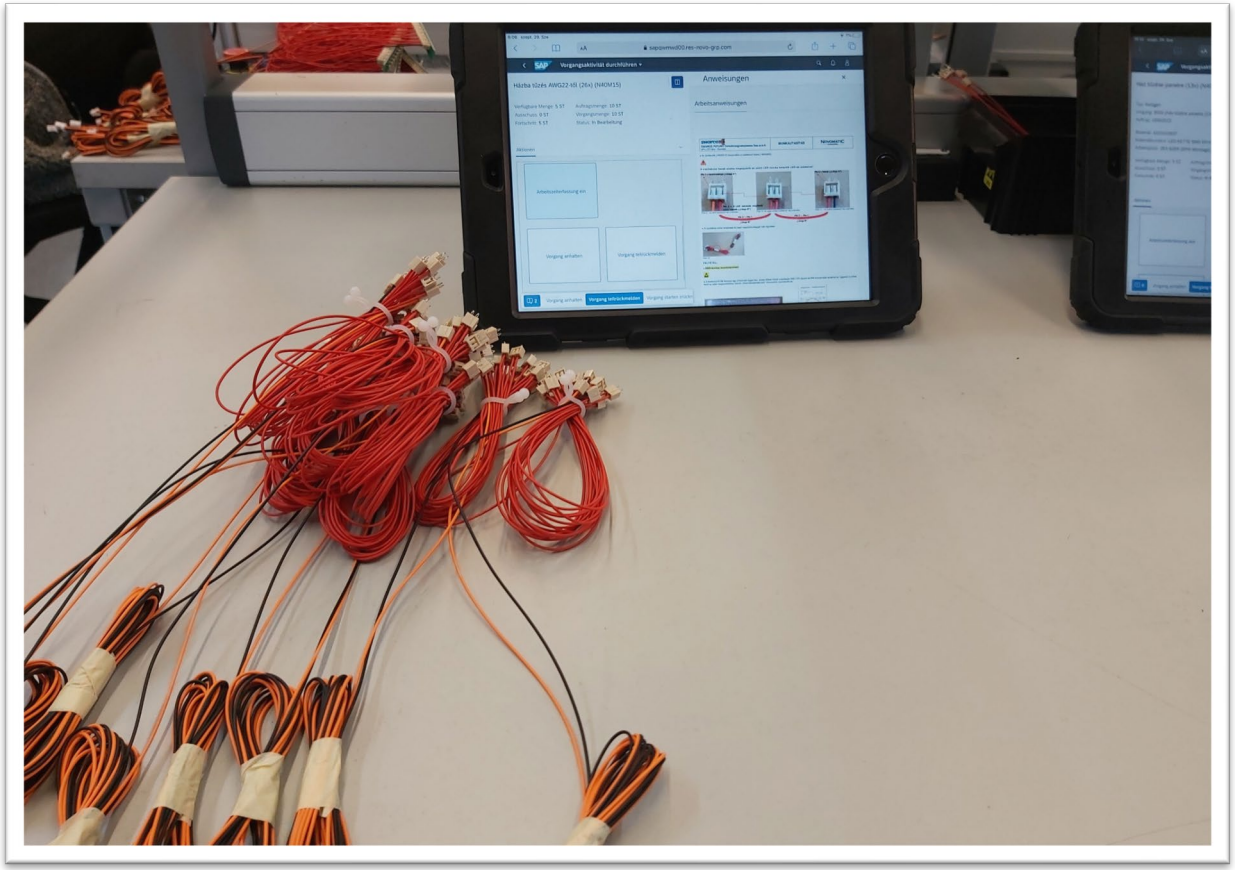
BEISPIELE – KABELKONFEKTION I

PEO IN REAL LIFE

BEISPIELE – KABELKONFEKTION II

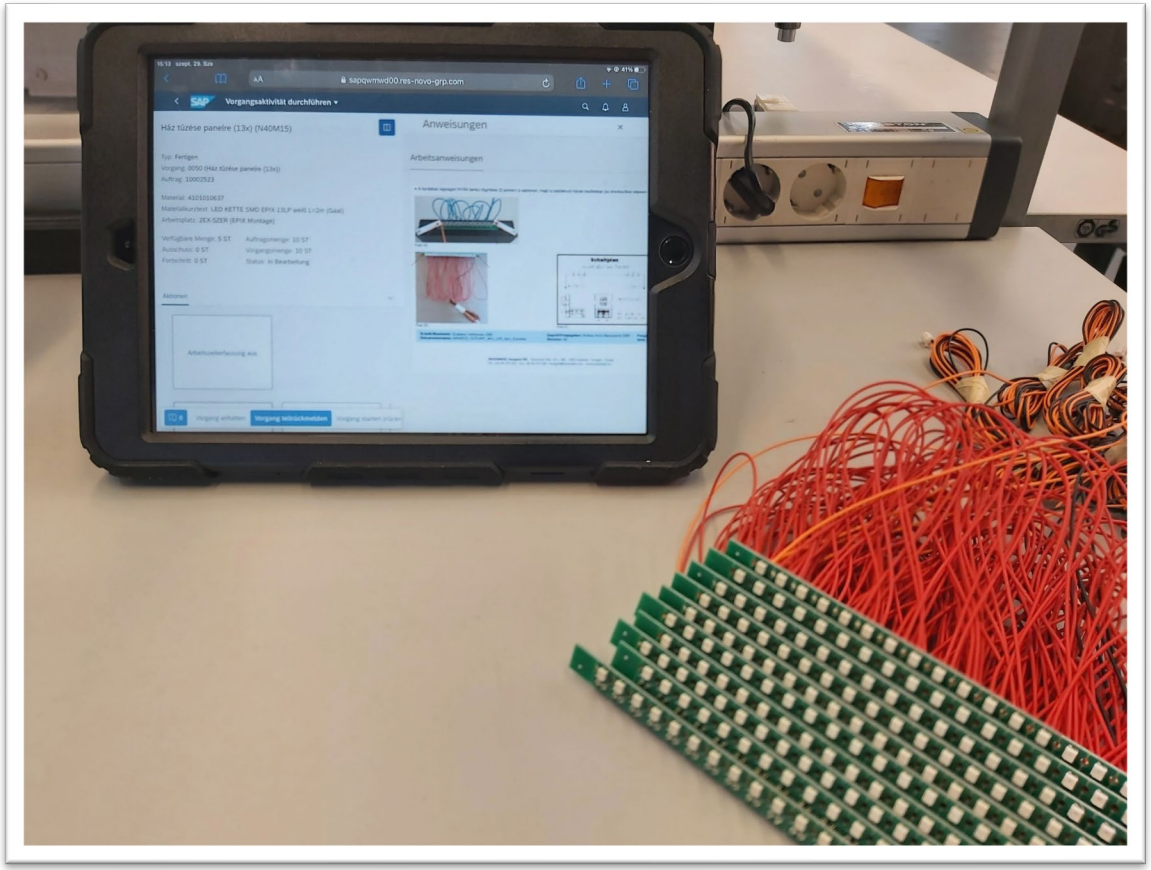
PEO IN REAL LIFE

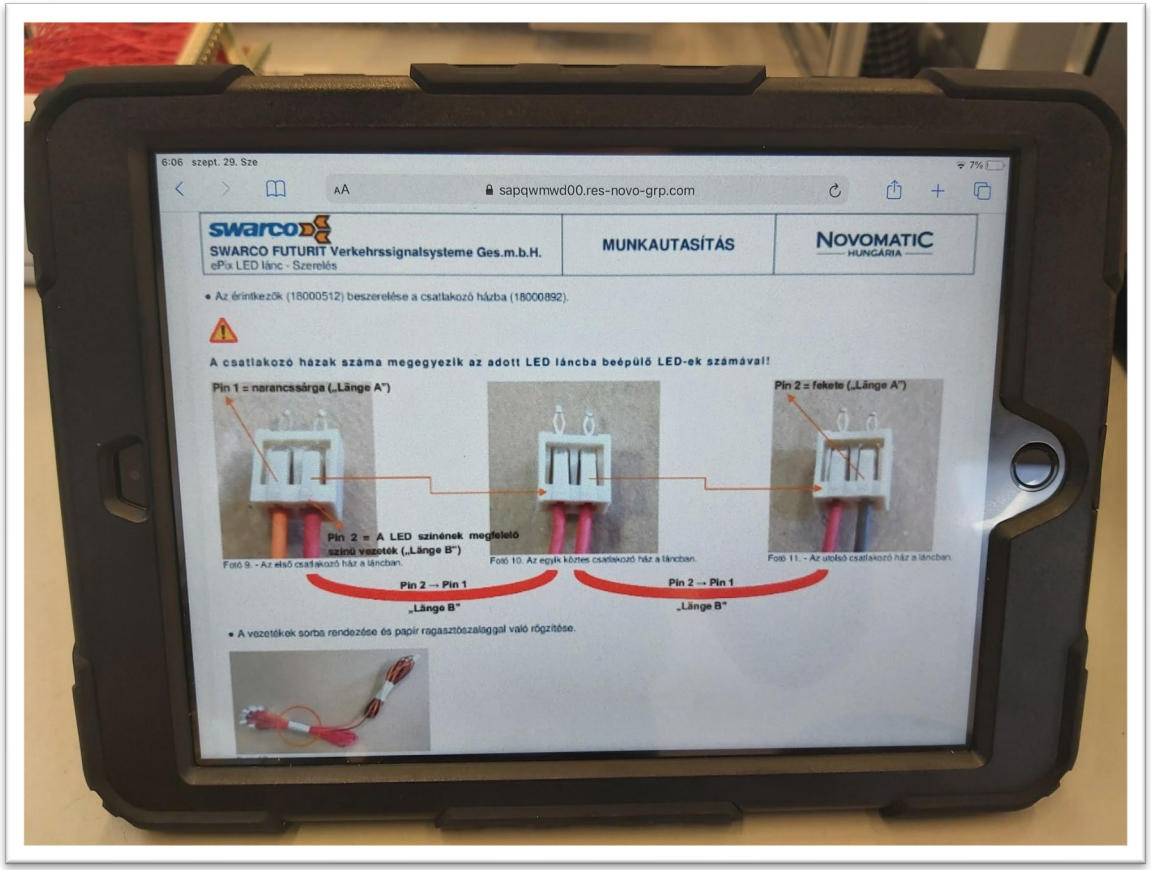




BEISPIELE – KABELKONFEKTION III

PEO IN REAL LIFE





What comes next?

CTO+ Customer Engagement Initative

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DISCLAIMER