

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

So, they engage an external consulting company to propose a new approach.



Watch the Design-Driven Enterprise Video



Link: https://vods.dm.ux.sap.com/webinars/webinar-series-cto-eto/vods/sap vision-core edit04 final hd 1920x1080 web.mp4

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Design-Driven Enterprise

AGIL.EFFICIENT.CUSTOMER-CENTRIC

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





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

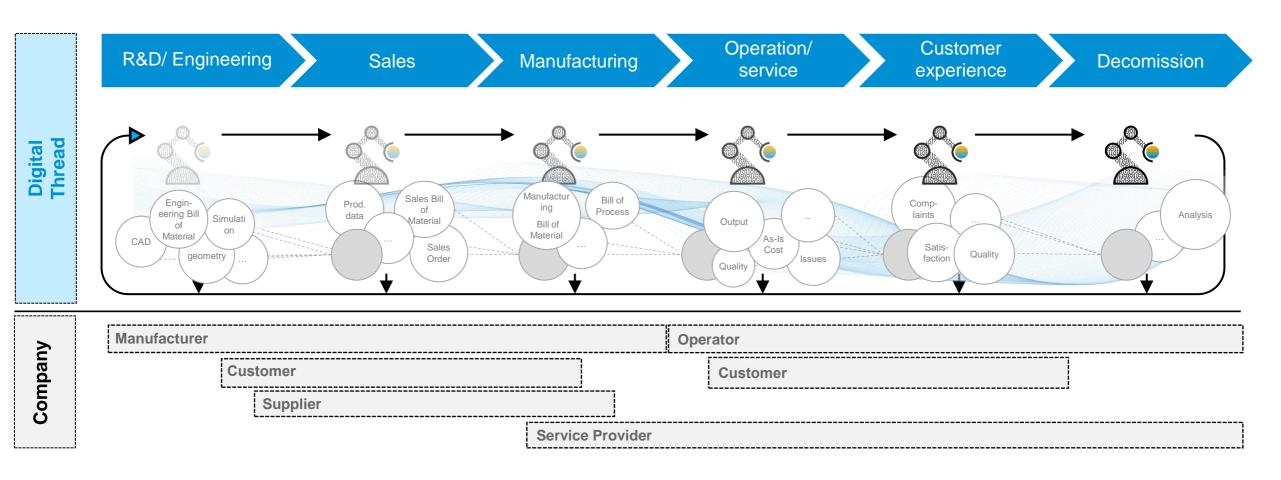
Manufacturing

Aftermarket Service



Since sales, purchasing and planning are deeply embedded in ERP, an ERP-centric approach can provide full flexibility.

The Digital Thread 4.0 provides engineering knowledge and integration



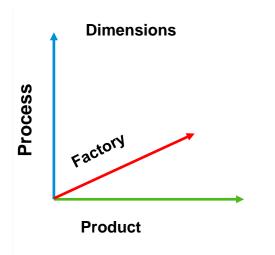


The product data model in ERP needs to include engineering knowledge. Standard integration needs to support the enhanced data model.

Why is the SAP Product Structure able to solve Conveyors' business challenges?

The Capabilities of the SAP Product Structure

Powerful Embedded Integrated Data and Business Applications in SAP ERP or S/4HANA



Virtual Structure



Real Documents/Master
Data in any

SAP Core and Applications

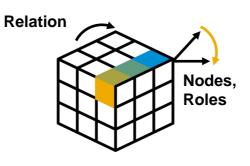
Dimensions of PPG

allow to use configuration to automatically derive a routing, work instructions or any other documents from the product BOM configuration.

Integration

of business applications is with node types ensures seamless integration between data and business processes. (e.g. publish a configured manufacturing data package for the production order).

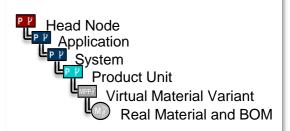
Structure



Relationships and roles

determine how the dimensions of the product structure are assigned.

Node type



Characteristic values

can be inherited to all subordinate objects with the classification tab of each node.

Relationship between CAD, Classic BOM and Product Structure

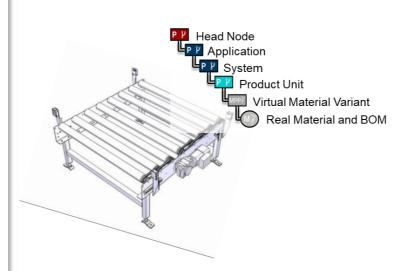
Why can't I use the CAD or Classic BOM instead?

CAD Structure



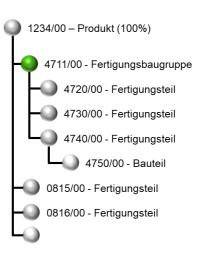
The **CAD Structure** describes the geometrical relationships between the BOM elements. The **variance** therefore is **implicitly described**.

Product Structure



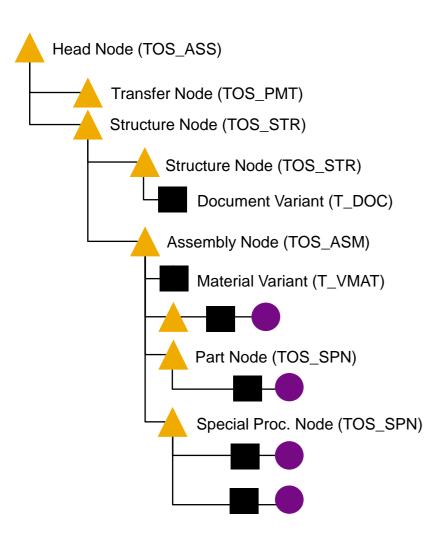
The **Product Structure** models variance structurally and thus is **cable to incorporate variance information directly** and link it to CAD documents.

Classic BOM



The Classic BOM models variance on a material level and therefore does not scale very well.

Node Structure and Types (2D View)





Head

- Used for opening the technical order structure.
- All project relevant nodes are linked below.



Transfer

Used to store ECP information which cannot assigned to a specific part of the product.



Structure

- Used to divide products in segments. Complex Customer Systems have more segments.
- Can have n Structure nodes or n Assembly nodes below.
- No material master information is stored here.



Assembly

- Used for structure information regarding assemblies.
- Can have n Assembly nodes or n Part nodes below.



Part

- Used for structure information regarding assemblies.
- Lowest Level of an assembly structure. Can not have nodes below.



Special Procurement

Used for long lead items.



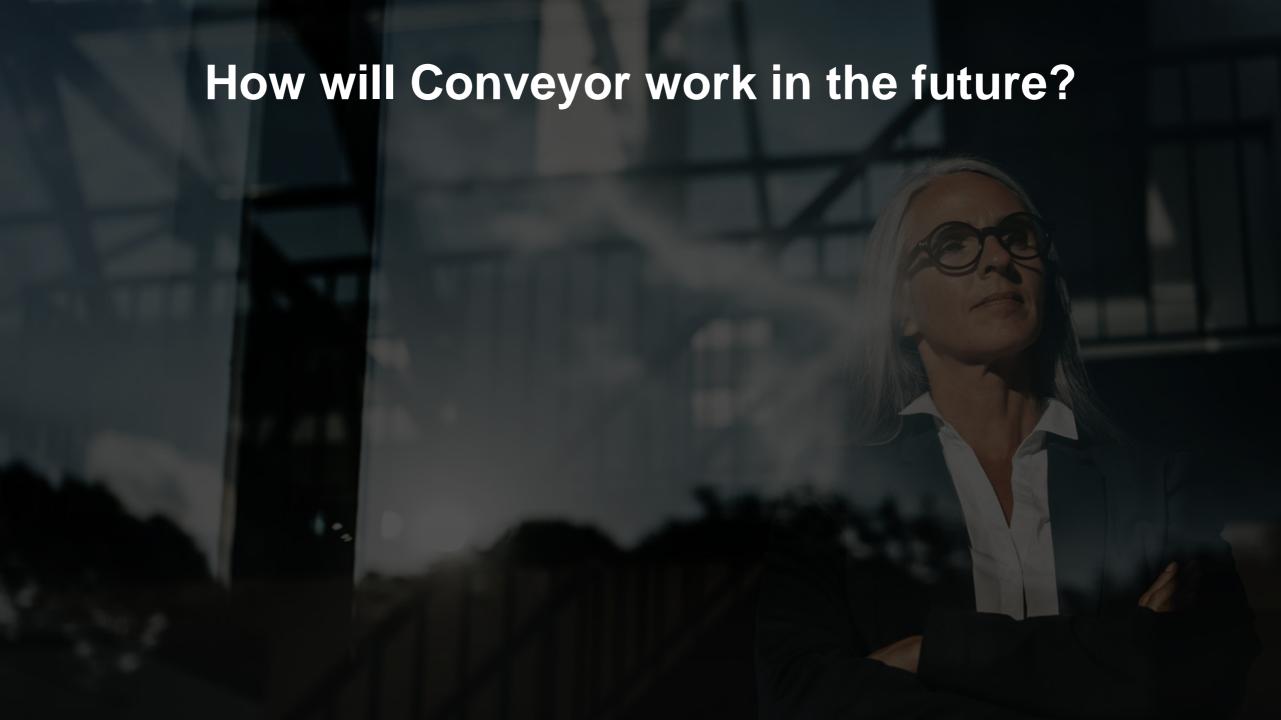
Material Variant (MPP = Material Planning Position)

- Used for storing material master information, even without a material master attached.
- Materials can be created from this variant.



Document Variant (DPP = Document Planning Position)

- Used for storing document information.
- Documents can be planned from this variant.



DESIGN-DRIVEN ENTERPRISE MTS/CTO

From Design to Sales

















PRODUCT MANAGEMENT

DESIGN

ENGINEER

SELL

URCHASE

PLAN

MANUFACTURE

PERATE

Product

- Variant Management
- Configuration Management
- Innovation Management
- Requirements
 Management
- Systems-Engineering
- Product Validation

Detailed Engineering

- Material Management
- Component Classification
- E-BOM
- 3D-Model

Internal/external Collaboration

- Design Collaboration
- Document
 Collaboration
- Systems Engineering

in Production

- Routing Management
- Integration of MTM
- Work Instruction Management
- Change Mgmt and Integration across and within different SAP BOM-types
- BOM Knowledge Management, Conversion and Configuration
- Configuration of Quality Management

in Service

 Configuration of services, documents, and service-BON

in Sales

 Enhancement of configuration with application knowledge

Modelling

- Life Cycle Management of Product model
- Management of Variant Configuration with Engineering Knowledge

Customer Order -Configuration

Document Collaboration Supplier Collaboration (only with Ariba) Visual Product Analysis

Short- to Midtermer Planning and Optimization

- Order network
- Production
 Optimization
 considering product
 configuration
 dependent routing
 capacity, demand, takt
 times, set up times,
 man power and tooling
 while also considering
 material availability.

Order Management

 Generation and Release of production orders

Assembly

 Configuration specific work Instruction

Inline Quality Managemen

Collection of configuration specific quality data during each production step.

Machine Integration

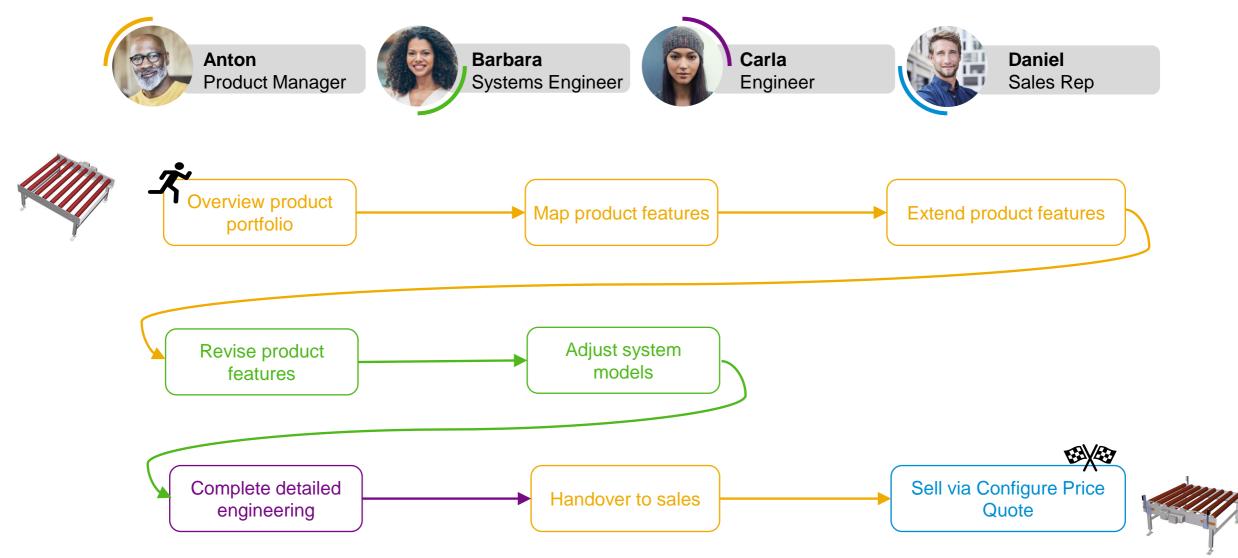
Configuration specific machine control

Intelligent Asset Management

Providing the digital twin to internal and external collaboration partners IOT services

Service-Management

- Ticketing
- Service-Order Mgmt.
- Service Order Execution
- Visual Sparepart
- Visual Service-Instructions
- Digital Twin Insight
- Digital Twin Monetarization



From Design to Sales: What do we want to achieve?



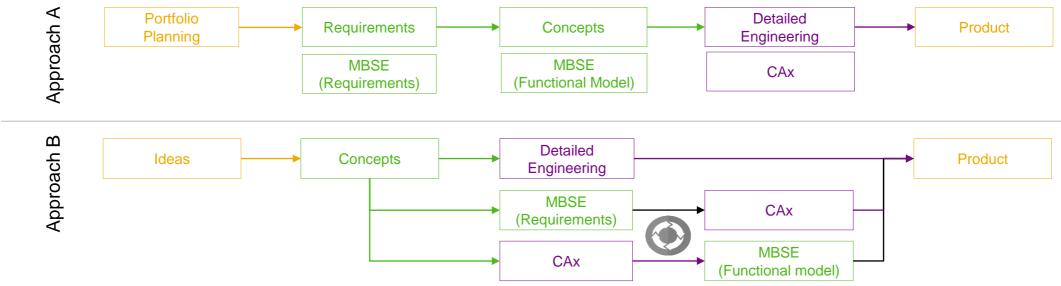
Anton needs a **portfolio structure** which describes the **complete** offering of products and services.

The portfolio structure has to cover the needs of sales, (planning, production, purchasing and service) without creating silos.



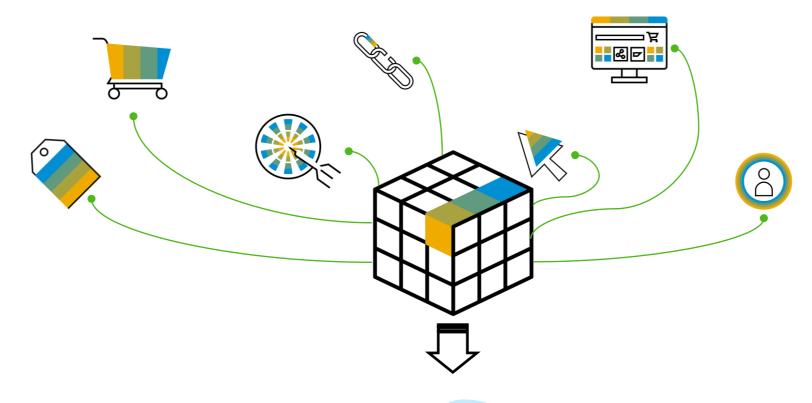


Barabara and Carla work with Anton to create the **product structure** with **embedded knowledge**. to **be able to automate sales (all) business processes**.



Build up product structure and then leverage in CPQ

Example for Model once configure anywhere



The product structure enhances the standard capabilities of the sales tool.

CPQ

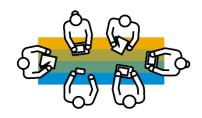
The sales tool is always synchronized with engineering.



Daniel can now support his customers without having to be a technical expert.

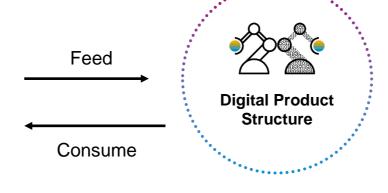
Model once Configure anywhere

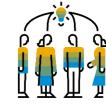
Our Vision: Digital Thread 4.0 automates all business processes



Product Teams...

...feed the product model with new iterations and versions, aligned with customer requirements and compatibility





Extended Enterprise...

...consumes product model/information to buy, make, sell/configure, simulate or maintain a product.

Webinar 1 – Create Portfolio & Product Structure

Webinar 1 - Consume in Sales

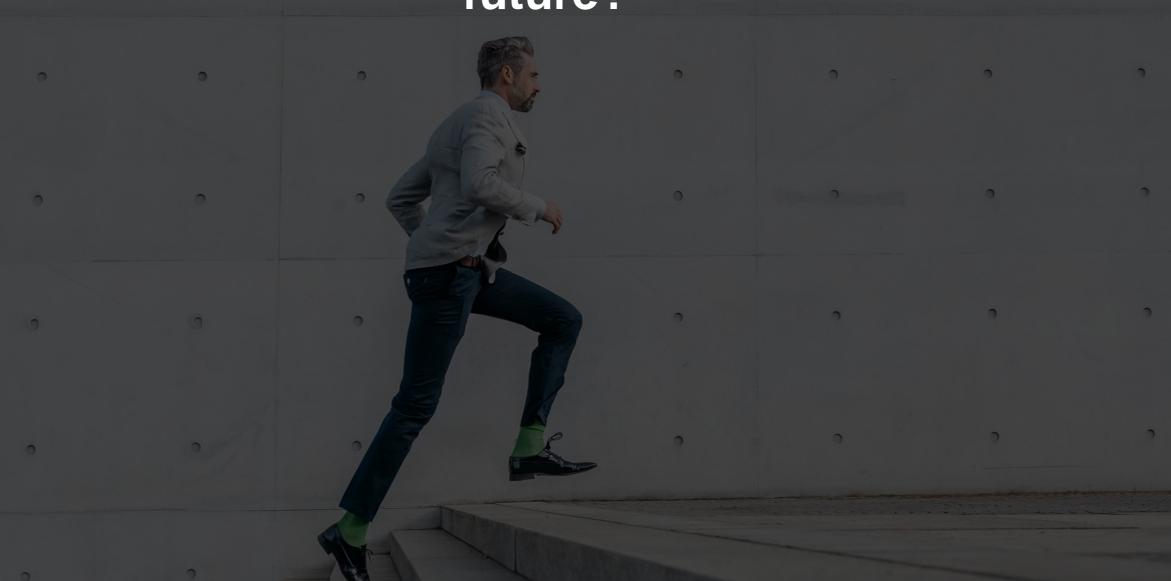
Consume

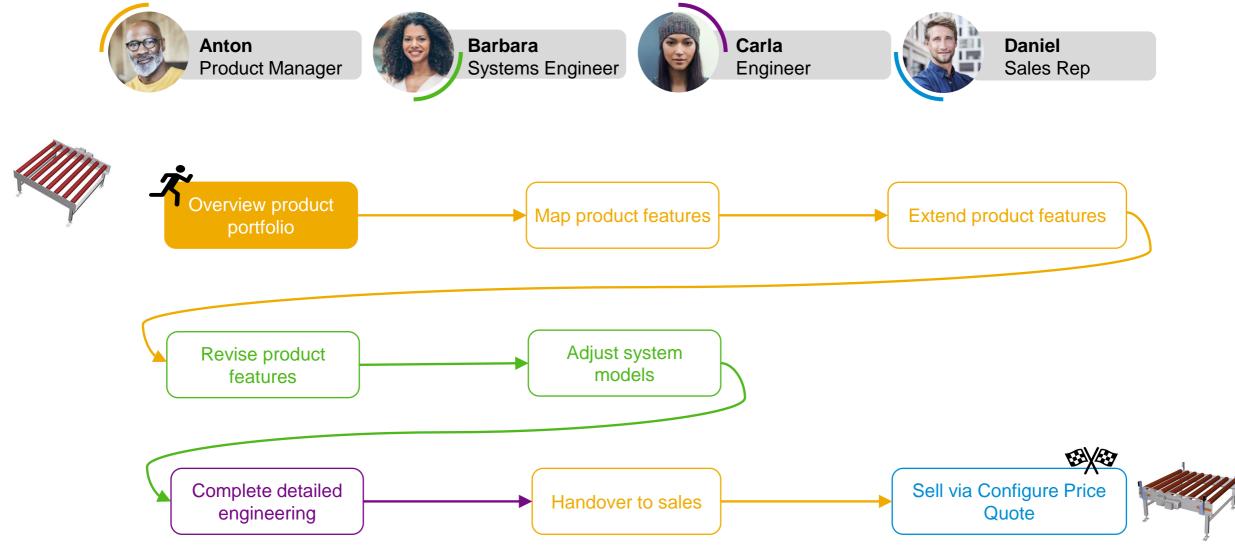
Feed

Webinar 2 – Consume in Manufacturing (01.04.2022)

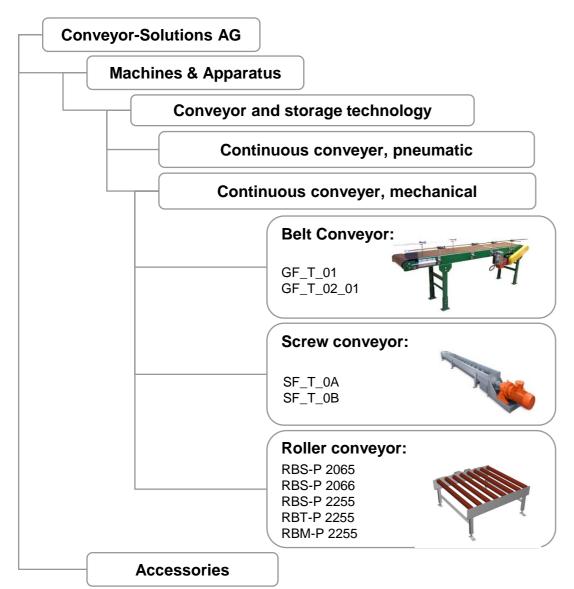
Webinar 3 - Consume in Service (08.04.2022)

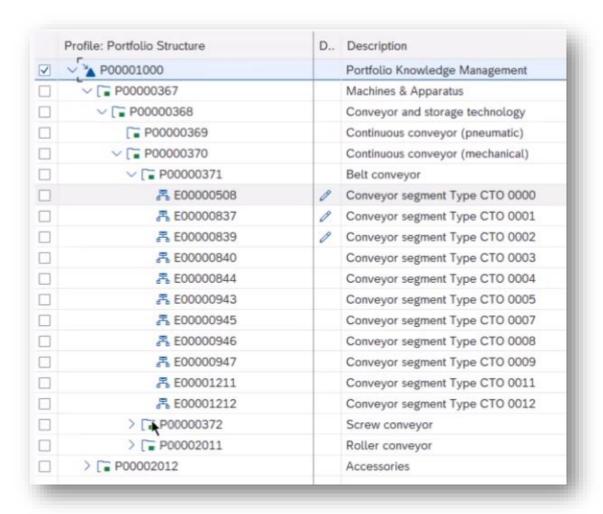
How will Conveyor work within SAP in the future?





Conveyor Solutions AG's Product Portfolio Structure



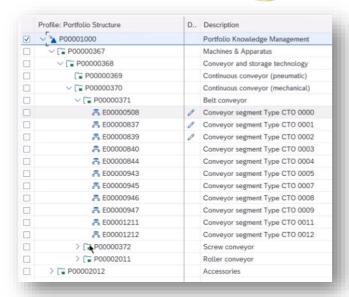


Modelling of product portfolio

Business Outcomes

"As a **Product Manager**, I want to structure my product portfolio such that **all enterprise business units are covered and all processes can be accelerated**."







Process Highlights



Complete and consistent across all products, components and services



Portfolio structure can be exported into online presence



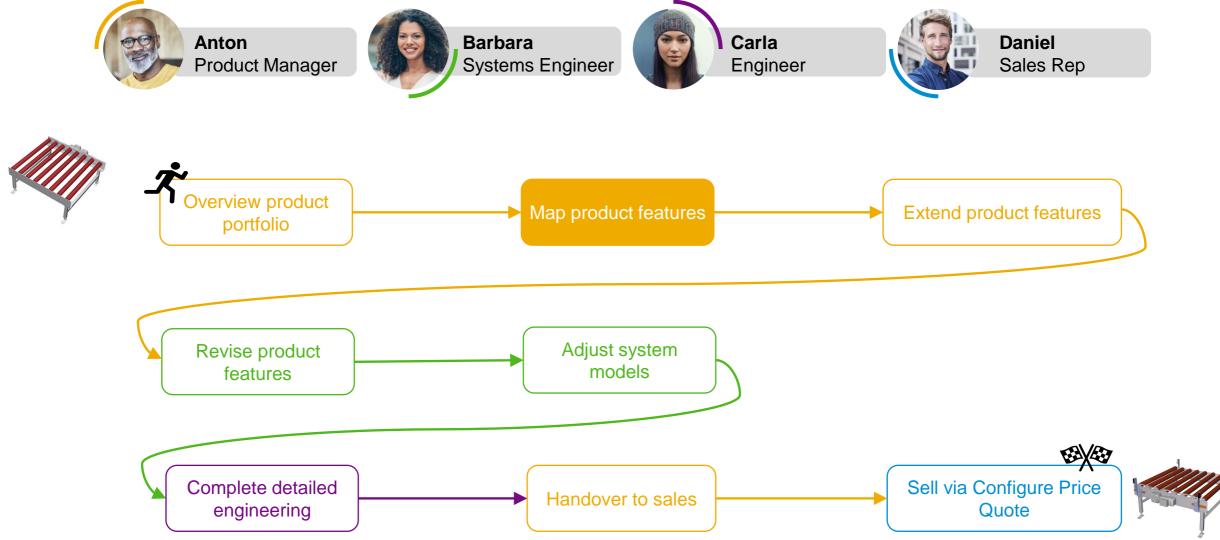
Portfolio structure supports the different needs of services, strategic and tactical planning, production, service, ...



Change Management is complete and consistent across all products, components and services.
Standardization is encouraged



New products can be launched quickly.



Overview of product variants and customizability

Catalog variant RF17 RF17_EV01



no

no

Photoelectric barrier

Motor power 240V or 380V

Height and width 1.00 to 2.00 m

Adaptable to customer requests

Catalog variant RF18 RF18_EV01



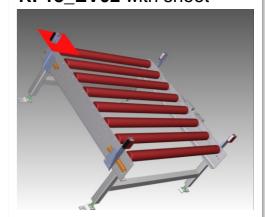
yes

240V or 380V

1.00 to 2.00 m

no

Customer Feature
RF18_EV02 with sheet



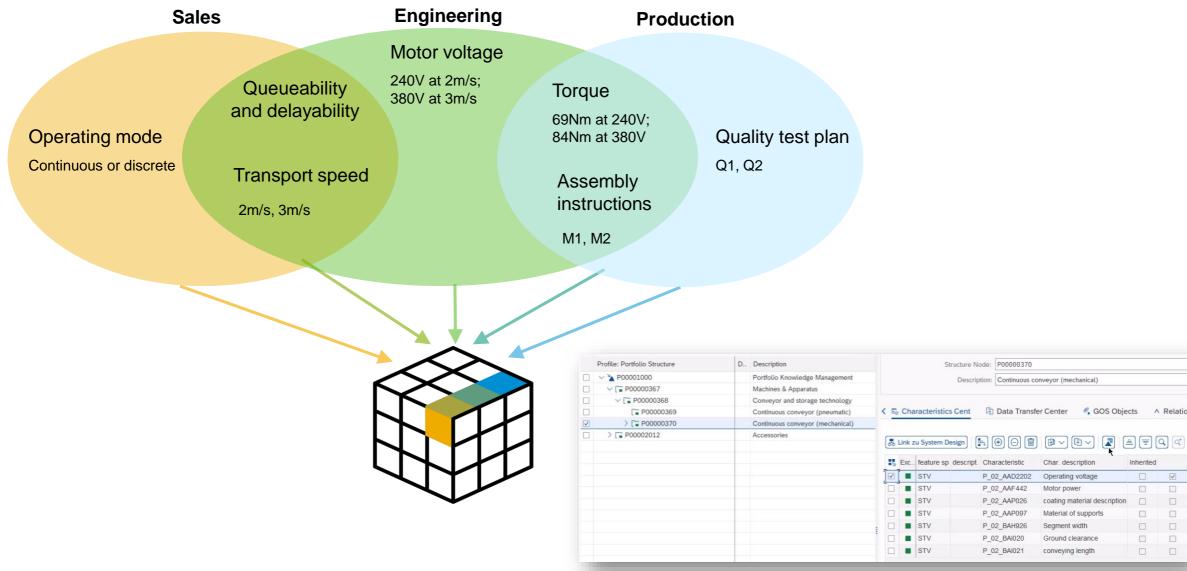
yes

240V or 380V

1.00 to 2.00 m

yes

Mapping of product features to portfolio

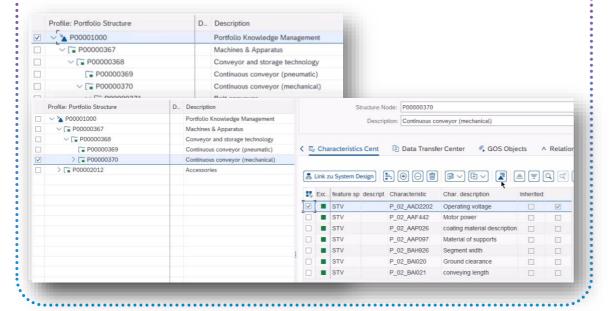


Mapping of product features

Business Outcomes

"As a **Product Manager**, I want to manage the product features such that I capture all business department needs and dependencies."





Process Highlights



Central management of product features



Reuse of existing product features



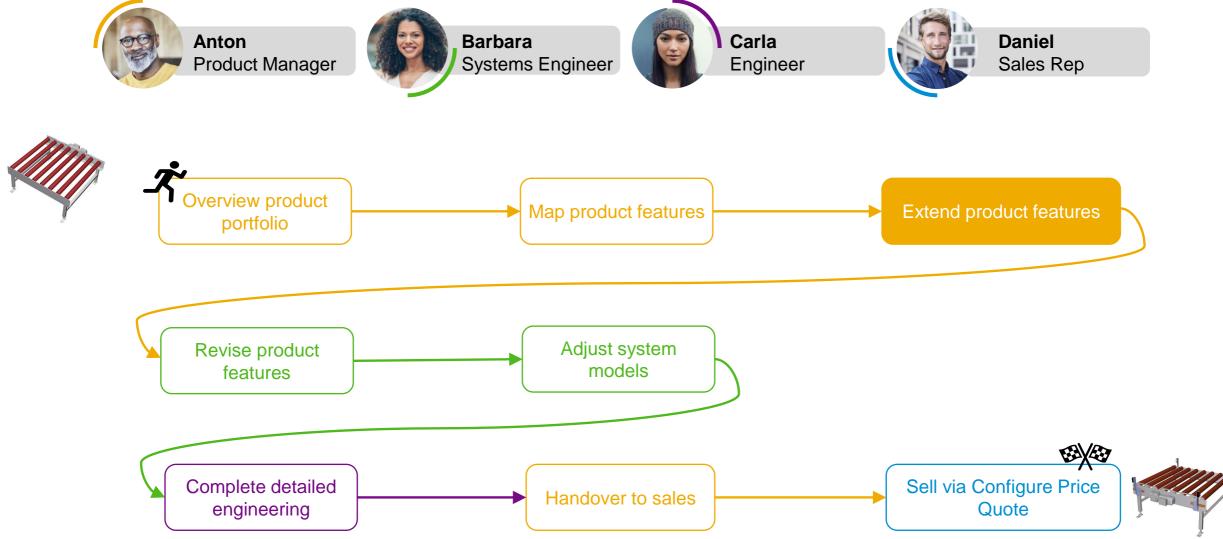
Turning product features into (technical) characteristics



Structure product features efficiently.



Speed up the change management process.

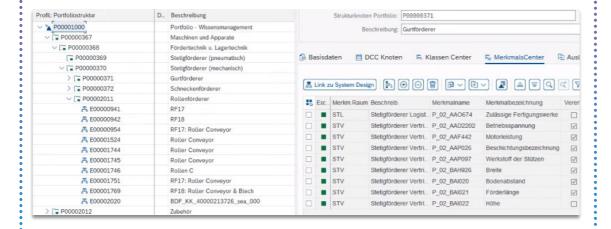


Extend product features & classification

Business Outcomes

"As a Product Manager, I use extend product features to add engineering knowledge to model dependencies beyond classical BOM configuration."





Process Highlights

You can link product features to application knowledge. This allows later CPQ to help sales configure the product application orientated.

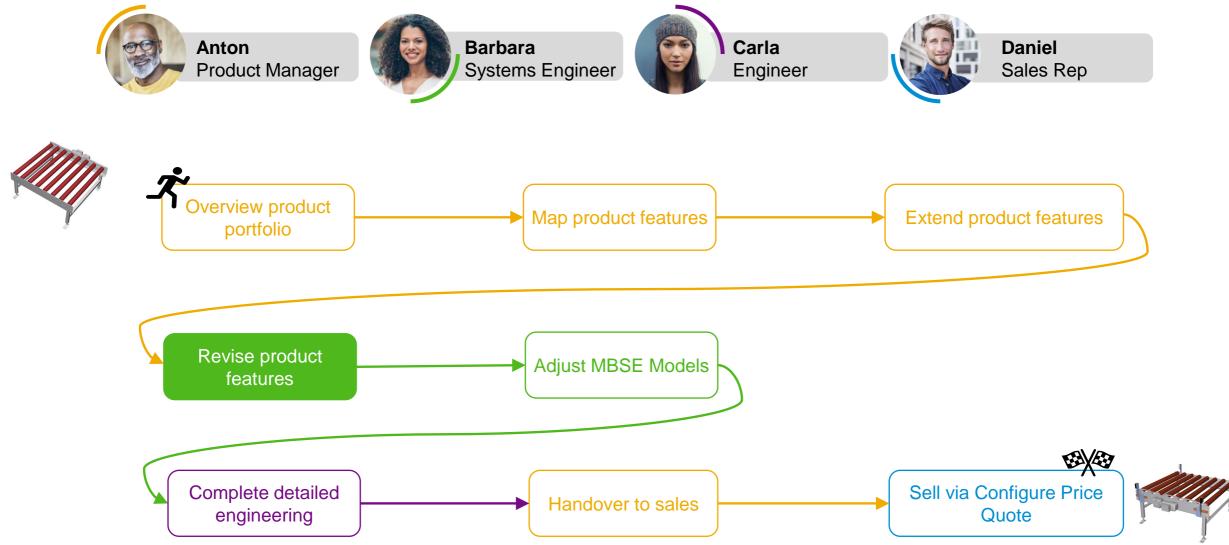


Sales can ask the customer how many luggage pieces do you need to transport per minute? What is the average weight of the luggage? Will you transport non-standard sized luggage? How fast should the luggage arrive at the pick up area? What screening steps do you need to take?



You can link product features to manufacturing, service or any other form of knowlege to link the product features to quality planning, routing, packaging, service planning,

This allows for seamless integration with other departments, a high level of automation, seamless change process and optimized manufacturing and service processes.

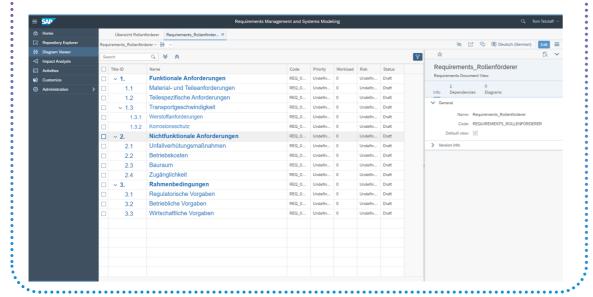


Revise product features

Business Outcomes

"As a **Systems Engineer**, I want to revise product features so that the requirement structure is up to date."





Process Highlights



Manage requirements in a central repository and share requirements with suppliers & business partners



Assess the **quality of requirements** based on defined criteria



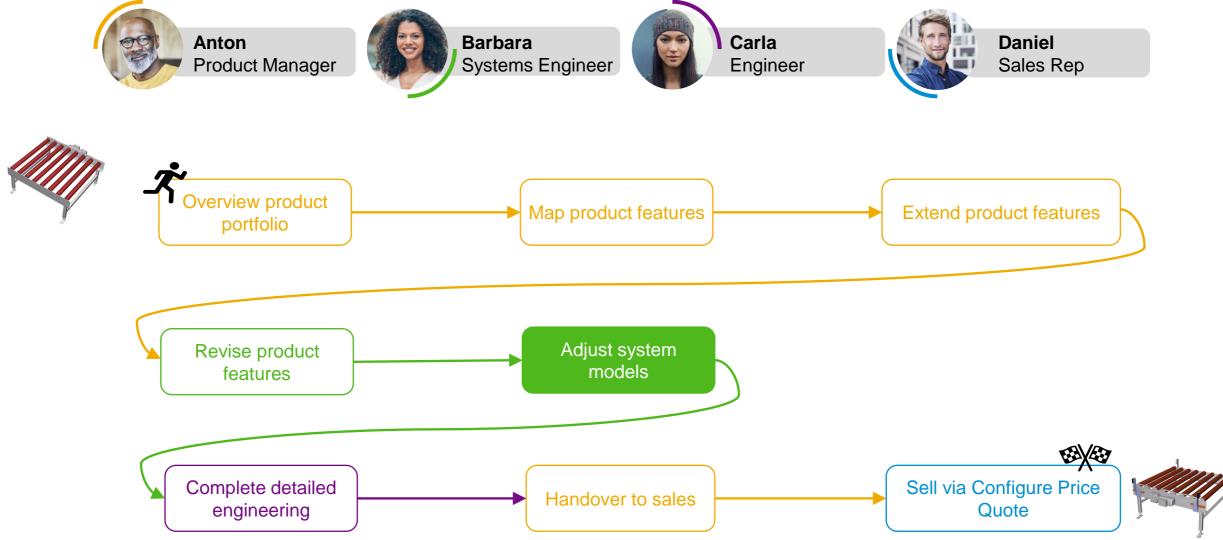
Launch an impact and lineage analysis on requirements, model objects and associated objects



Edit one requirement model concurrently across the extended enterprise



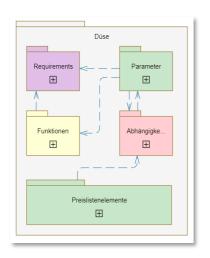
Import and export requirements based on standard formats, like Requirements Interchange Format

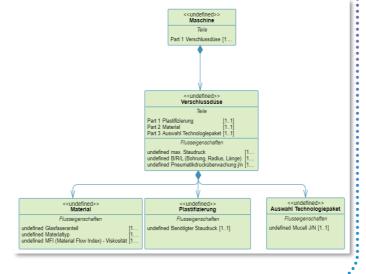


Adjust system models

Business Outcomes

"As a Systems Engineer, I want to adjust the MBSE artifacts so that I have systematically captured my product."





Barbara

Systems Engineer

Process Highlights



Create and manage system architectures and behavior based on the standard language SysML



Define and visualize object links on the objects and in a dependency matrix



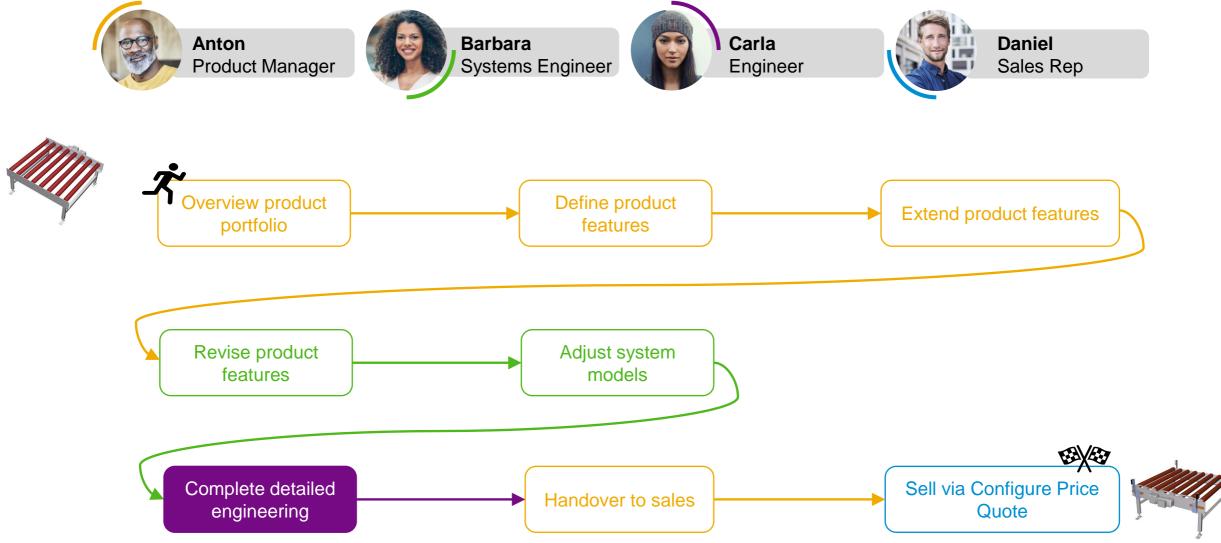
Analyze change impacts on various business objects to boost product quality and lower change costs by identifying potential product flaws early



Collaborate with system engineering partners across the extended enterprise



Define product features and variants in an early development phase to make sure your product complies with the original customer demand

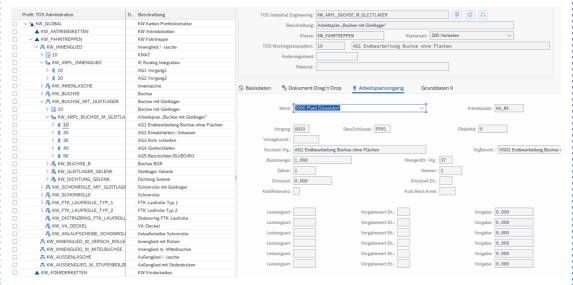


Complete product data

Business Outcomes

"As an **Engineer**, I want to complete the product data so that downstream processes can be executed."





Process Highlights & Benefits



Unify product development disciplines including mechanical, electronic/electrical & software structures into one product definition



Manage detailed mechatronic engineering data on a single platform



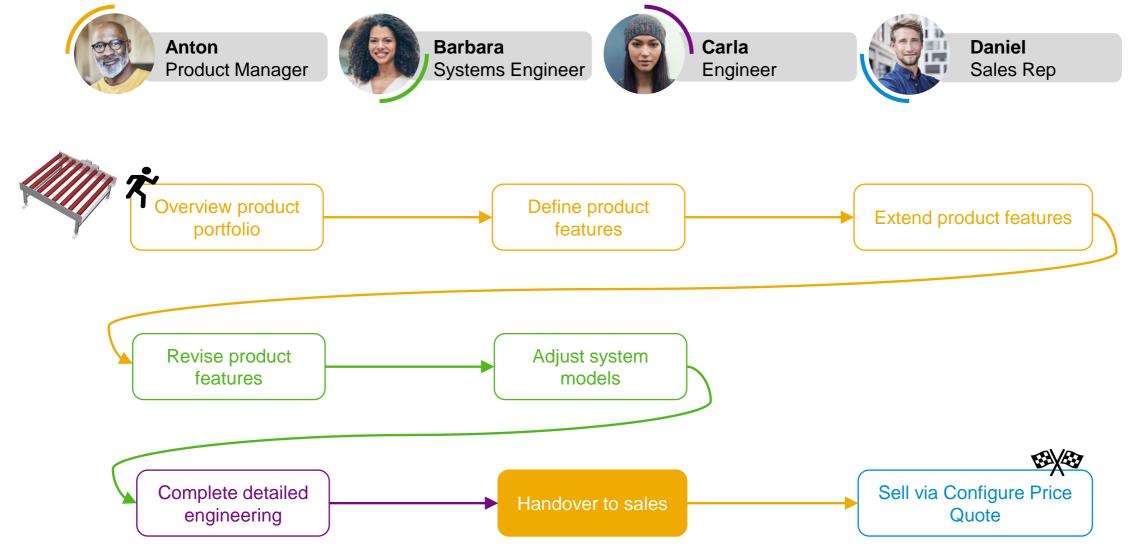
Synchronize product data, structures, access and documents across the extended enterprise



Provide digital twin foundation early in design phase

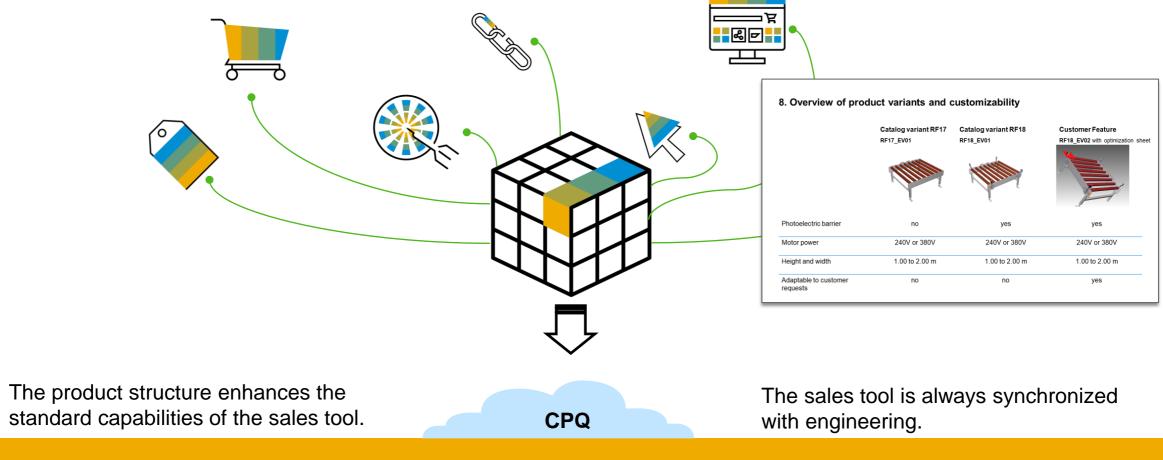


Better decision-making due to accurate definition of the product that combines design and business information



Handover to Sales

Example for Model once configure anywhere



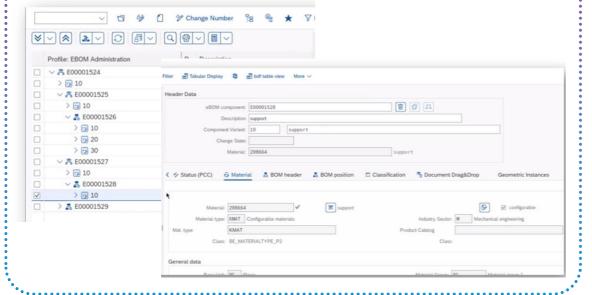


Daniel can now support his customers without having to be a technical expert.

8. Handover to Sales

"As a Product Manager, I want to provide data to sales so that the product can be sold."





Process Highlights & Benefits



Improved configuration capabilities: The configuration data of the different knowledge types are finally maintained and checked.



Model once configure anywhere



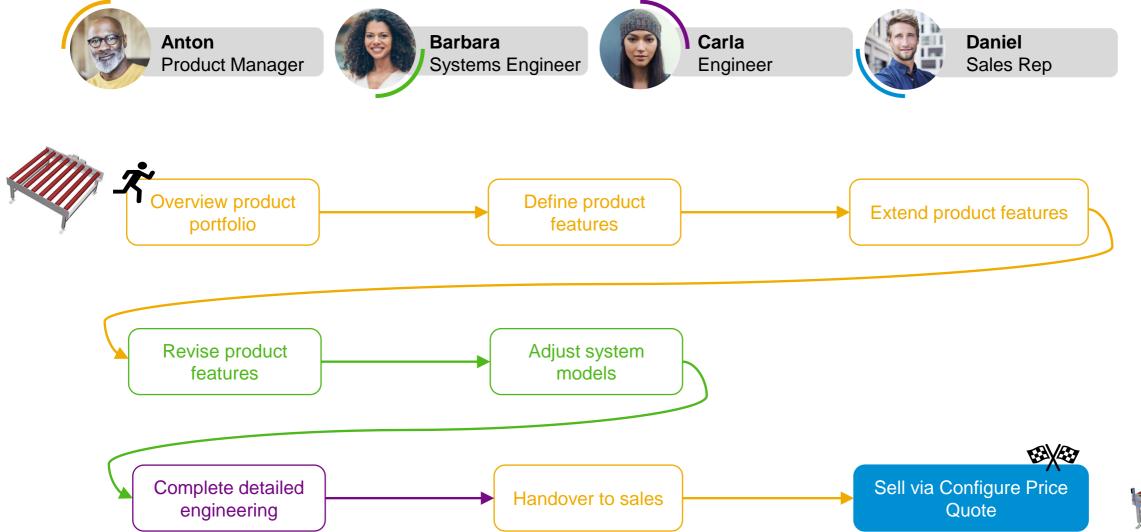
Support of different variant characteristics (open, closed)



Automated generation of ERP data like material masters and configuration profiles



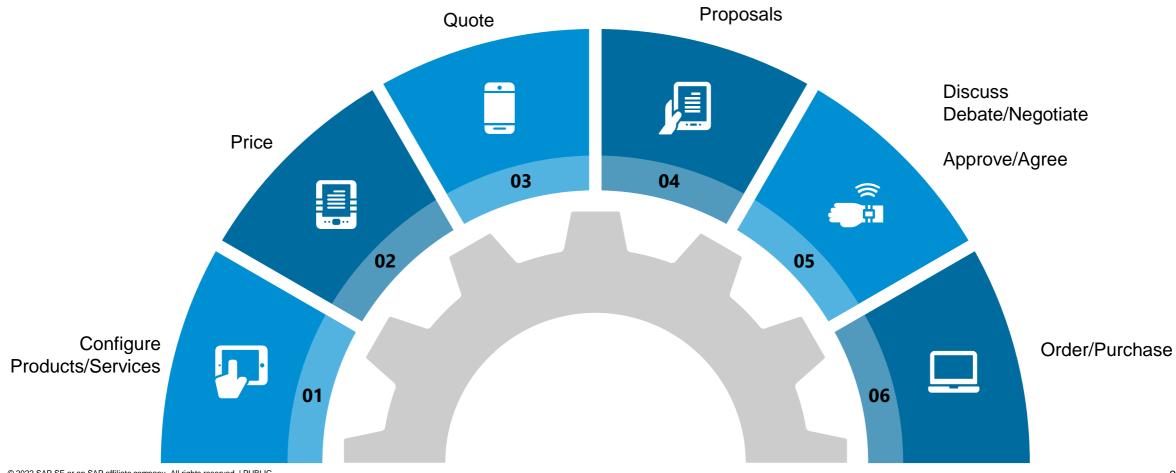
Simulate and visualize configuration



Why CPQ?

Configure Price Quote (CPQ) is a powerful sales tool that enables companies to produce accurate and highly configured sales quotes for customers. It allows sales to sell more and faster as it speeds up and automates the sales cycle.

Generate

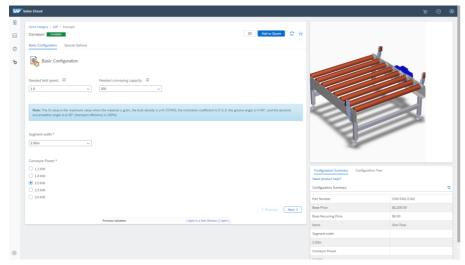


Sell via Configure Price Quote

Business Outcomes

"As a Sales Rep, I want to be supported in generating a quote, fast and error free."





Process Highlights



Reduced quoting time



Error free quotes



Automated document generation

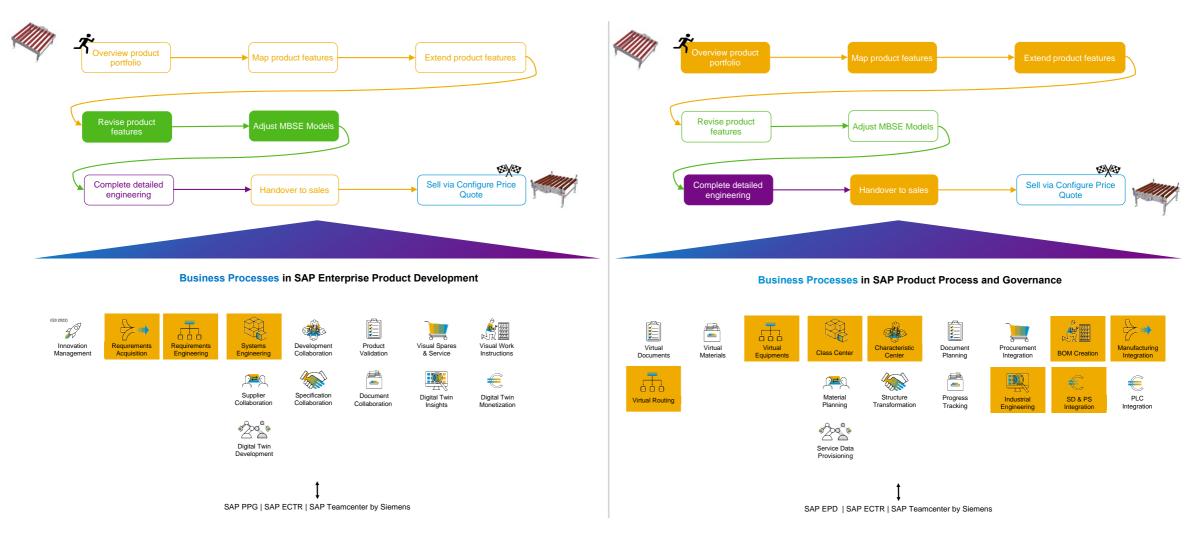


Al supported



Integrated into Front- and Backend Systems

Running Business Processes with SAP



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.
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- ✓ Improved leverage of their existing investment in the SAP Core. Reduce complexity of applications outside of the core.



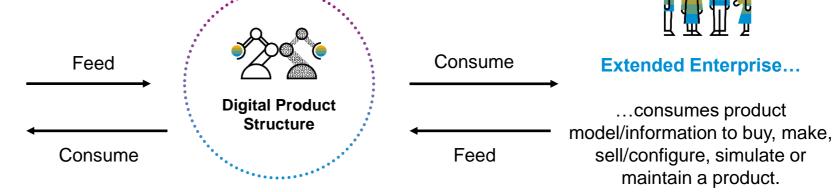
Outlook

Our Vision: Digital Thread 4.0 automates all business processes



Product Teams...

...feed the product model with new iterations and versions, aligned with customer requirements and compatibility



Webinar 1 – Consume in Sales

Webinar 2 – Consume in Manufacturing (01.04.2022)

Extended Enterprise...

...consumes product

sell/configure, simulate or

maintain a product.

Webinar 3 - Consume in Service (08.04.2022)

Webinar 1 - Create Portfolio & Product Structure



Thank you & see you soon.

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