

Design-Driven Enterprise From Manufacturing to Customer

In the project business



29.04.2022

Our model company

Conveyor Solutions AG is a manufacturer of

- components
- equipments
- systems

for sorting and transporting of luggage or packages.

They

- configure to customers needs (CTO/MTS),
- design customer specific solutions (ETO, CTO+),
- manufacture in large quantities.



Conveyor's Challenge

Senior management would like to

- Become more **customer centric** and **agile**
- Reduce **cost** and **workload**

Now we focus on **their project business** unit.

Can they use the same **standard service system** to service custom-designed solutions, which was chosen for their configurable products business?

(See webinar 3 for the configurable service scenario)

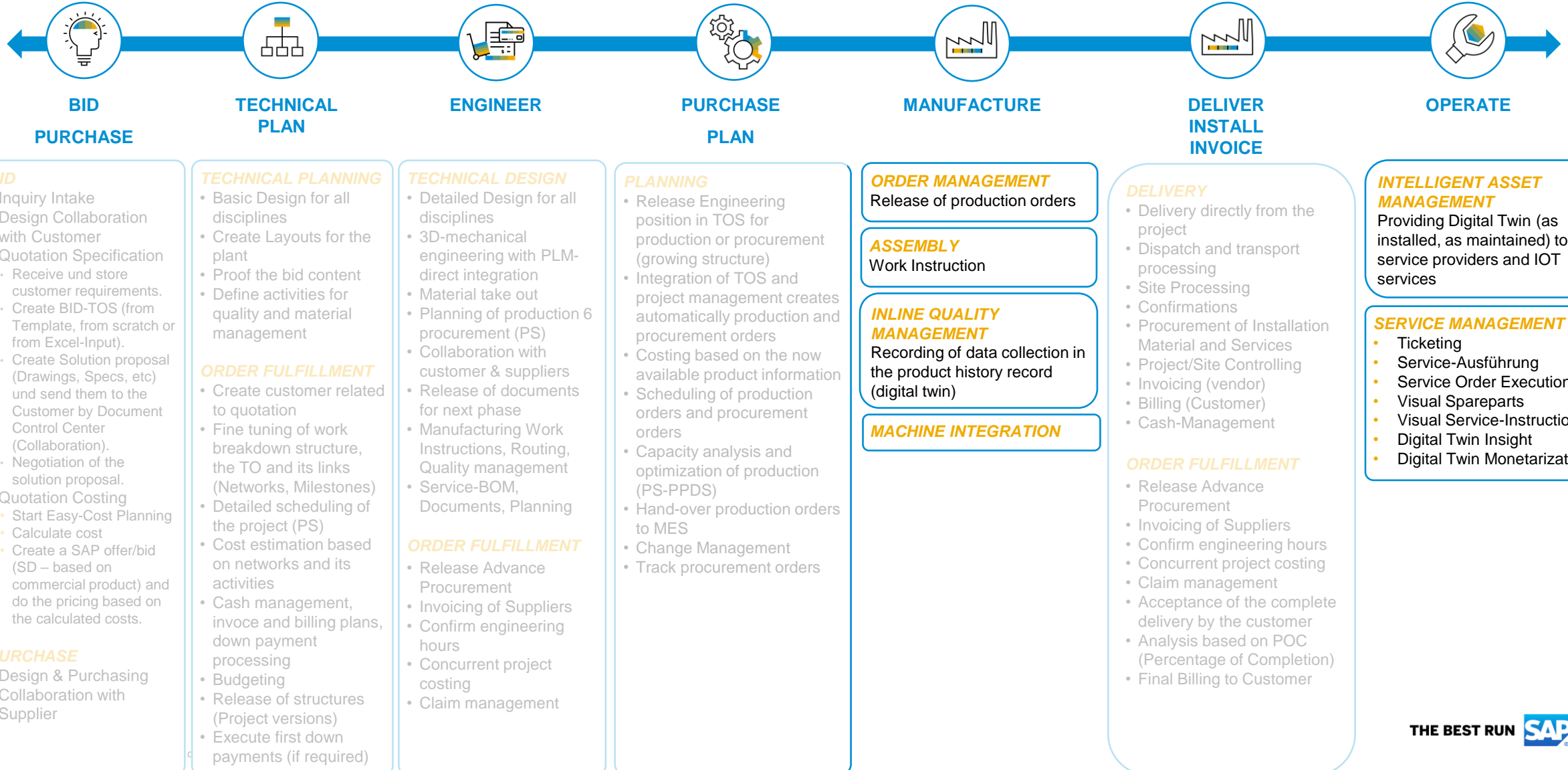
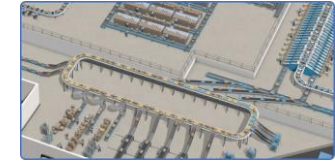


**What capabilities are required to solve
Conveyor's business challenges?**



DESIGN-DRIVEN ENTERPRISE

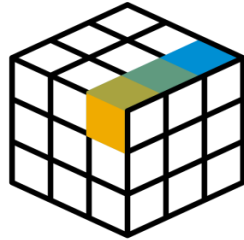
Engineer to Order (full scope)



Creation of Service Data for each project

Digital twins

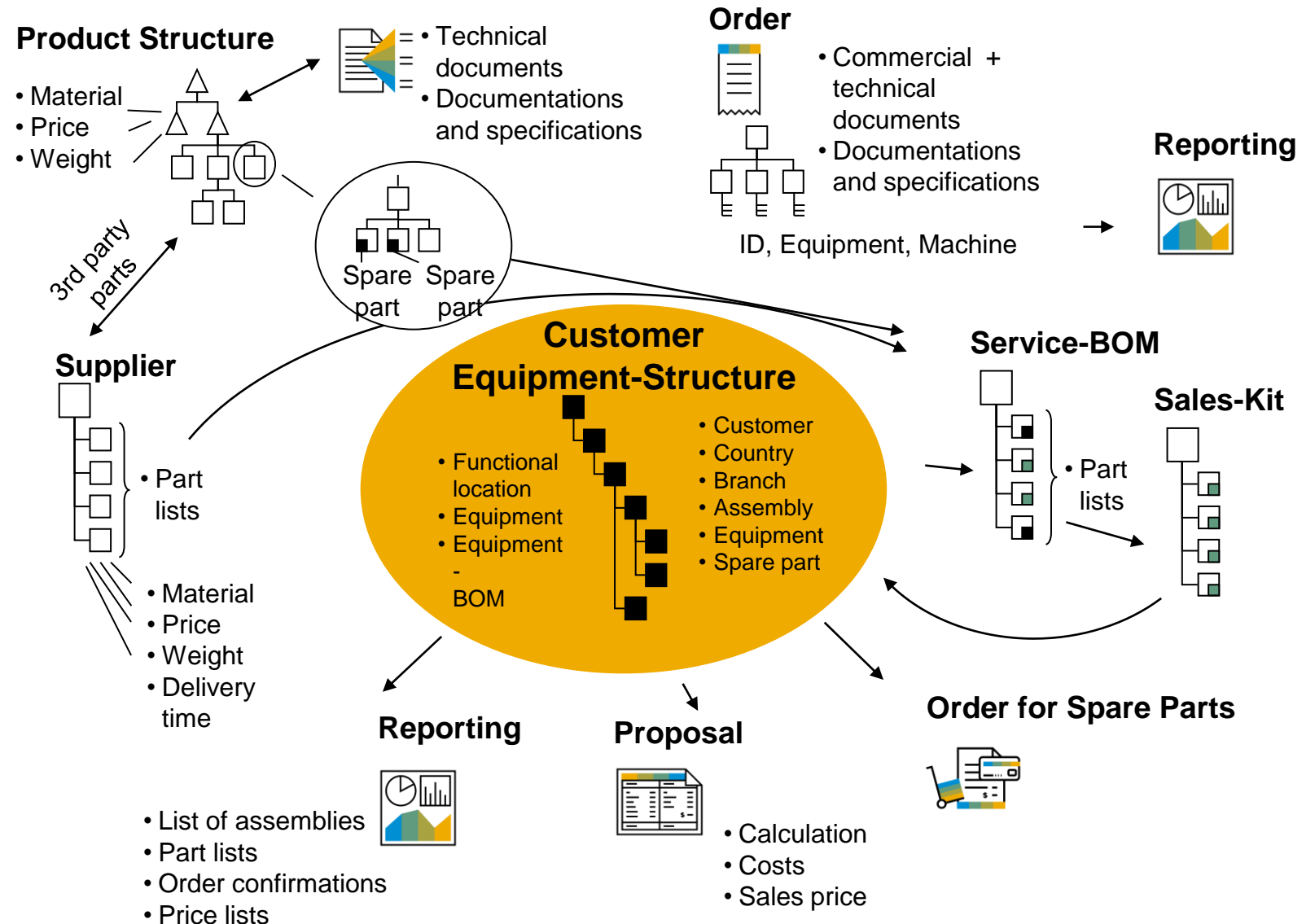
revolutionize product development and bring manufacturers, system operators, suppliers and service providers together and network them with one another.



Service Engineering for each project:

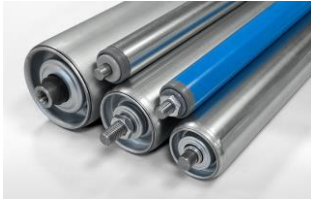
The Product Structure creates master data, documents and data to make it easy to manage the digital twin for products and services.

The Product Structure enables the Digital Twin by **integrating customer, supplier, product & service engineering and manufacturing into a consistent data flow.**



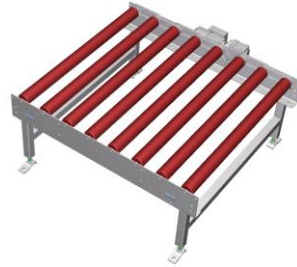
Different Products – Different Value Chains – Different Processes

MTS Make-to-Stock



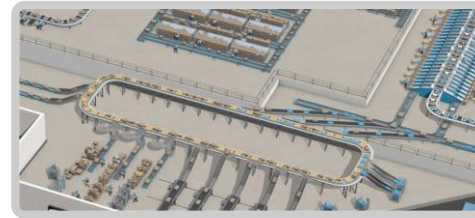
Design
Supply Chain
Manufacturing
Sell
Aftermarket Service

CTO Configure-to-Order closed



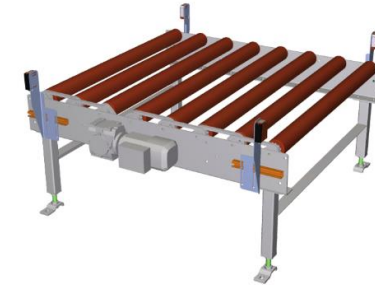
Design
Sell
Supply Chain
Manufacturing
Aftermarket Service

ETO Engineer-to-Order



Sell
Engineering
Supply Chain
Manufacturing
Aftermarket Service

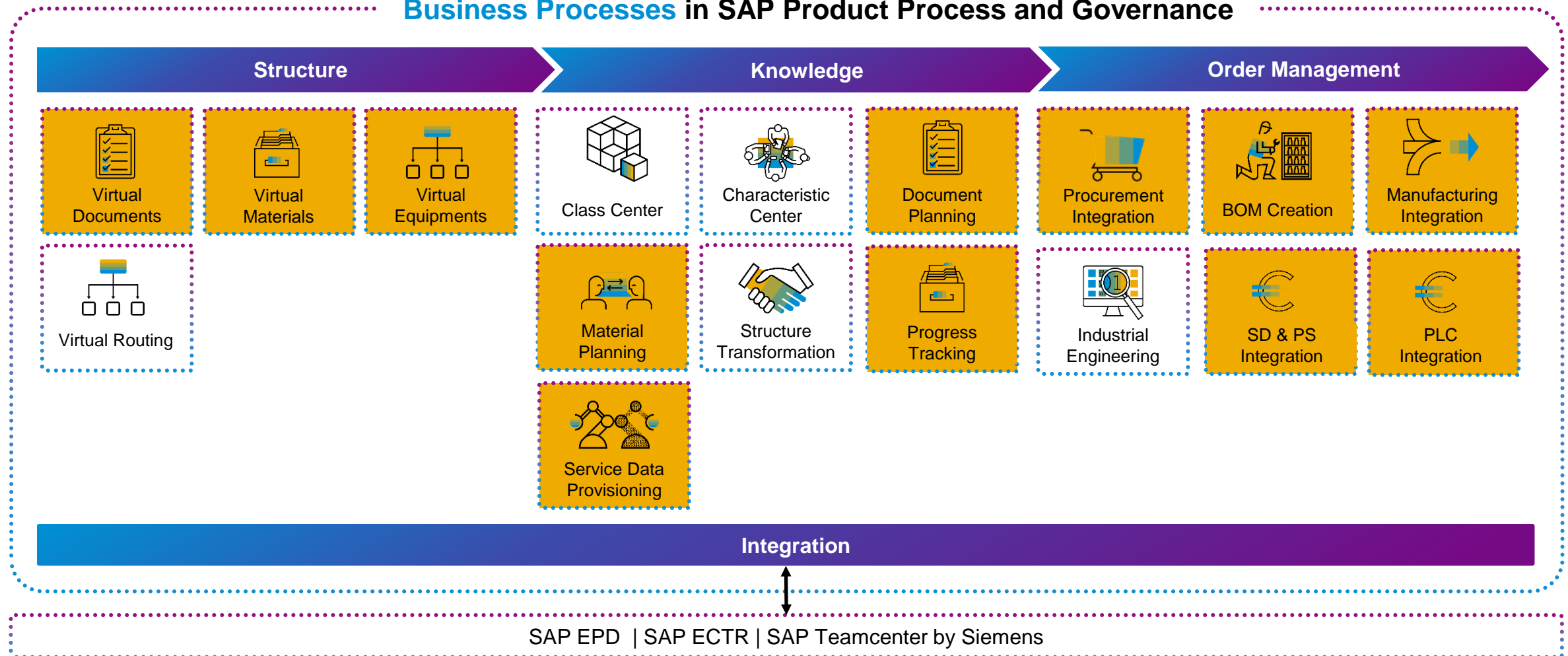
CTO+ Configure-to-Order open



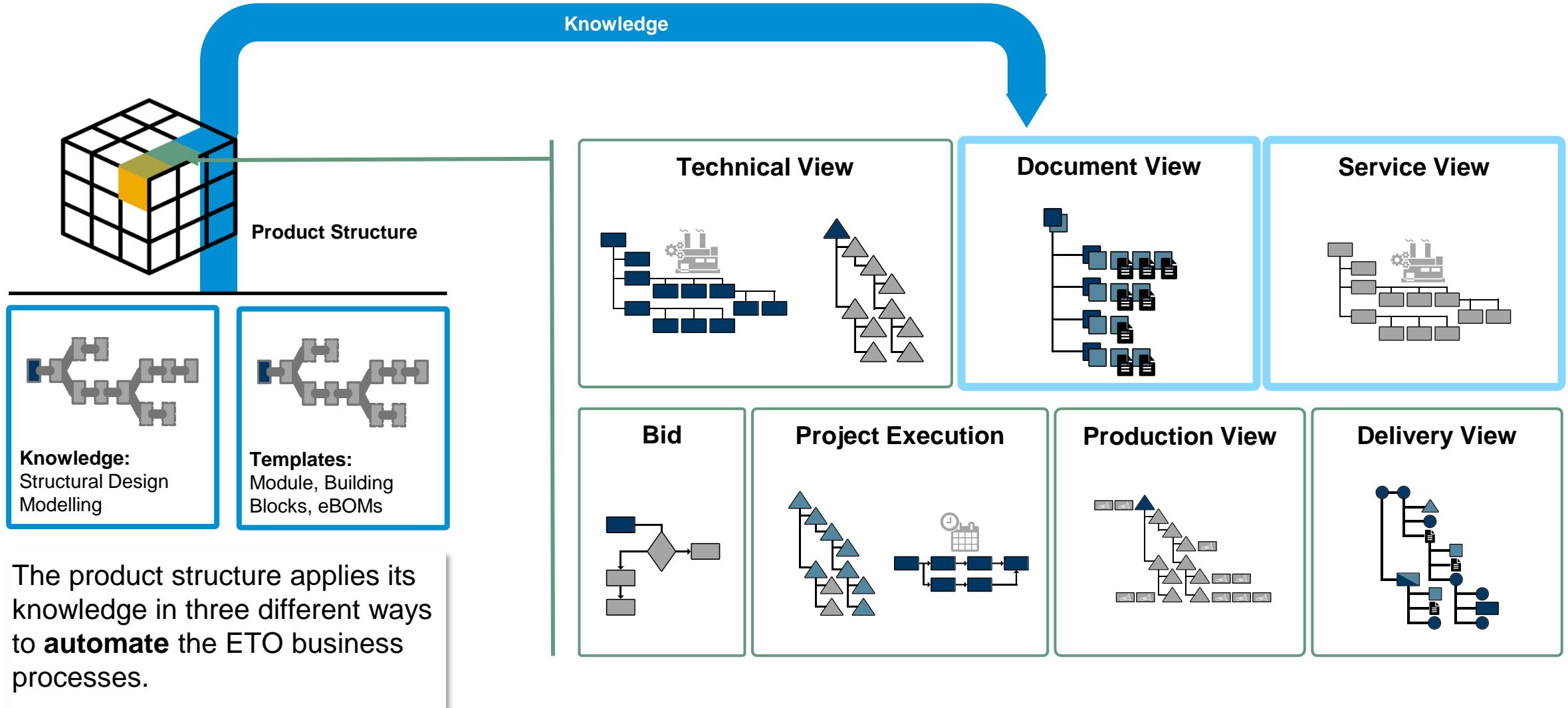
Design
Sell
Engineering
Supply Chain
Manufacturing
Aftermarket Service

The **business processes in SAP PPG** are designed to help our customers address the needs of the design-driven enterprise.

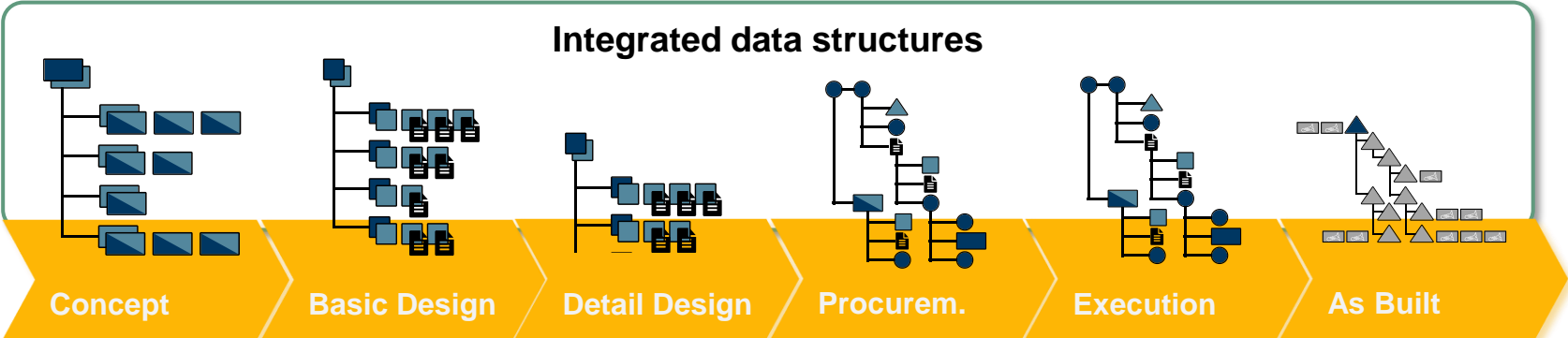
Business Processes in SAP Product Process and Governance



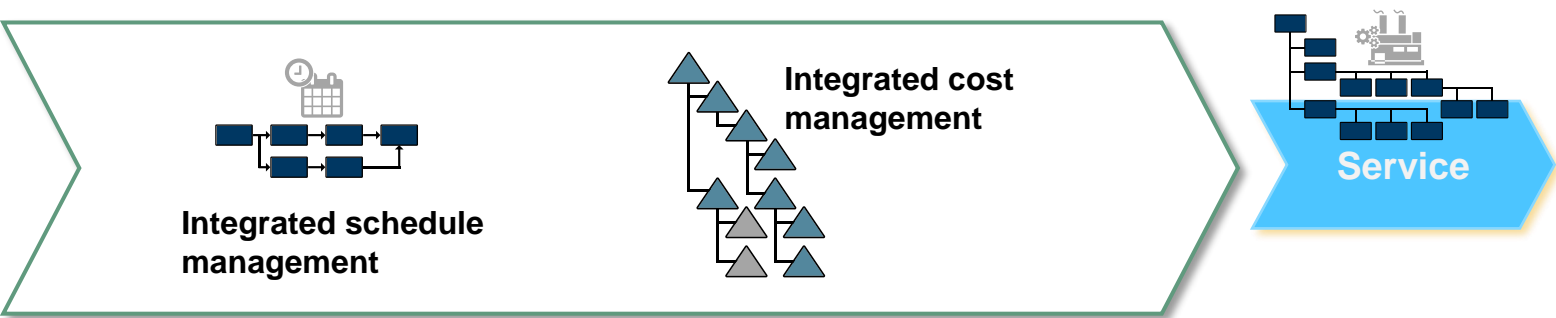
Design-Driven Enterprise: Product Structure Automation



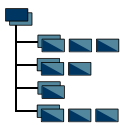
Design-Driven Enterprise: Product Structure Integration



The product structure knowledge results in **seamless integration and automation** of the ETO process.



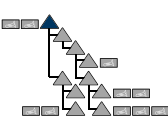
View:
functions



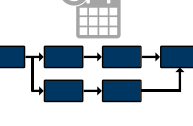
View:
documents



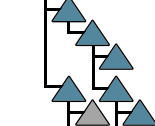
View:
material



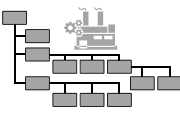
View:
schedule



View:
costs

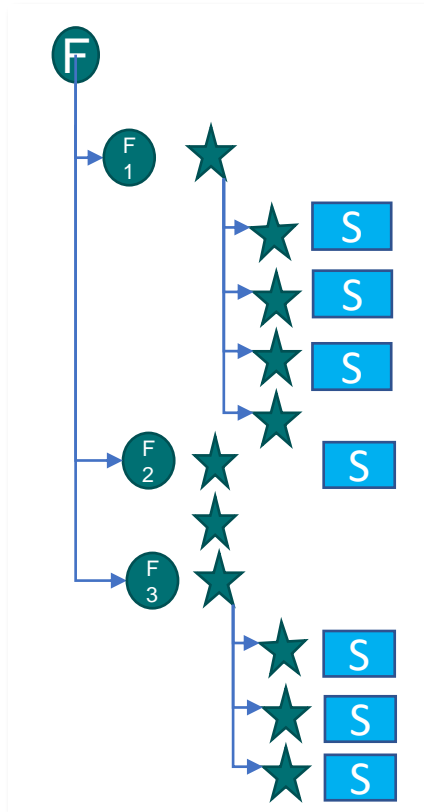


View:
customer



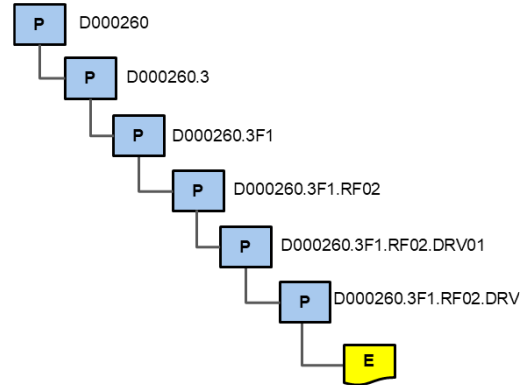
What service data do we need?

Digital Twin



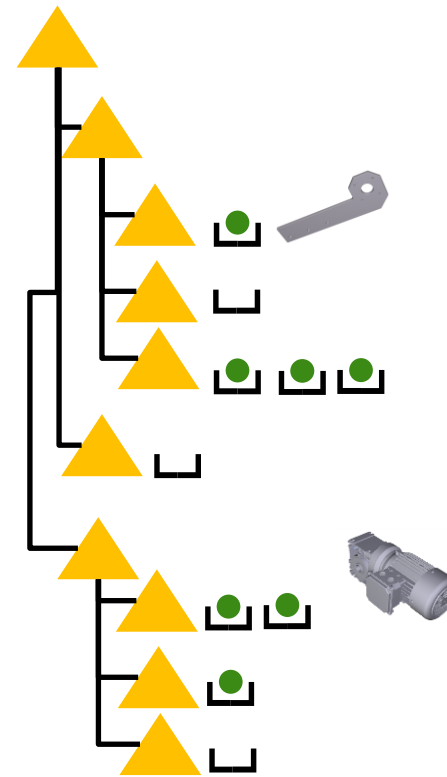
F- Functional location and equipments
Stars - equipment
S - spare parts:
• Equipment BOM
• Build type BOM

Customer Documentation



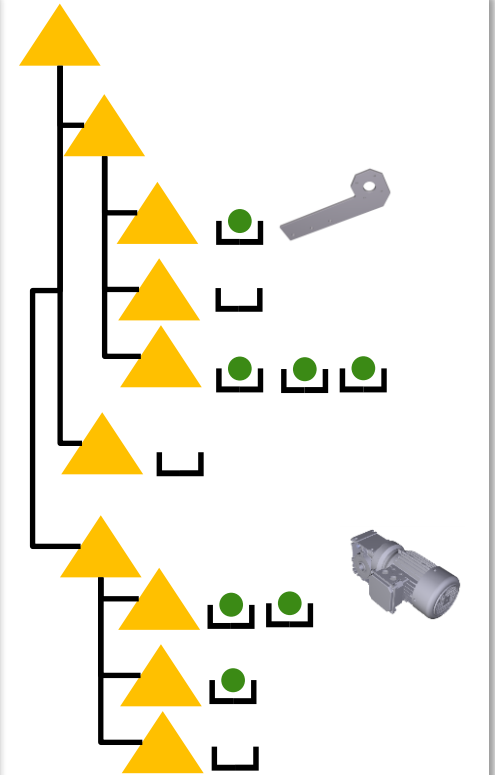
Documentations and document-structures for digital twin

Master Parts List



MPL describes which spare parts are recommended and alternatives.

Spare Parts Catalog



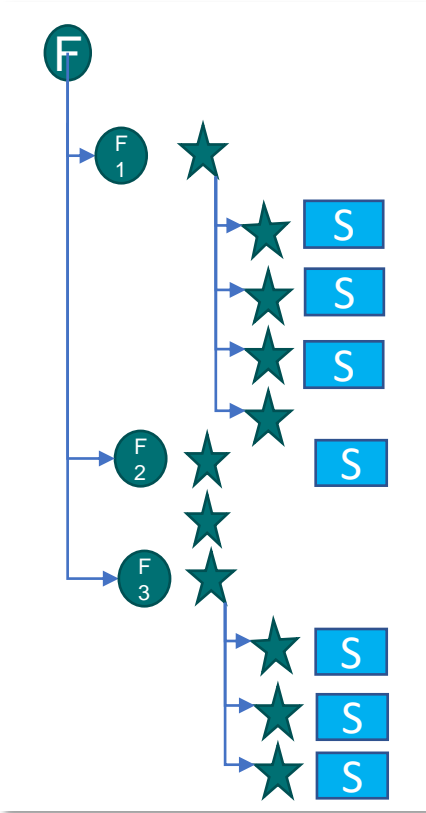
General spare parts catalog without reference onto the digital twin

How to create service data efficiently?

Product Structure

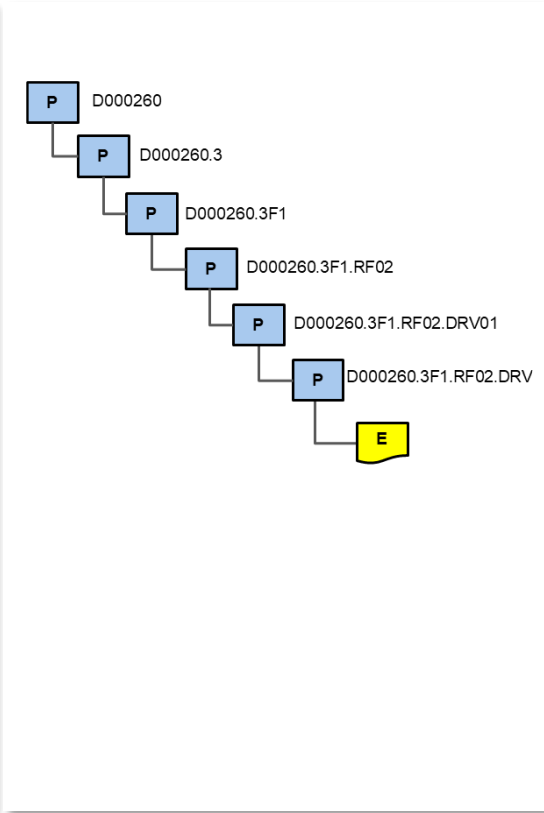


Digital Twin



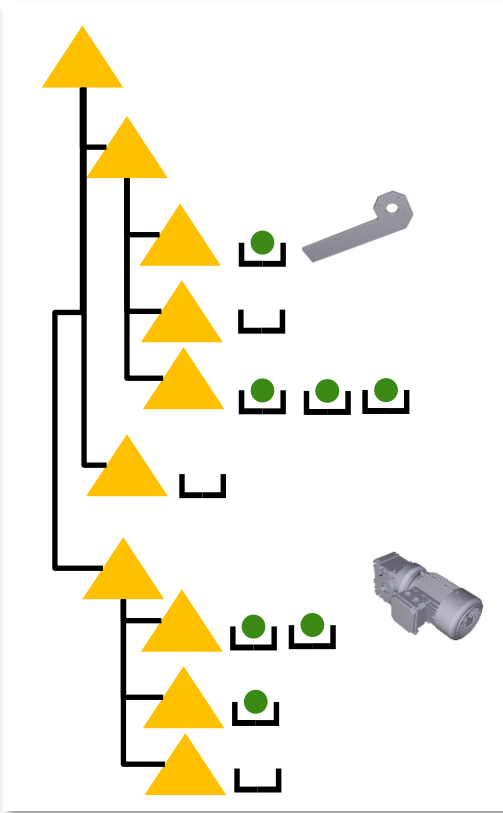
The TOS generates automatically virtual functional locations and equipments. Blue boxes see slide 14 for detail.

Customer Documentation



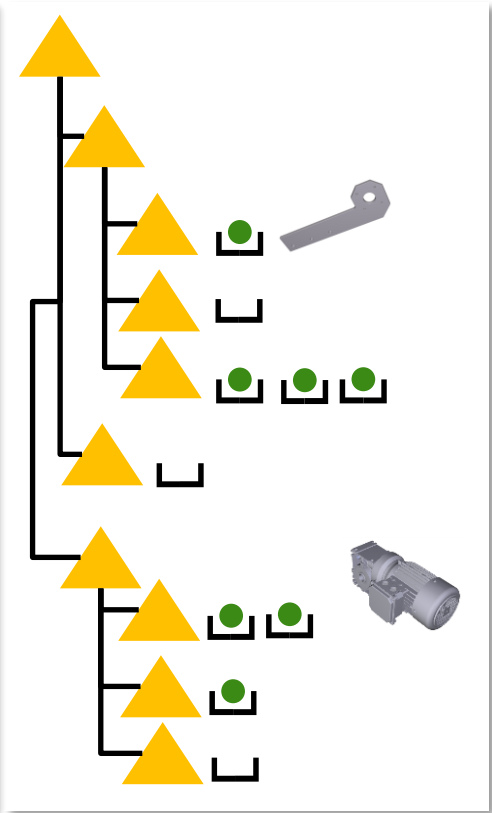
The document structure is generated automatically by applying classifications and horizontal object links.

Master Parts List



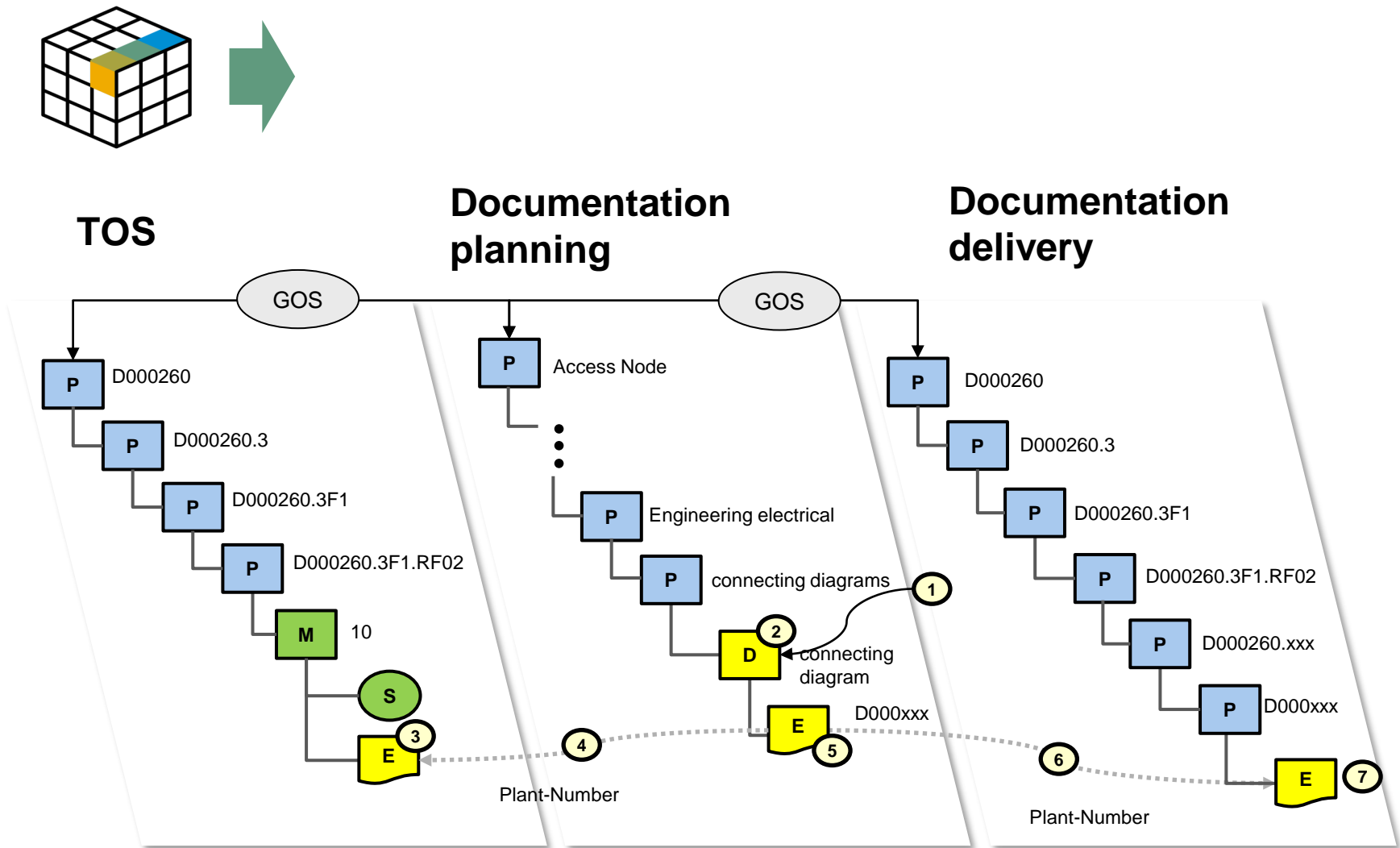
The structure for the spare parts catalog can be linked via objects to the TOS and can be generated automatically.

Spare Parts Catalog

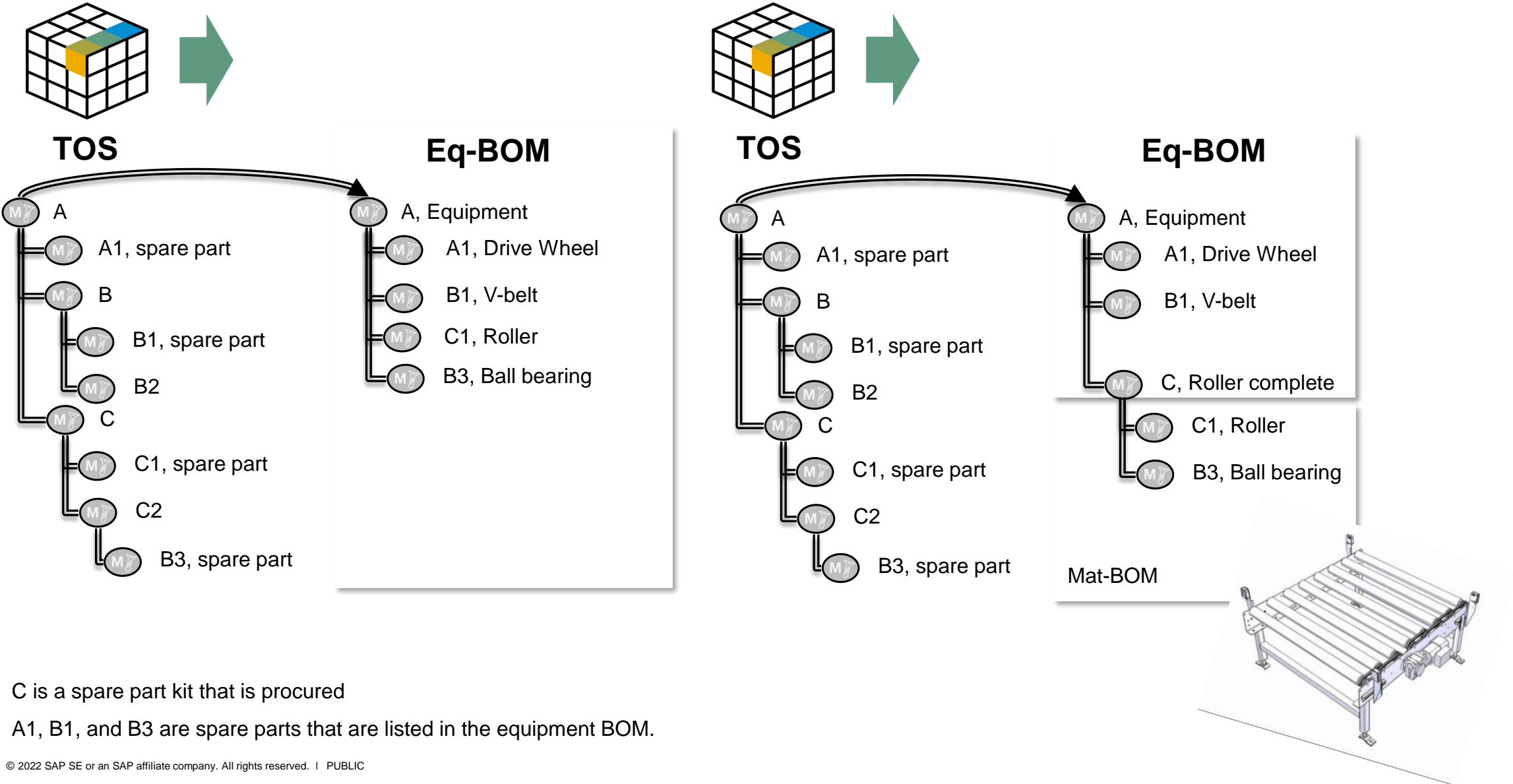


The catalog is managed typically manually and has links to the TOS.

Creation of Service Document Package



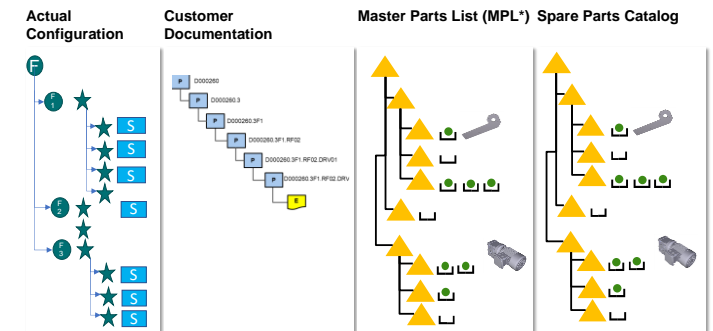
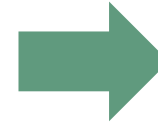
Generation of Service-BOM



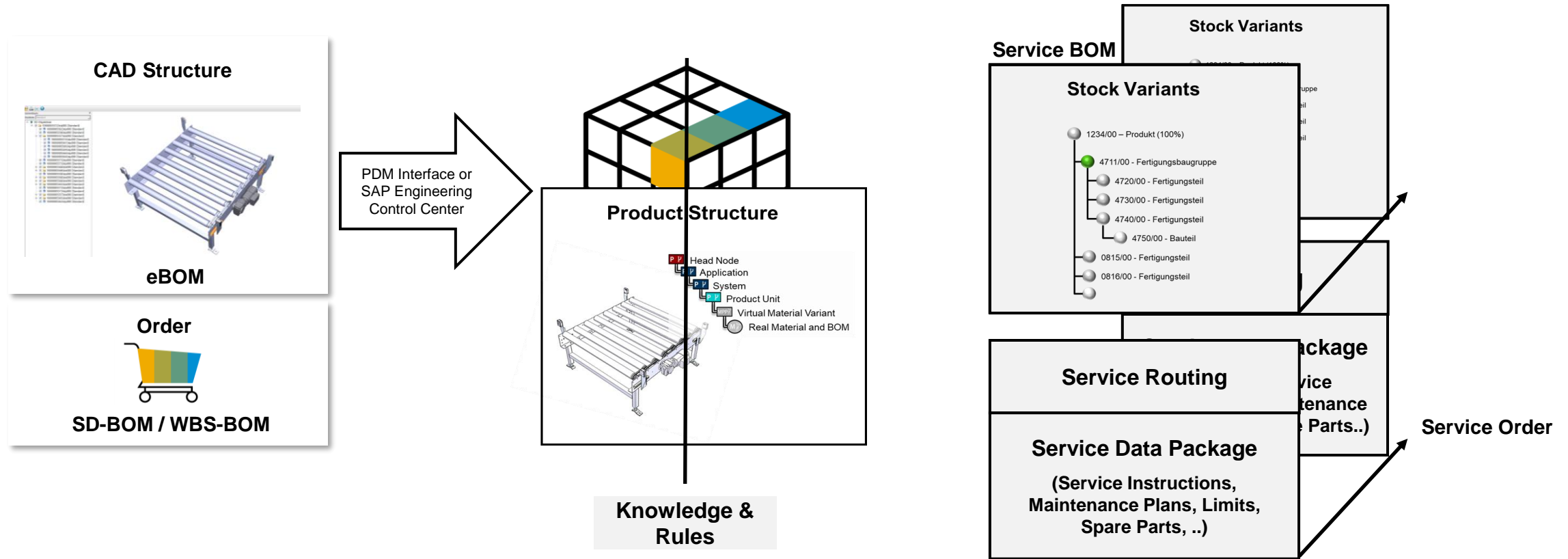
C is a spare part kit that is procured
A1, B1, and B3 are spare parts that are listed in the equipment BOM.

Overview of Service Use Cases

- Modernization and remodeling
- Service
 - In house equipment
 - Third party equipment
 - Shutdown
- Spare Parts
 - Master Parts List
 - Obsolescence management
 - Spare parts sales
- Digital data exchange
 - Data provision
 - Data reception and conversion
- AIN integration
- Automated order execution

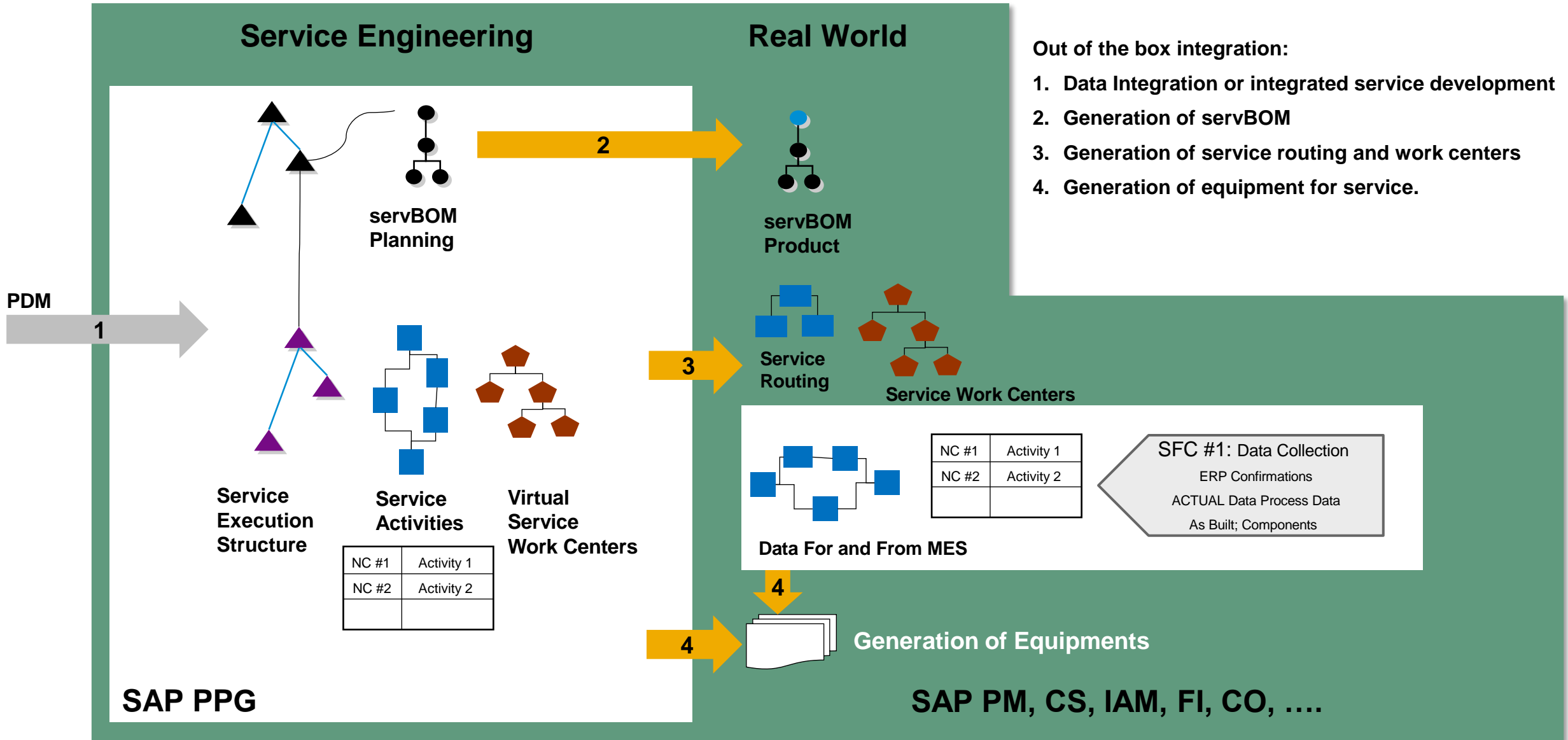


Service Data Package



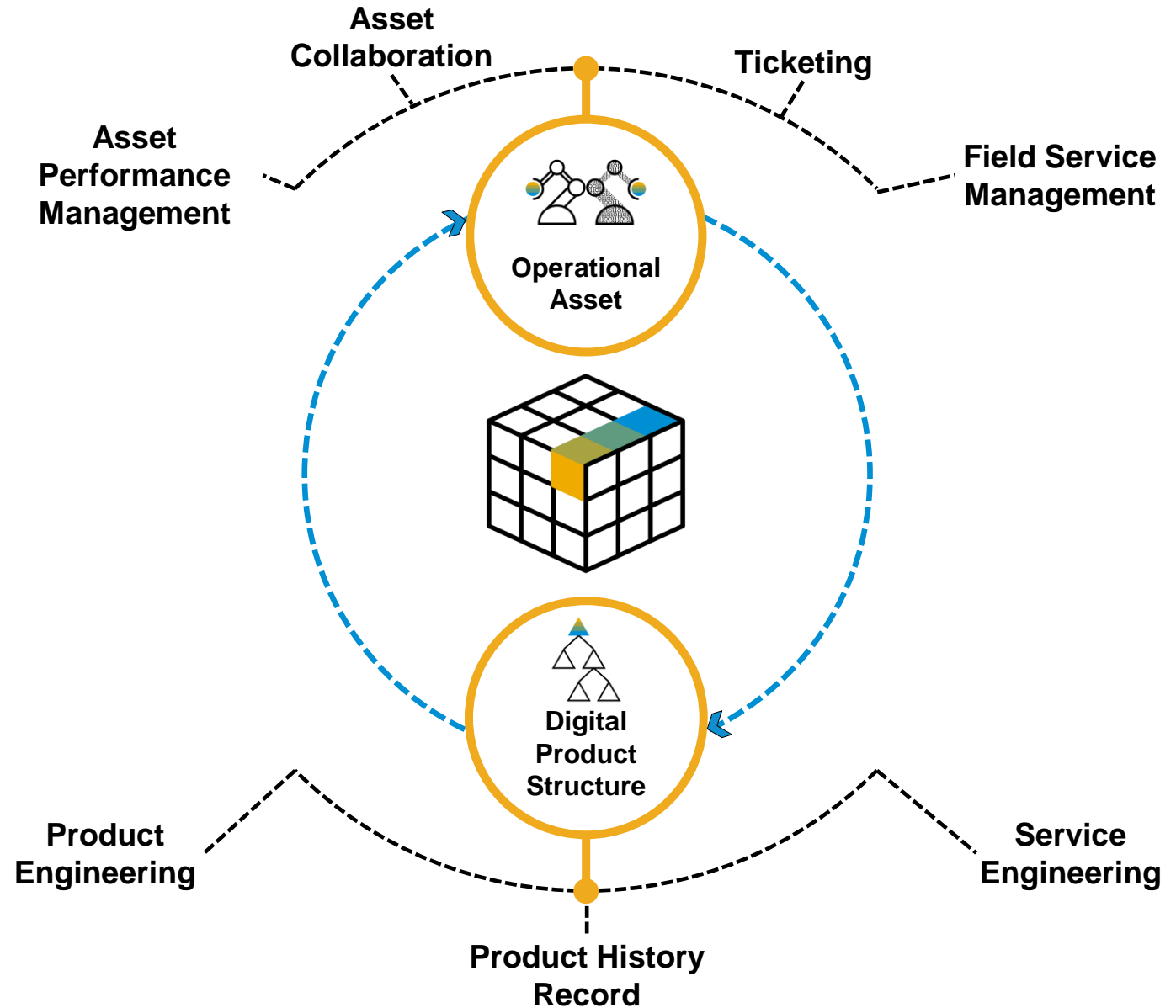
- The **Product Structure** contains different views for eBOM & service BOM.
- The **Product Structure** supports the service structures.
- In this webinar the **Product Structure** generates the **classic BOM models**, routings and other documents/settings for service.

“Virtual” Service Engineering and “Operational” Asset in a single solution



“Virtual” Service Engineering and “Operational” Asset with SAP

- AIN: Asset Intelligence Network
- APM: Asset Performance Management
- PAI: Predictive Asset Insights
- APSM: Asset Strategy and Performance Management
- FSM: Field Service Management
- PPG: Product and Process Governance
- DMC: Digital Manufacturing Cloud
- C4S: SAP Service Cloud

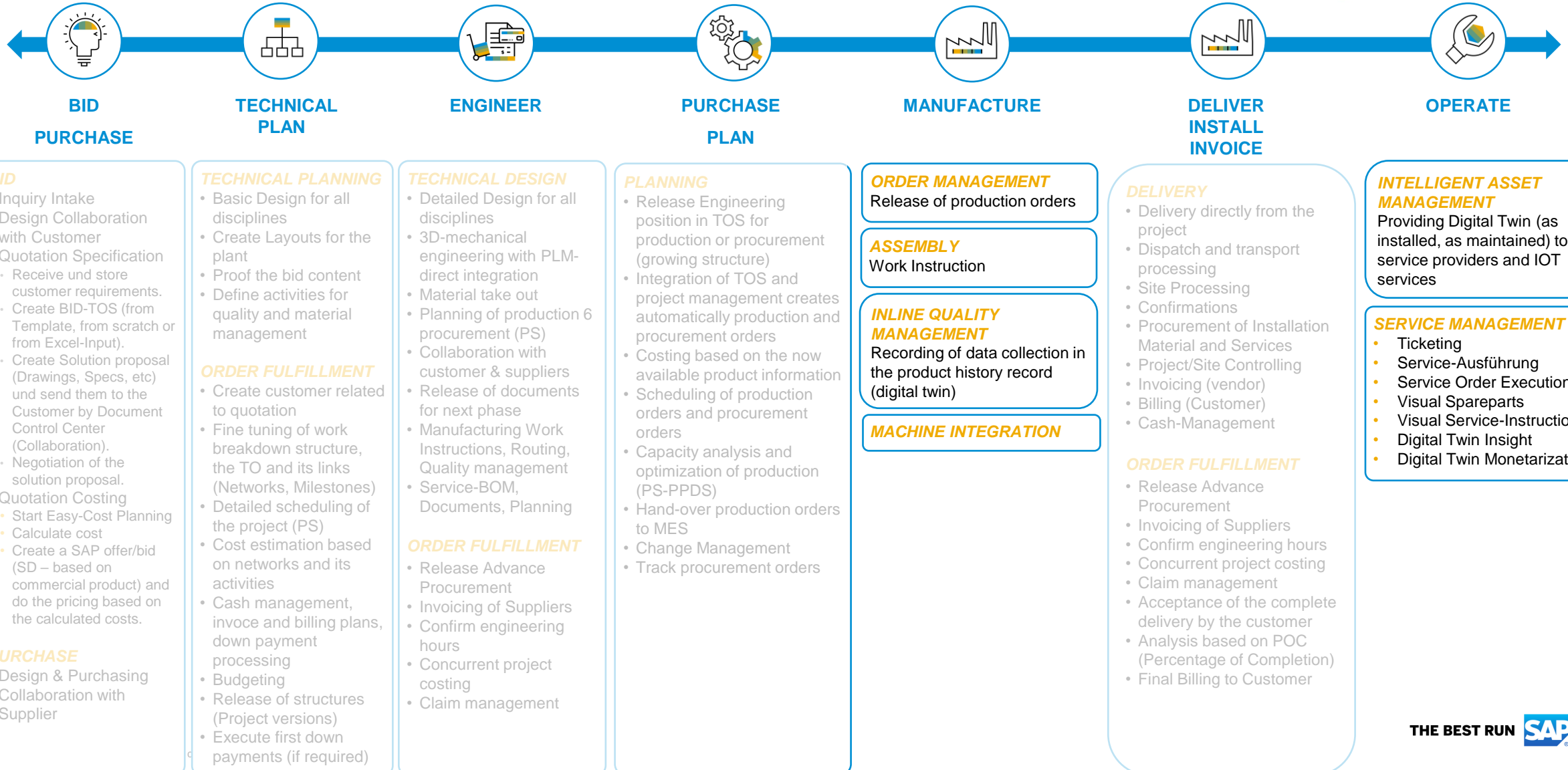
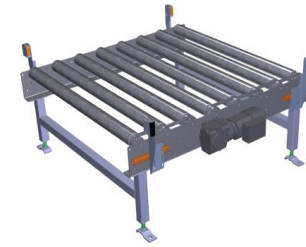


How will Conveyor work within SAP in the future?



DESIGN-DRIVEN ENTERPRISE

Engineer to Order (full scope)



Process Flow: Introduction

Use Case 1: Asset data collaboration



Use Case 2: Service order management

Conveyor Solutions AG



Gregor
Assembly Operator



Hannes
Service Engineer



Robyn
Service Operations



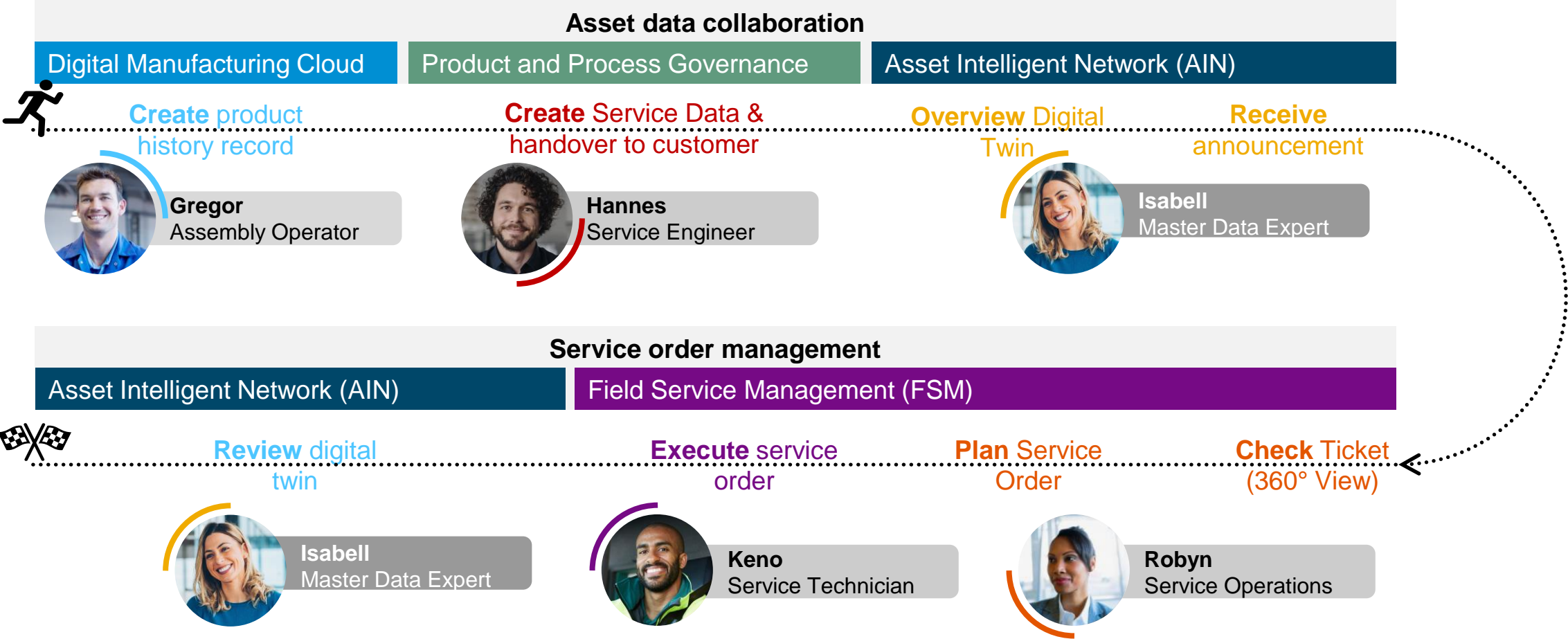
Keno
Service Technician

Green Foods Company

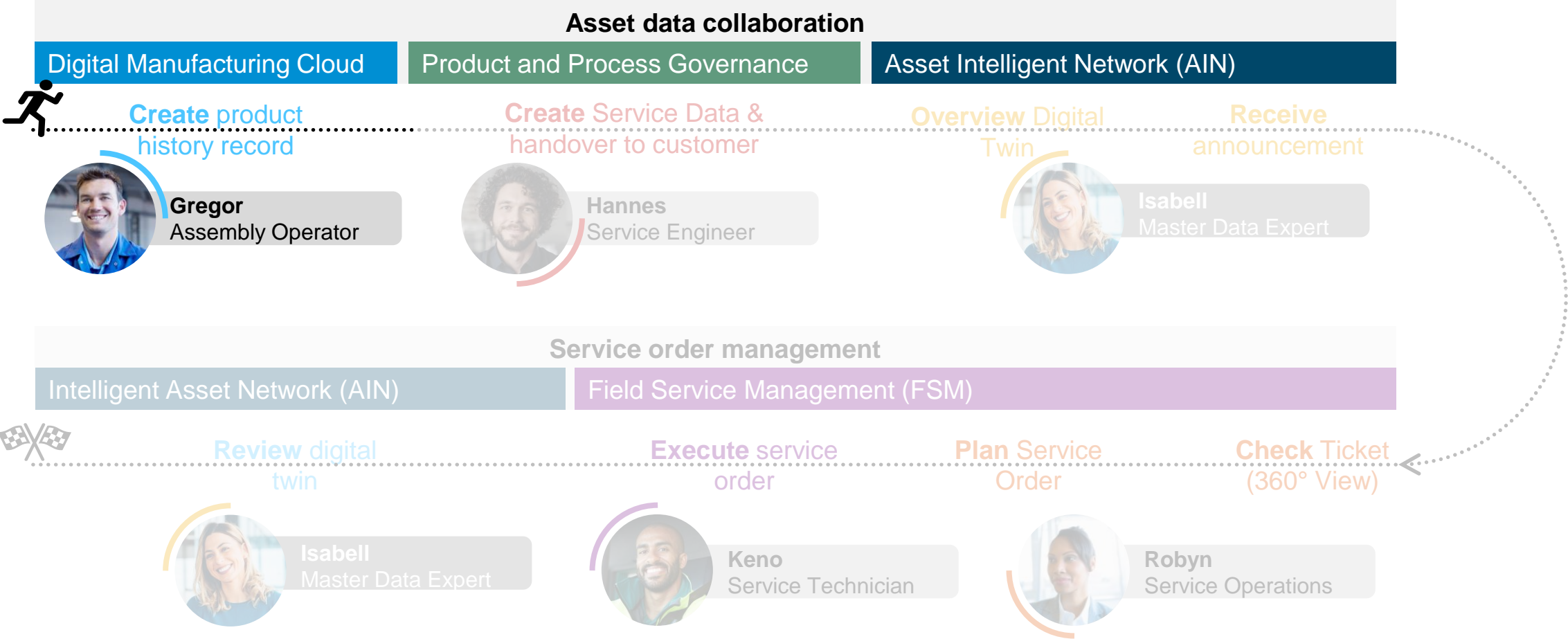


Isabell
Master Data Expert

From Manufacturing to Customer: Detailed Process Flow



From Manufacturing to Customer: Detailed Process Flow



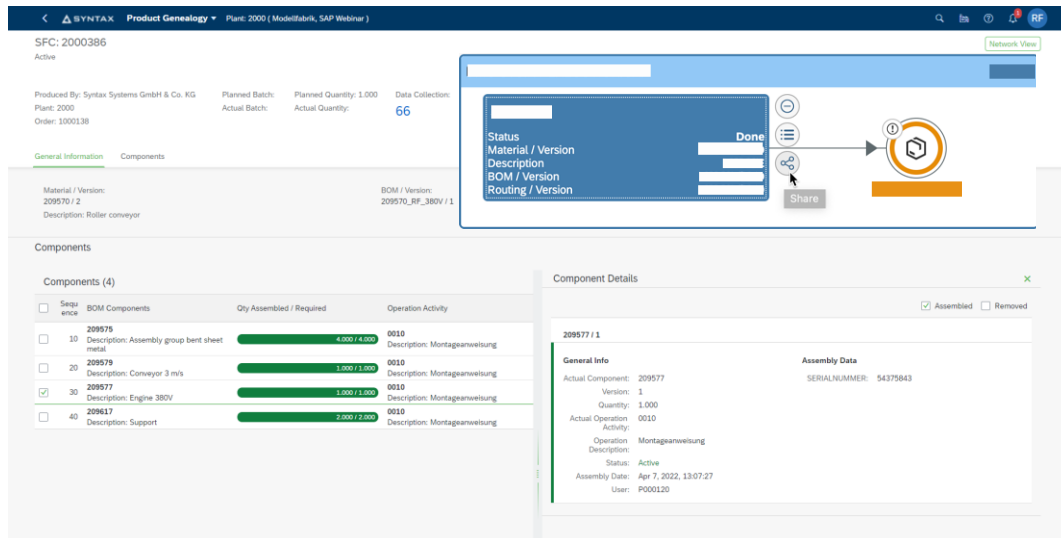
Create Product History Record

Business Outcomes

*“As a **Key-User Production**, I want to see the confirmations from the shop floor in ERP so that we can build a digital twin.”*



Gregor
Assembly Operator



Process Highlights



Assembly record of a product



Order execution status according to the order execution status



Any data collected during the production process,

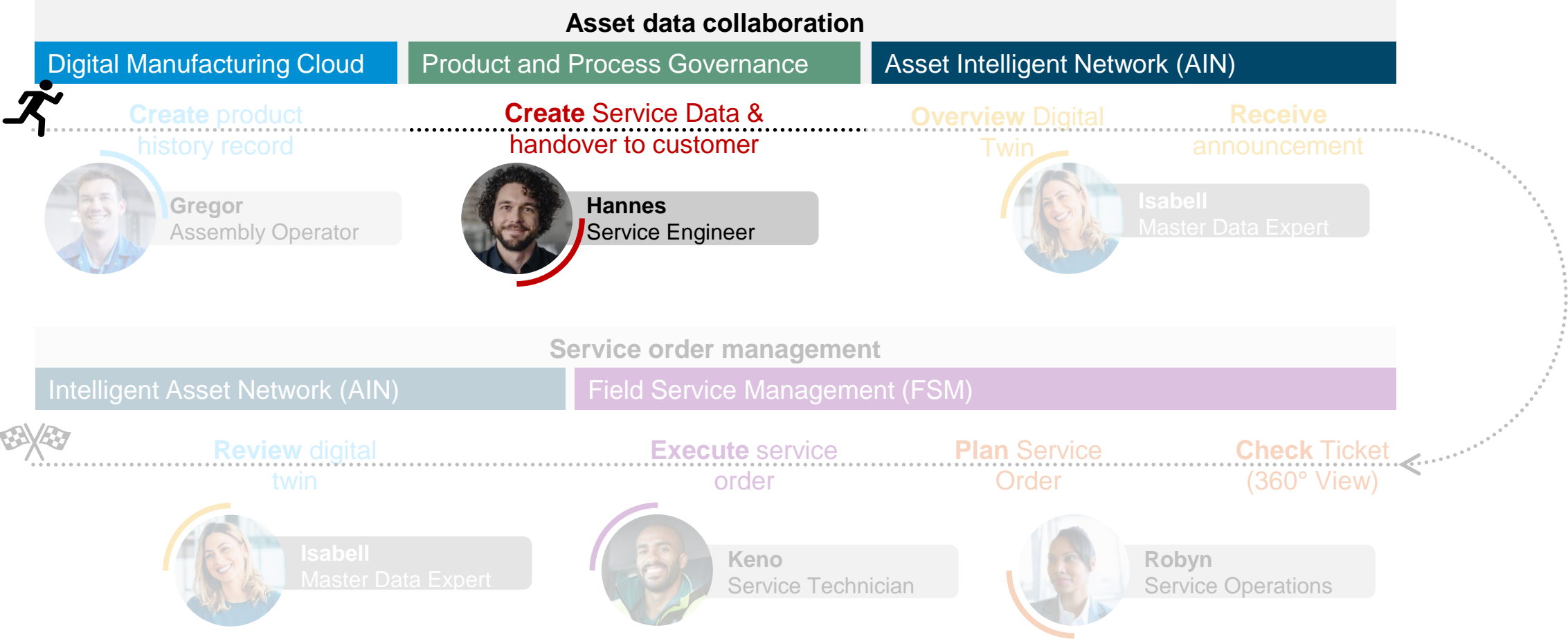


View the assembled quantities of SFCs compared to their required assembled quantities

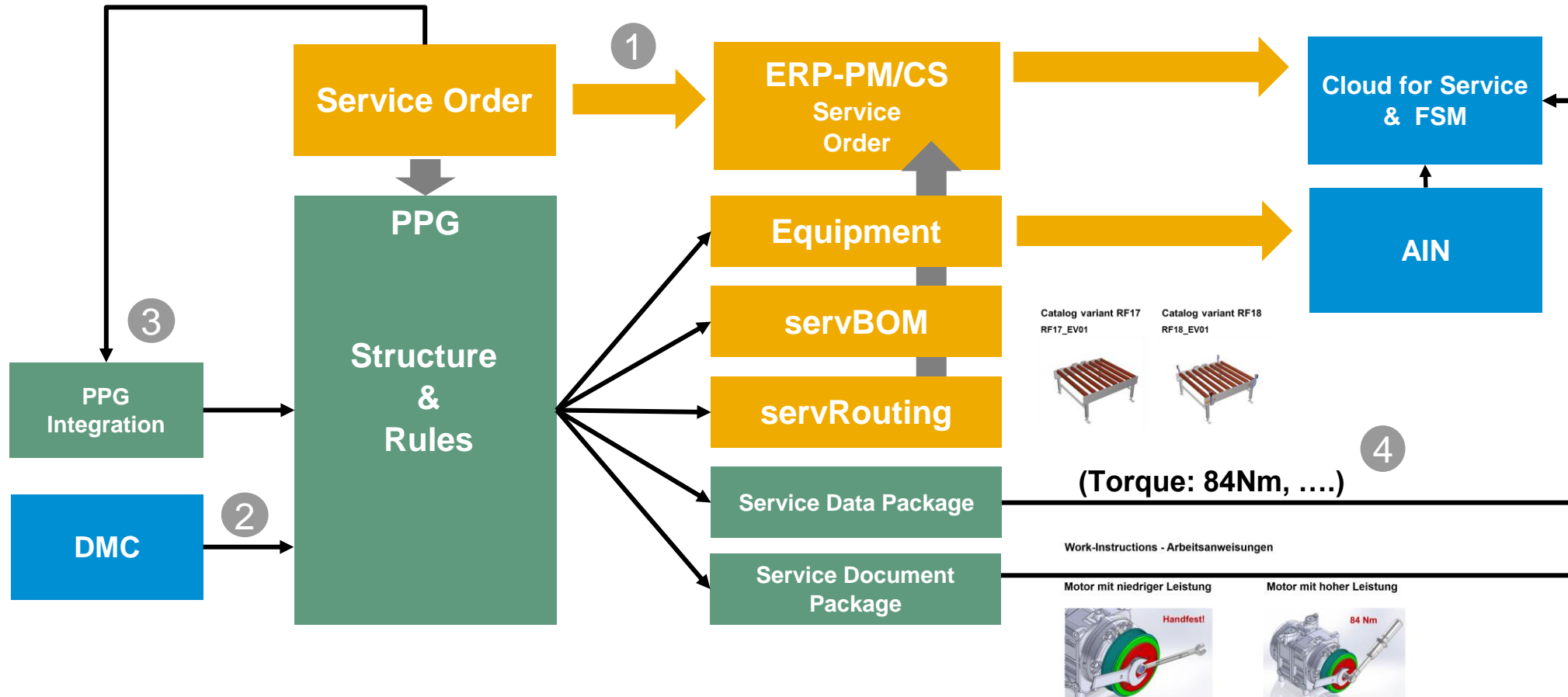


Assembly status and record of planned and unplanned components - quantity already assembled or consumed versus quantity required

From Manufacturing to Customer: Detailed Process Flow



Automated Generation and Integration of Service Data



1. The service order is based on the equipment number.
2. The equipment or serial number comes from product history record in DMC.
3. The PPG integration and data model assigns or generates the variant specific service data.
4. To provide more detailed data for each service case a service data package is generated.

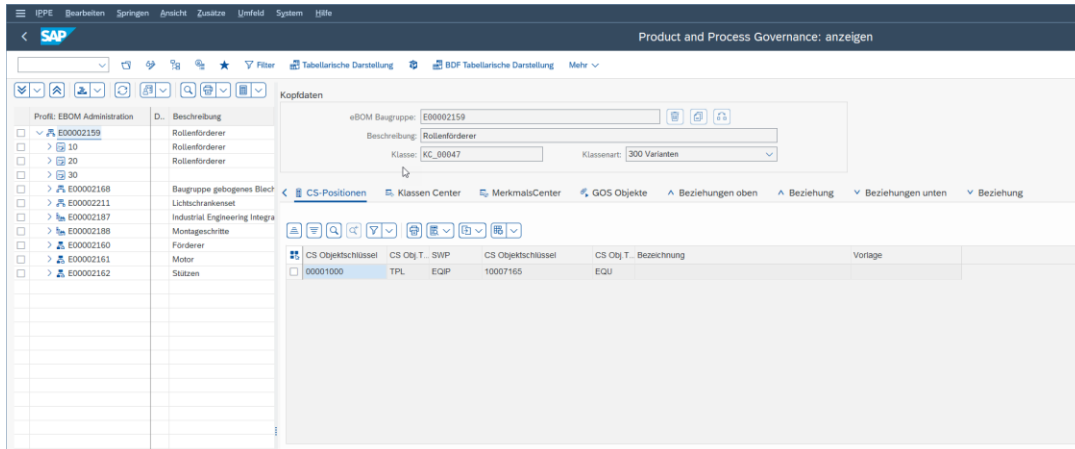
Create Service Data & handover to customer

Business Outcomes

*“As a **Service Engineer**, I want to use asset information in the product structure so that I can automate service processes.”*



Hannes
Service Engineer



Process Highlights



Use asset objects in product structure



Integrated service planning



Automate documentation processes

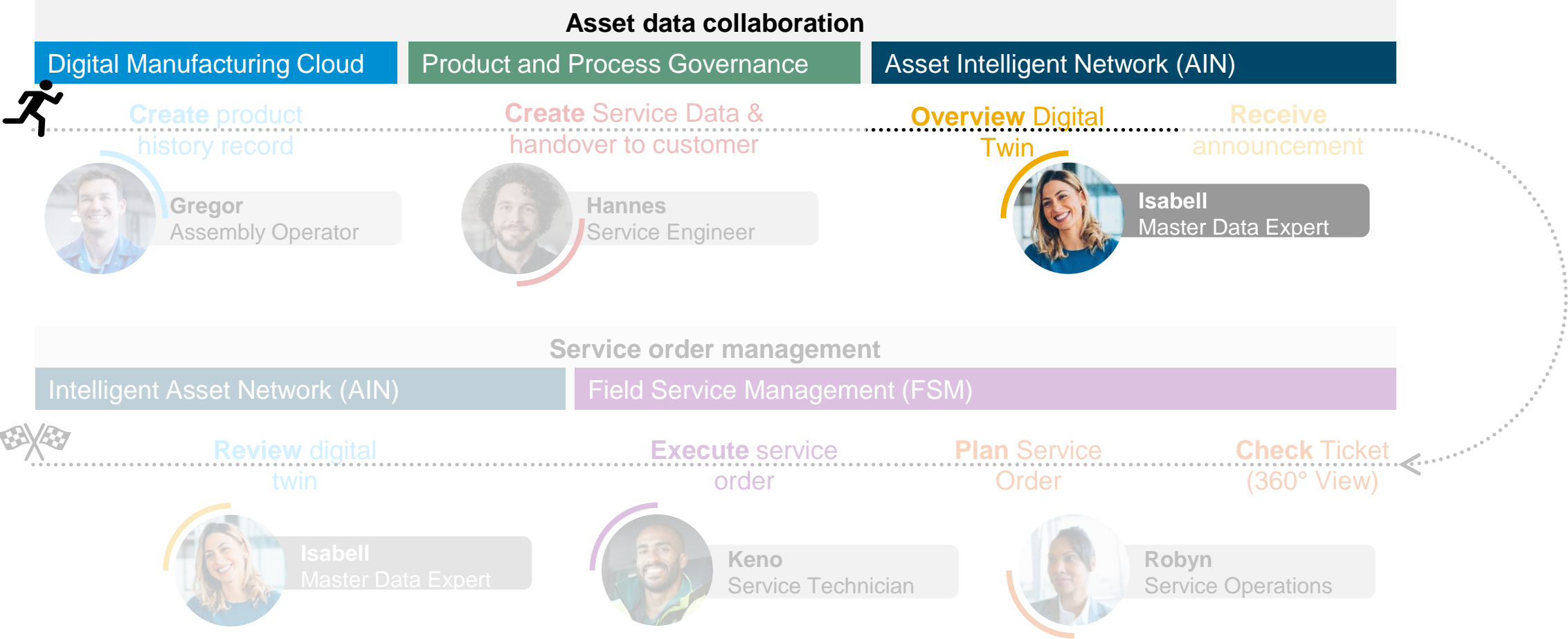


Use serialization information from various processes



Benefit from single source of truth

From Manufacturing to Customer: Detailed Process Flow



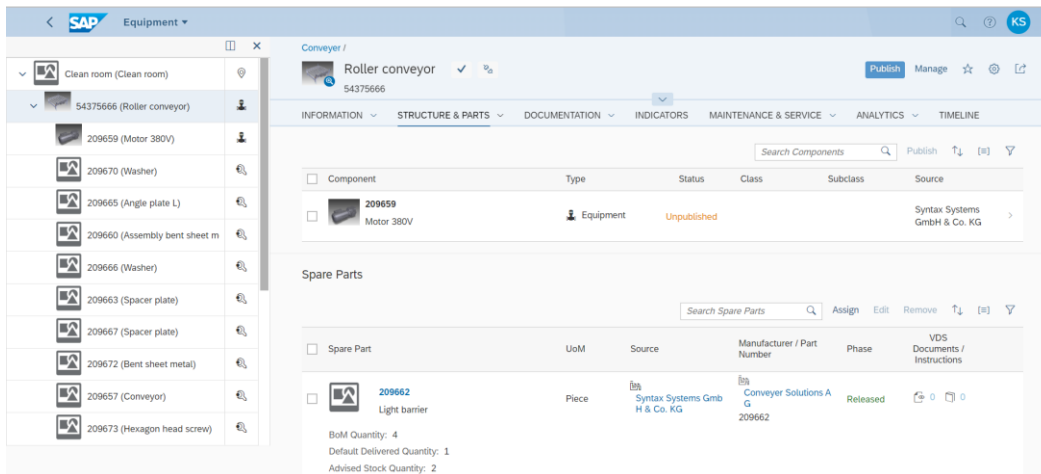
Overview Digital Twin

Business Outcomes

*“As a **customer**, I want to see all asset data in one central repository!”*



Isabell
Master Data Expert



Process Highlights



Full digital representation of all physical equipment along their lifecycle



360° degree view on digital twin (location, assets and spare parts)



Secure network to enable connection to various business partners

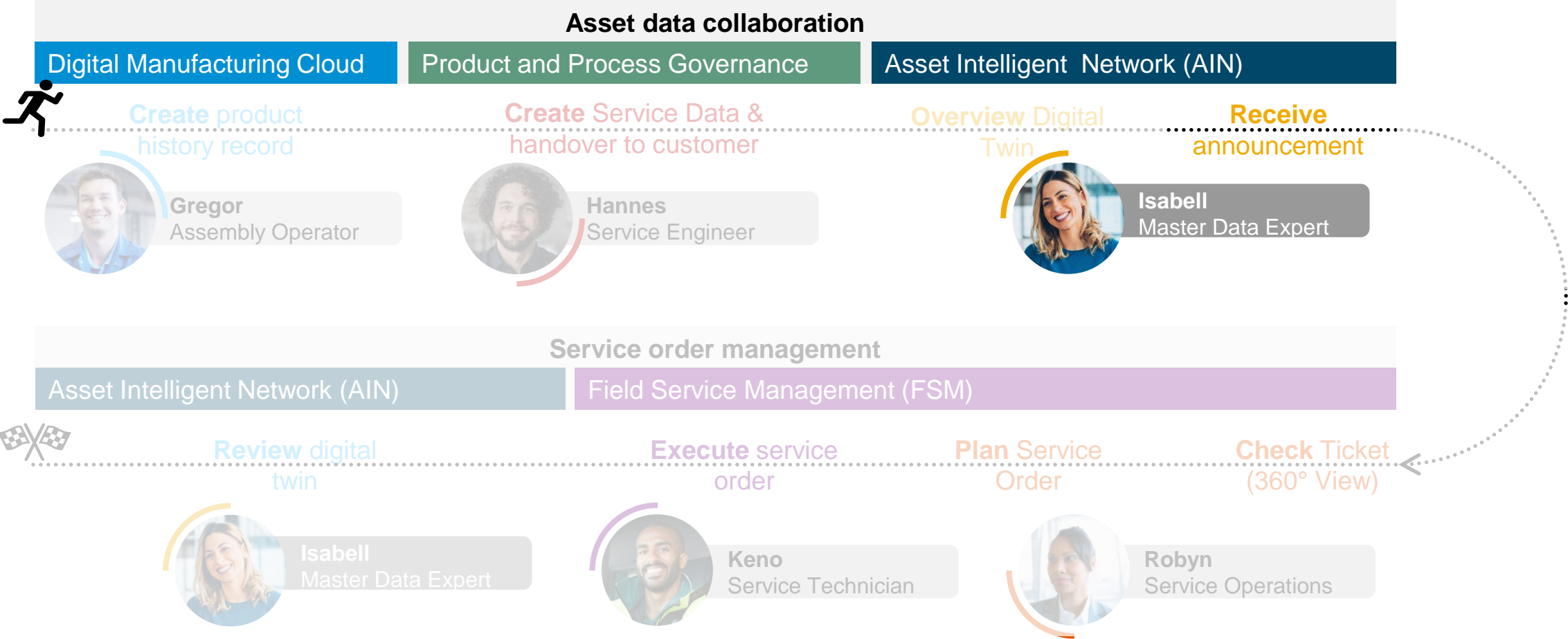


Fully integrated to SAP S/4 HANA



Single source of truth for all maintenance relevant data

From Manufacturing to Customer: Detailed Process Flow



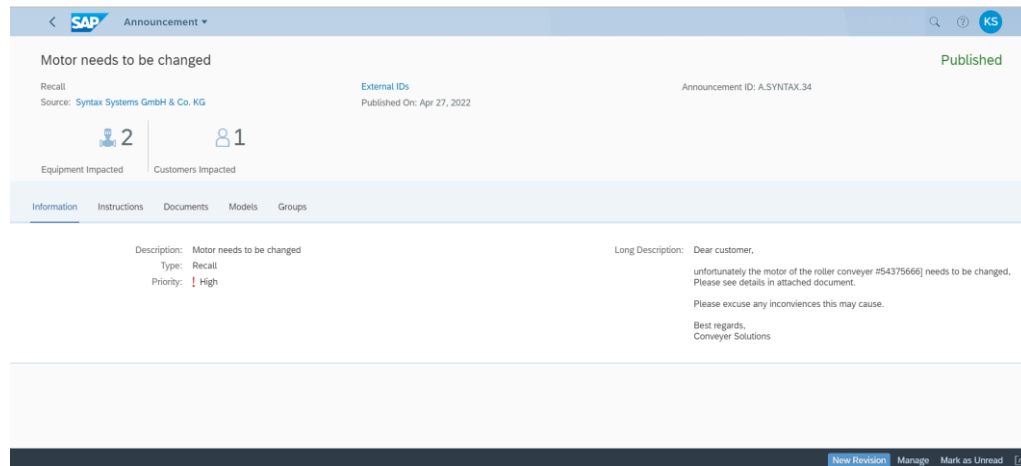
Receive announcement

Business Outcomes

*“As a **customer**, I want to receive critical notes directly from the manufacturer.”*



Isabell
Master Data Expert



Process Highlights



Receive announcements on recalls, documentation & firmware updates from manufacturer



Close collaboration between manufacturer and operator

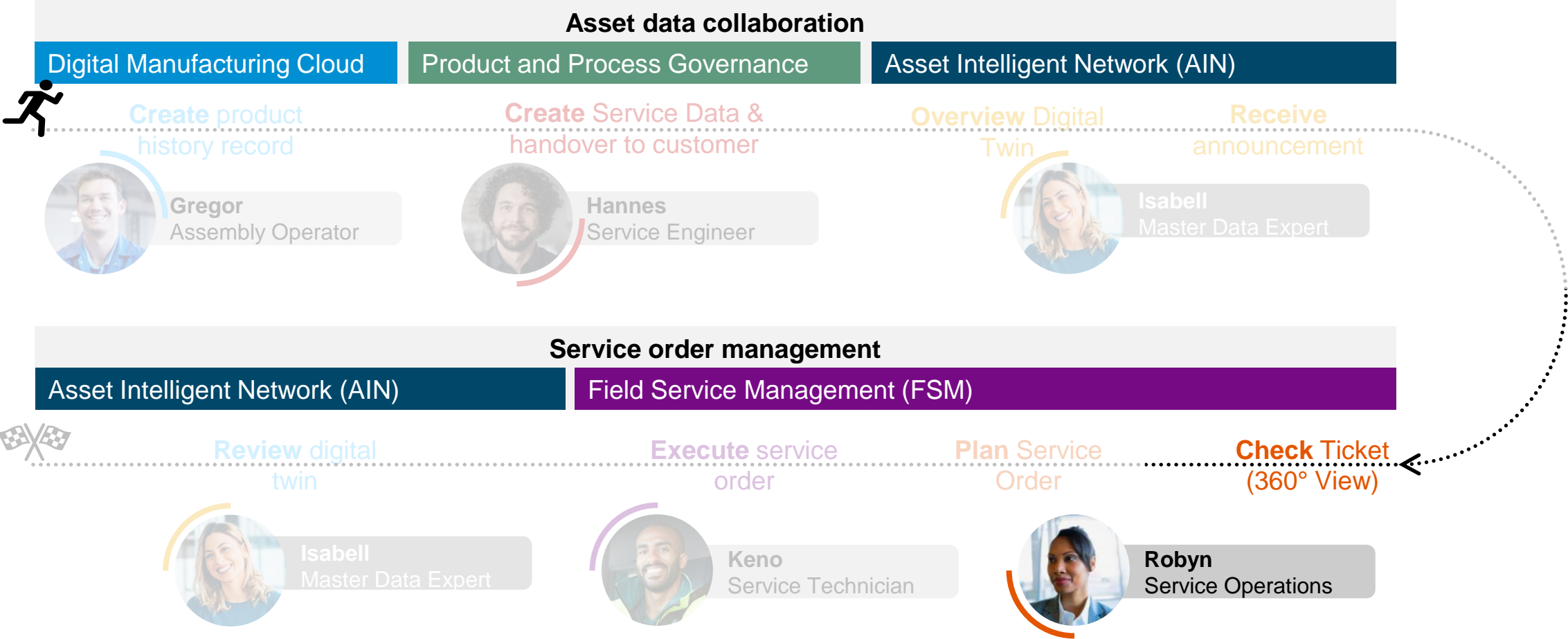


Always have access to the **most recent information directly from the manufacturer**



Receive important information always **in the context of the equipment**

From Manufacturing to Customer: Detailed Process Flow



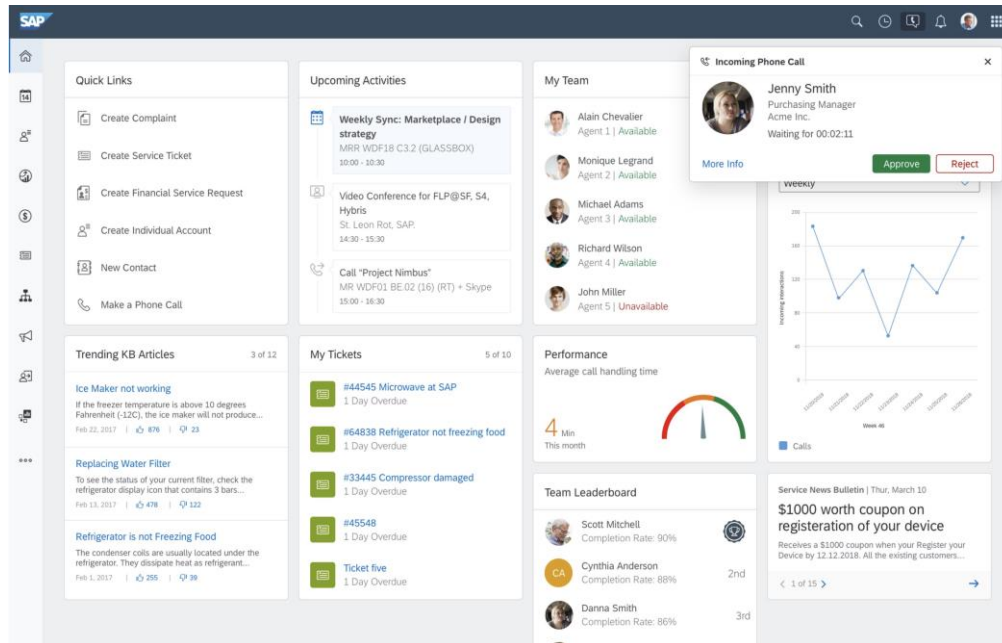
Check Ticket – 360° View

Business Outcomes

“Responsible for **Service Operations**, I want to see 360° views of my service customers.”



Robyn
Service Operations



Process Highlights



360° - Integrated view of customer, equipment's and contracts & back-office support



Engage with customer across any channel – by using chat, phone, email, social media

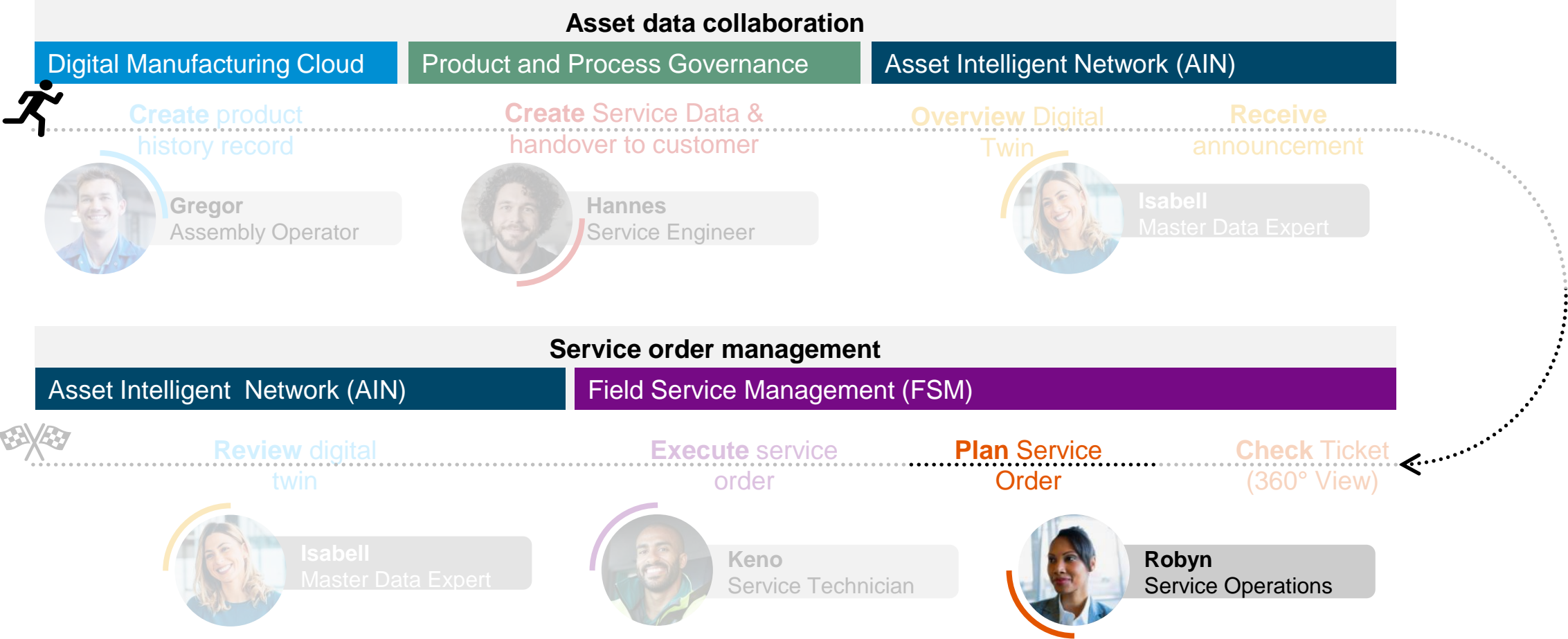


Start collaborations and establish feedback loops through contextual social collaboration with integrated feed



Increase productivity handle my tickets in a timely manner through routing and escalation rules

From Manufacturing to Customer: Detailed Process Flow



Plan service order

Business Outcomes

*“As a **Dispatcher**, I want to easily plan the service execution.”*



Robyn
Service Operations



Process Highlights



Accelerate service execution with easy planning tools and a visual drag'n'drop interface



Cut resolution times with skills management: find the best technician with the right skills for each job

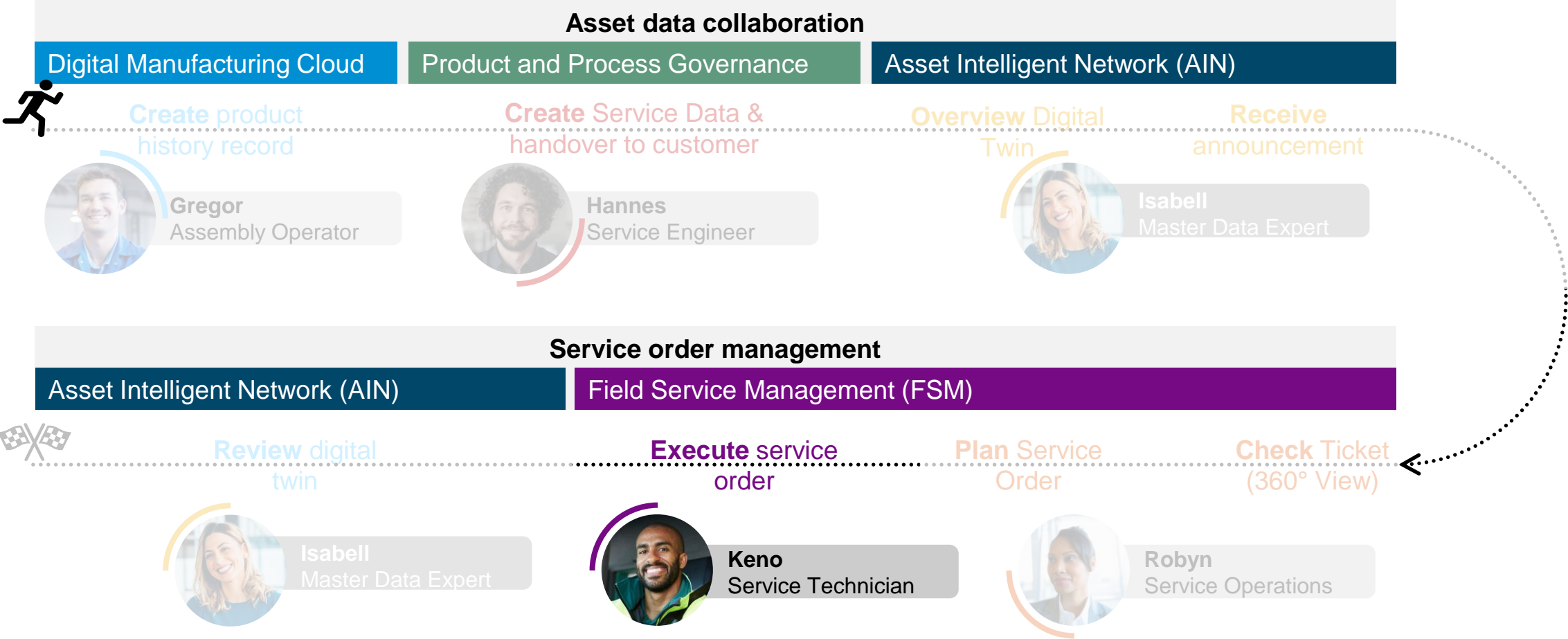


Improve productivity by optimizing routes with the map view planning



Optimize resource utilization and minimize idle time with automated, AI-based scheduling and dispatching

From Manufacturing to Customer: Detailed Process Flow



Execute service order

Business Outcomes

*“As a **Service Technician**, I want to have all relevant information to easily repair the assets.”*



Keno
Service Technician



Process Highlights



Increase transparency by giving technicians a mobile access to relevant information related to customers, services, products and spare parts



Make it easy to find the right location with mapping and GPS tracking –and maintain the visibility on where they are



Support your technicians with mobile smartforms to meet EHS (environment, health and safety) standards

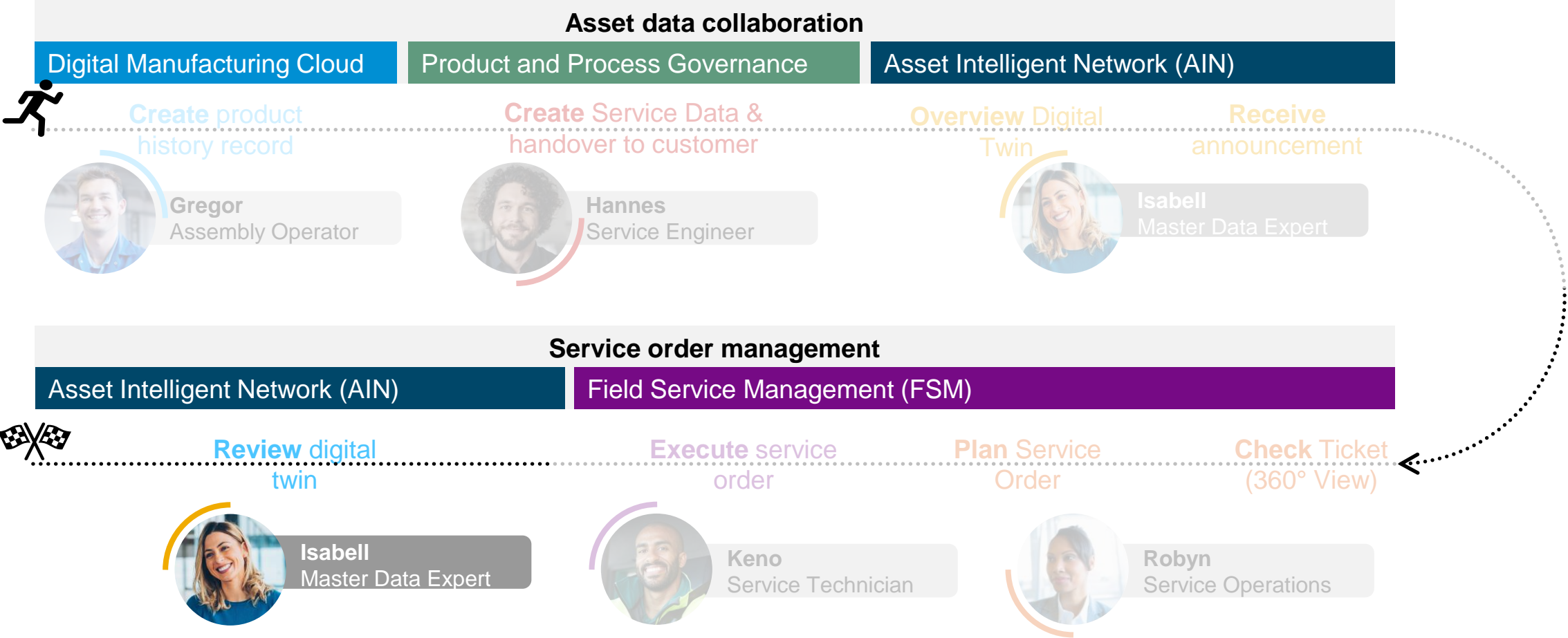


Reduce paper work and enable a smooth information flow by capturing time, material and expenses on mobile device



Stay productive also when connectivity is low and utilize the offline functionality

From Manufacturing to Customer: Detailed Process Flow



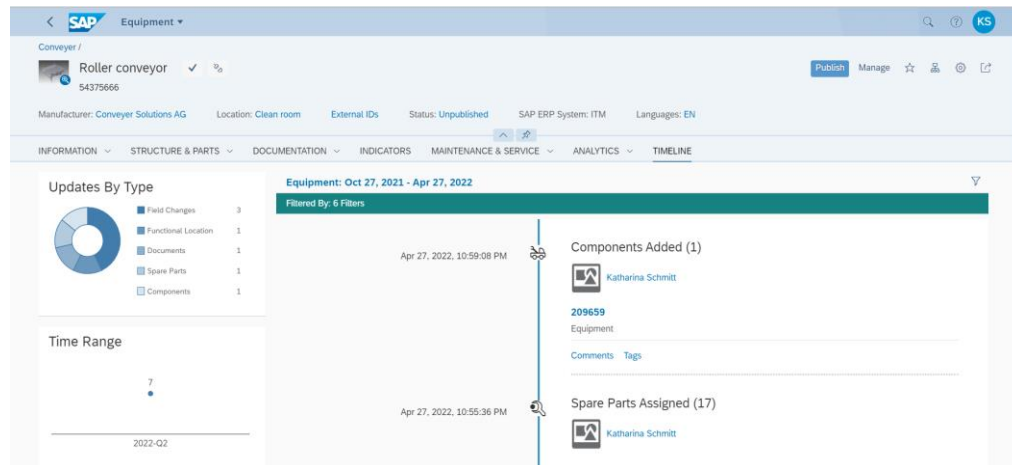
Review digital twin

Business Outcomes

*“As a **customer**, I want to receive updates on the master data directly from the manufacturer.”*



Isabell
Master Data Expert



Process Highlights



Reduction of master data maintenance effort by close collaboration between business partners



Higher master data quality and complete asset information



Track of asset history over time



Digital twin as basis for **future oriented business models**

Summary

The Design-Driven Enterprise is
AGIL.EFFICIENT.CUSTOMER-CENTRIC

- ✓ **Increased the level of automation** in the process flow from engineering into sales, production, service with **model once configure anywhere.**
- ✓ Using a **smart product structure** as **single central solution** to achieve **high level of consistency, automation and accuracy** across all departments for **all business models.**
- ✓ Improved leverage of their existing investment in the **SAP Core. Reduce complexity** of applications outside of the core.



Design-Driven Enterprise

... für variantenreiche Produkte:

1. From Design to Sales
2. From Configuration to Manufacturing
3. From Manufacturing to Customer for Configurable Components and End-products

... für das Projektgeschäft:

1. From Bid to Design & Procurement
2. From Project Start to Manufacturing & Procurement
3. From Manufacturing to Customer

Get ready to automate your business!



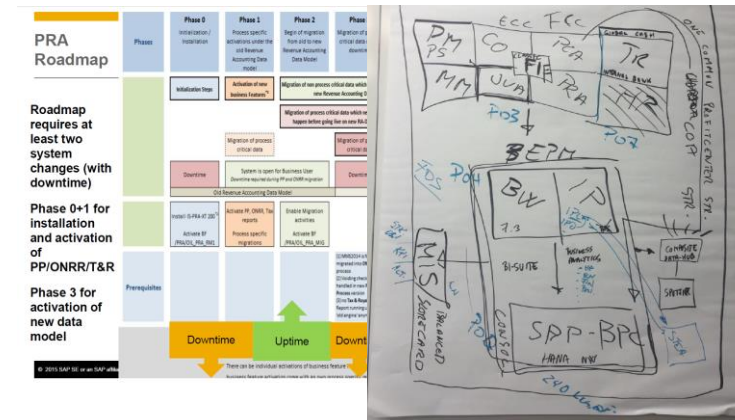
Business Scenario Analysis



Detailed Business Scenario Recommendations



Test Drive „Model once configure anywhere!“



Transformation Path and Target Architecture

Thank you & see you soon.