# The Design Driven Enterprise

## SAP Product and Process Governance
for data and process automation

## Implement ERP-near-Lifecycle Management

**Bring out your best.**

# Why is the topic of Digitalization in Discrete Manufacturing particularly important today?

# Germany in Crisis



## OECD-Prognose

### Deutschland wird von anderen Industrienationen abgehängt

Deutschland bleibt eine der am schwächsten wachsenden Volkswirtschaften unter den Industrieländern. Im kommenden Jahr dürfte sogar Japans Wirtschaftswachstum das deutsche überholen.
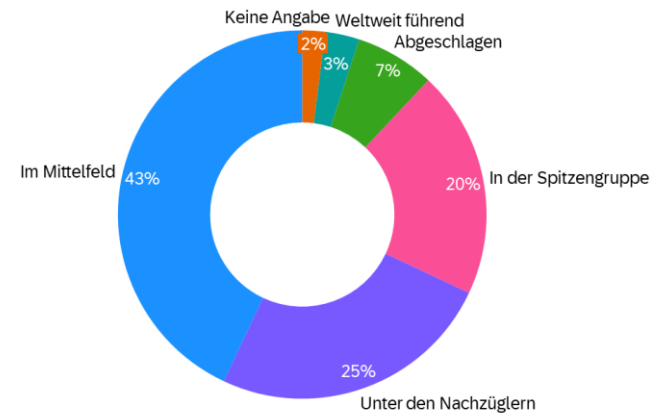
25.09.2024 - 12:59 Uhr aktualisiert

Das deutsche BIP legt laut OECD-Prognosen nur 0,1 Prozent zu. Foto: Jens Büttner/dpa-Zentralbild/dpa

# Digitalization in Germany



**Wo sehen Sie die deutsche Wirtschaft im weltweiten Vergleich bei der Digitalisierung?**

- Keine Angabe 2%
- Weltweit führend 3%
- Abgeschlagen 7%
- In der Spitzengruppe 20%
- Unter den Nachzüglern 25%
- Im Mittelfeld 43%

Quelle: Bitkom Research 2023

# Germany in Crisis

## Digitalization in Germany

Complexity in development, products and solutions

New technologies
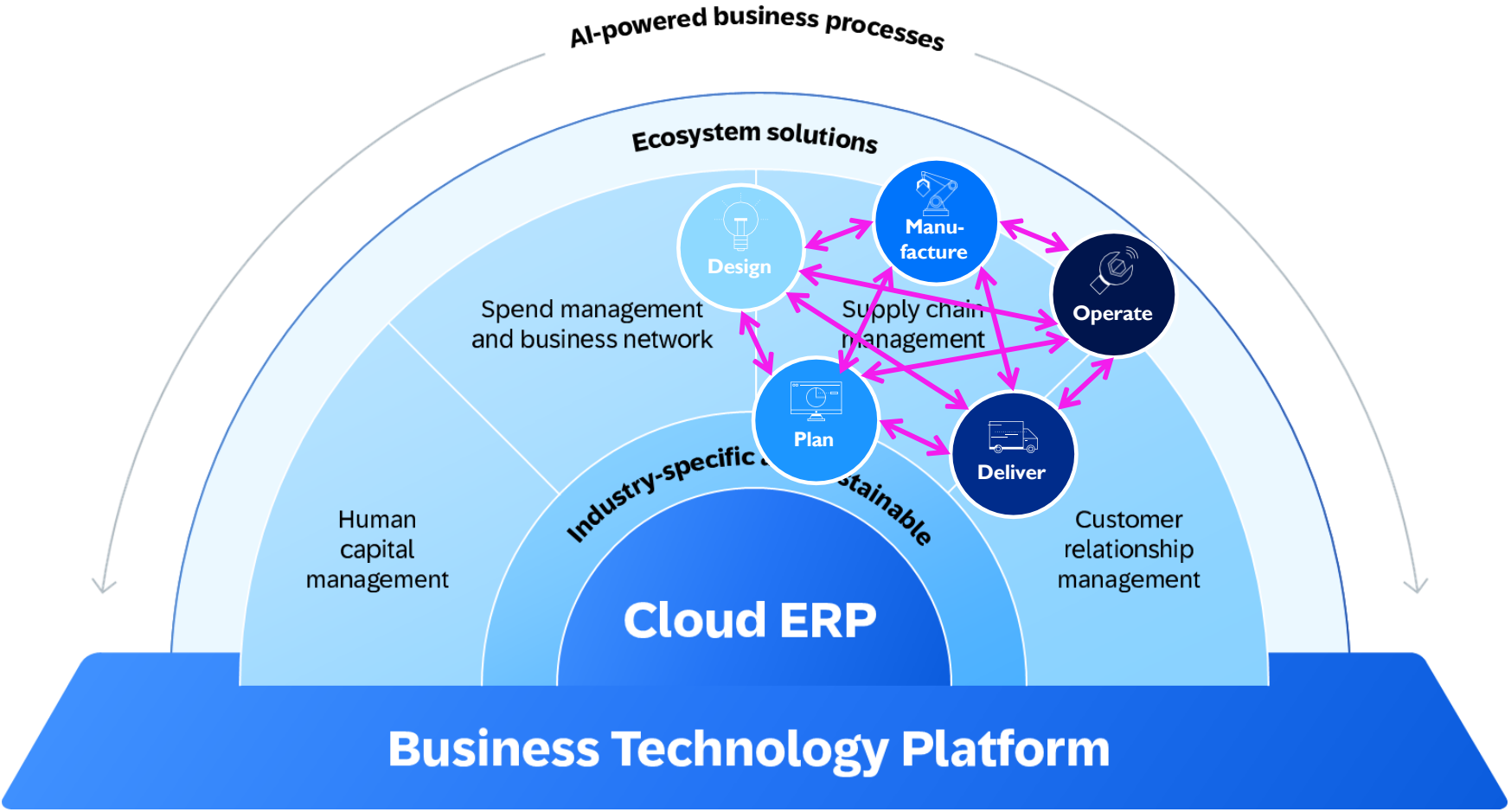
Changes in supply chains and production

# SAP PLM solutions in the SAP Digital Supply Chain Portfolio
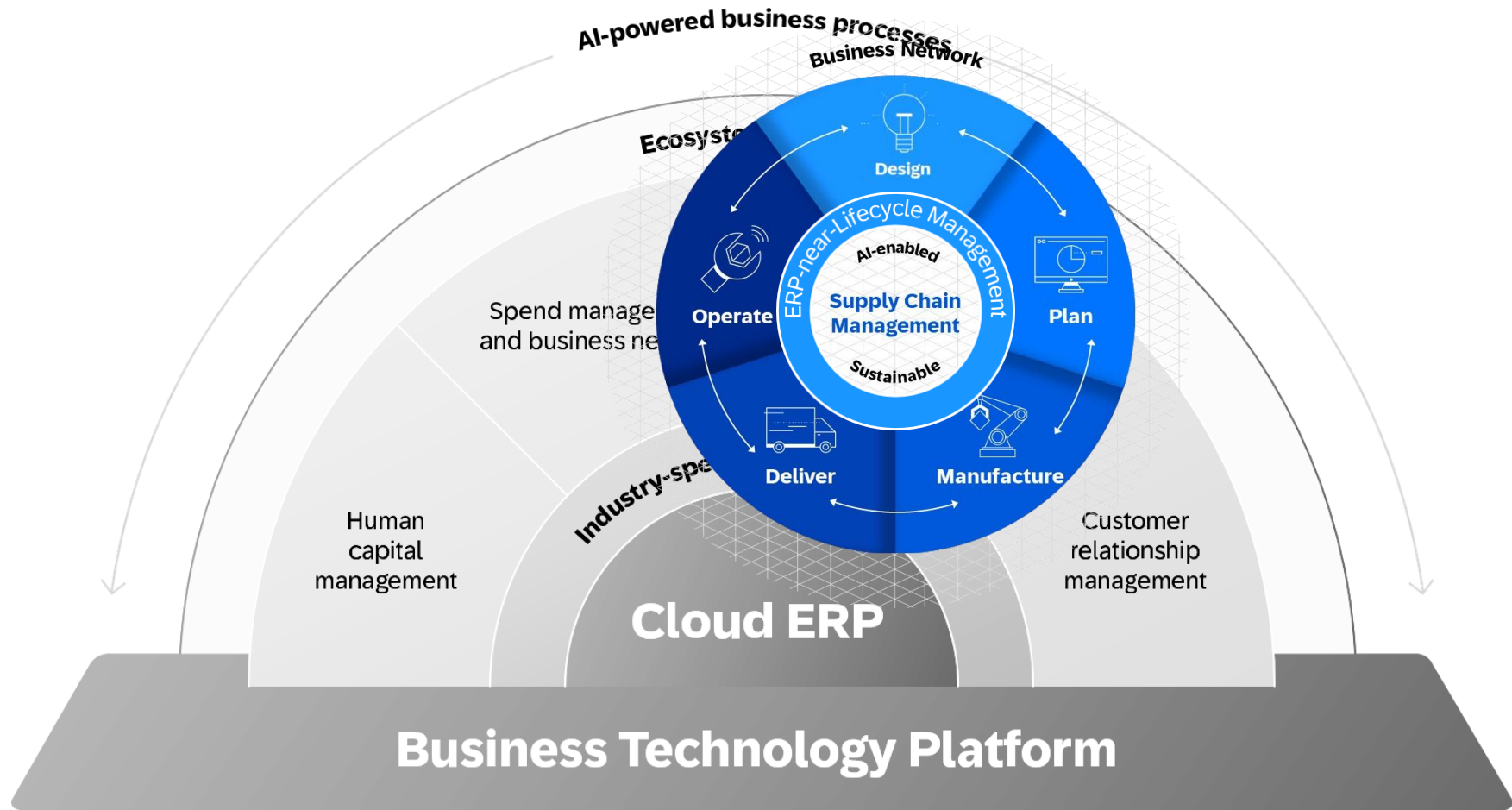
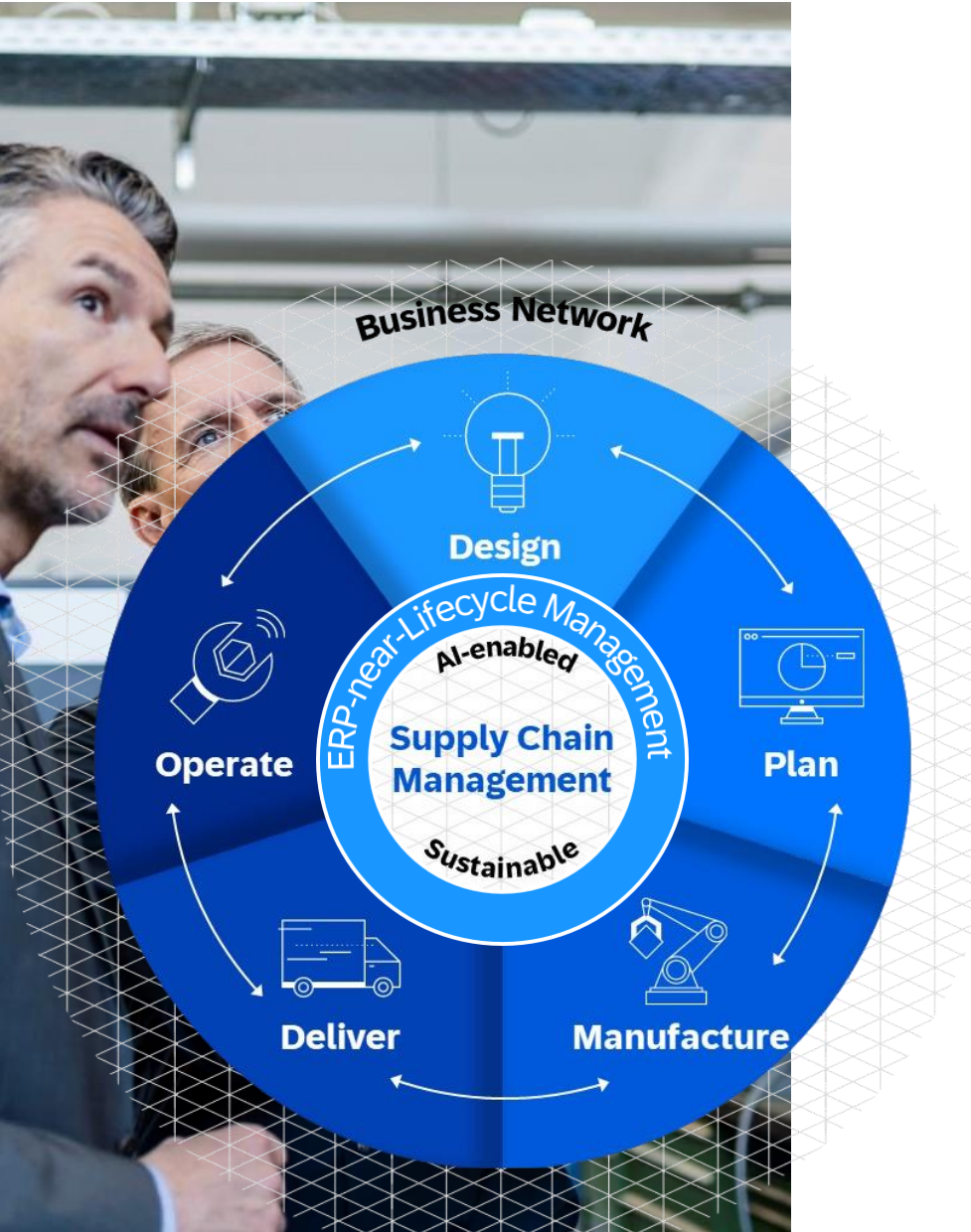## Part of something bigger

# SAP Portfolio and Digital Supply Chain Solutions

# Digital Supply Chain Solutions and ERP-near-LM

# Transform your supply chain to be resilient and sustainable with ERP-near-Lifecycle Management

## Connect every process
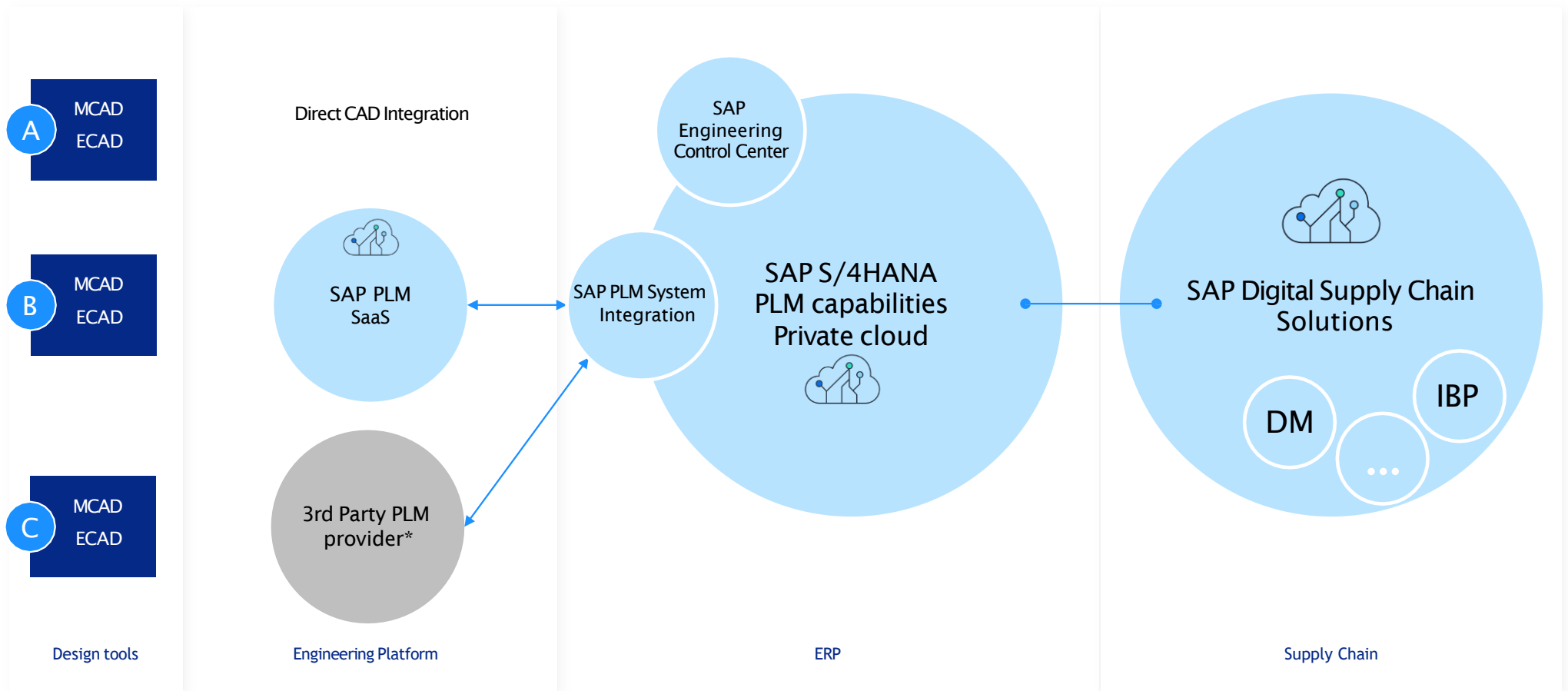within your supply chain and across your business.

## Contextualize every decision
linking real-time operational and business data together throughout the work process.
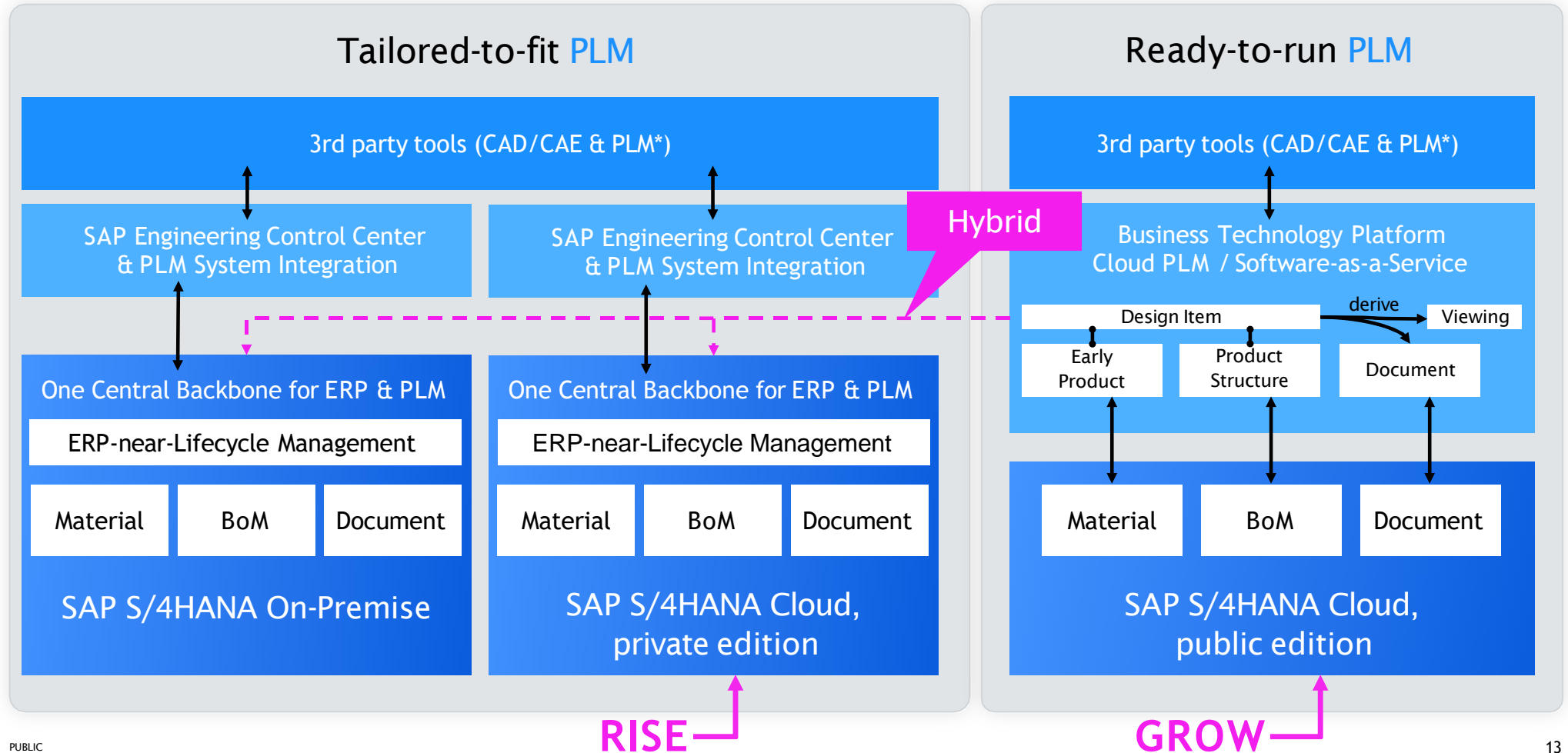
## Collaborate with your ecosystem
creating digital connections with all your partners.

11

# SAP PLM is not a single Solution, it's a Portfolio



Design tools

| A | MCAD ECAD |
| B | MCAD ECAD |
| C | MCAD ECAD |

Engineering Platform

Direct CAD Integration

SAP PLM SaaS

3rd Party PLM provider*

SAP PLM System Integration

ERP

SAP Engineering Control Center

SAP S/4HANA PLM capabilities Private cloud

Supply Chain

SAP Digital Supply Chain Solutions

DM

IBP

...

# Overview of the SAP PLM Portfolio
## Solution Architecture for the Discrete Industry

## Tailored-to-fit PLM

3rd party tools (CAD/CAE & PLM*)

| SAP Engineering Control Center & PLM System Integration | SAP Engineering Control Center & PLM System Integration |
|---|---|

**One Central Backbone for ERP & PLM**

ERP-near-Lifecycle Management

| Material | BoM | Document |
|---|---|---|

**SAP S/4HANA On-Premise**

**One Central Backbone for ERP & PLM**

ERP-near-Lifecycle Management

| Material | BoM | Document |
|---|---|---|

**SAP S/4HANA Cloud, private edition**

## Ready-to-run PLM

3rd party tools (CAD/CAE & PLM*)

**Hybrid**

**Business Technology Platform Cloud PLM / Software-as-a-Service**

| Design Item | derive | Viewing |
|---|---|---|

| Early Product | Product Structure | Document |
|---|---|---|

| Material | BoM | Document |
|---|---|---|

**SAP S/4HANA Cloud, public edition**

**RISE**

**GROW**

* Teamcenter, Windchill, 3DExperience, Vault,...

All integrated with SAP

This is the
Unique Value
only SAP can offer

14

# ERP-near-Lifecycle Management

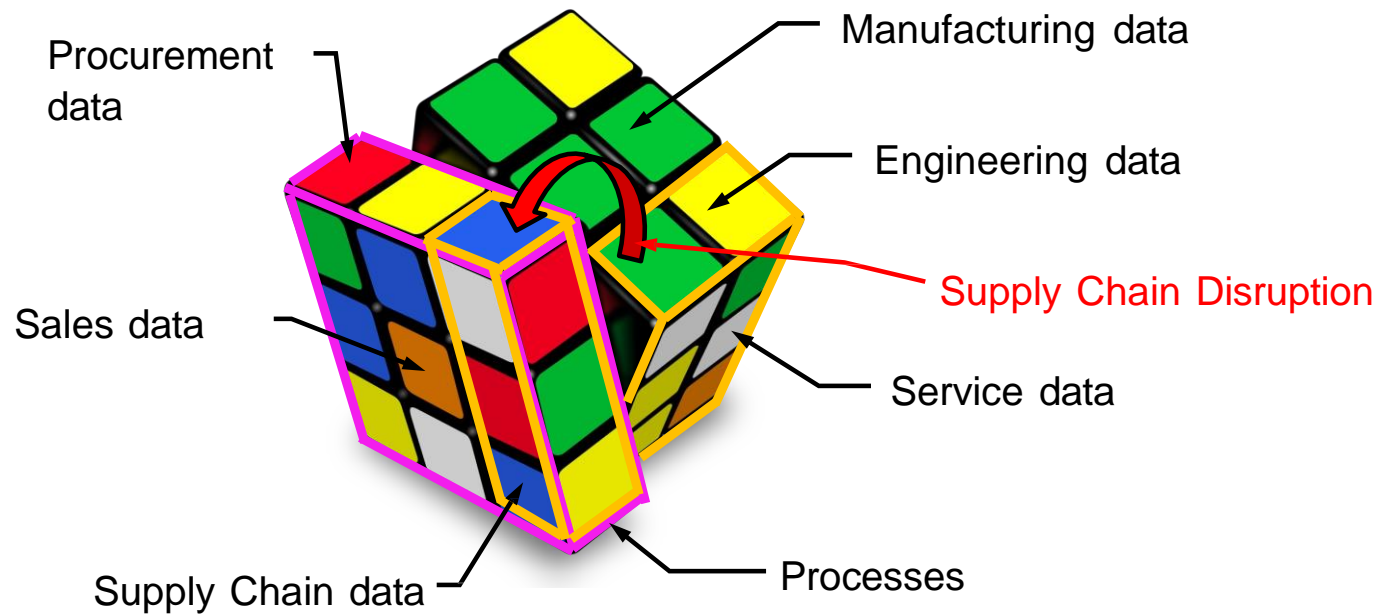Have you ever asked for or heard this buzzwords?

SAP Bring out your best.

# The Magic Cube?

# The Magic Cube – An image for todays business processes and data

**Scattered IT-systems, data and processes today**



Procurement data

Manufacturing data

Engineering data

Supply Chain Disruption

Sales data

Service data

Supply Chain data

Processes

# The Magic Cube – Is this unrealistic?

**Ideal IT-systems, processes and Data**
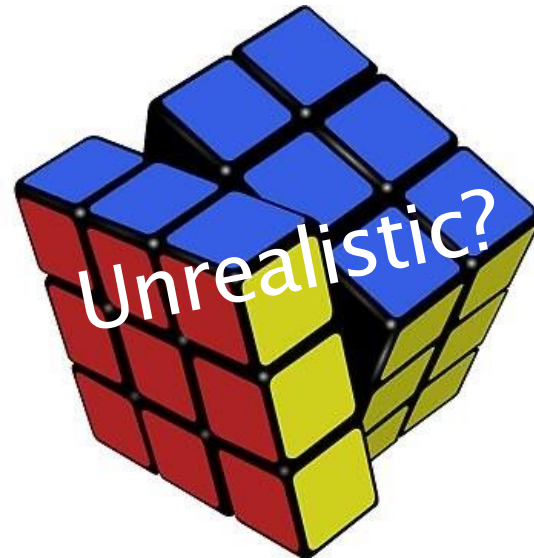
# The Challenges

1 – Different business models

2 – New market trend in industrial manufacturing

3 – Different order processes

# The Challenges

1 –  Different business models

2 –  New market trend in industrial manufacturing

3 –  Different order processes

**SAP** Bring out your best.

# Introduction – from products to solutions – different end-to-end order processes (simplified) – all looking for the perfect order
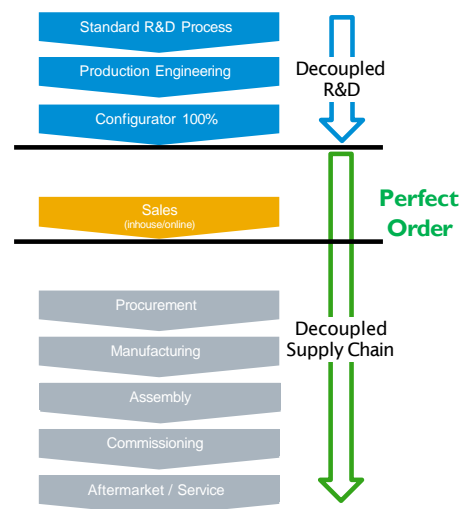
**Stock / Order products**
(Select-to-Order - STO)

- Products with low margin per unit
- Need for high automation in the handling and manufacturing process
- Market demand for fast response and delivery times
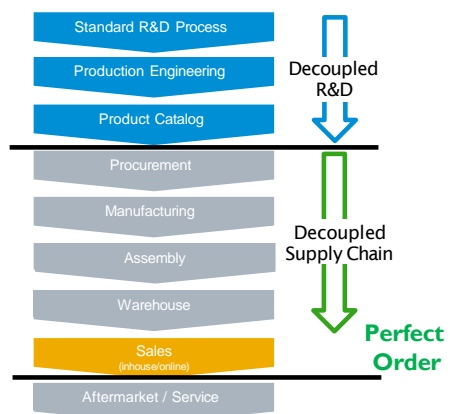
**Highly variable products**
(Configure-to-Order - CTO)

- High variance in products with low margin per unit
- Need for high automation in the handling and manufacturing process
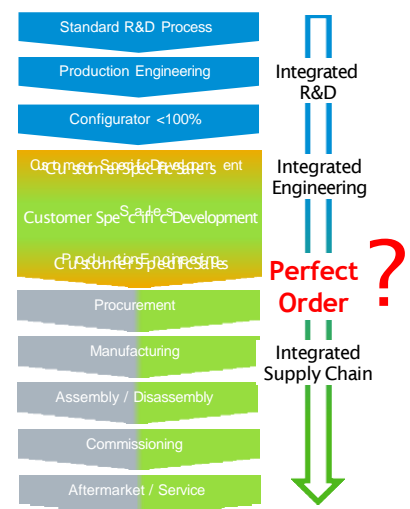- Market demand for fast response and delivery times

**Customer Products**
(Configure-to-Order Plus - CTO+)

- Modularization of products, platform build, and product templates
- Re-Use of products from MTS/CTO process
- Project management for days/weeks for customer-specific parts / products
- Tracking for timeline and costs
- Collaboration internal / external

**Customer Solutions**
(Engineer-to-Order - ETO)

- BID phase first
- Project management for several weeks/months/years in different project phases
- Re-Use of products from MTS/CTO/CTO+
- Interaction of internal departments, customers, and suppliers with many handovers
- Tracking for timeline and costs
- Collaboration internal / external
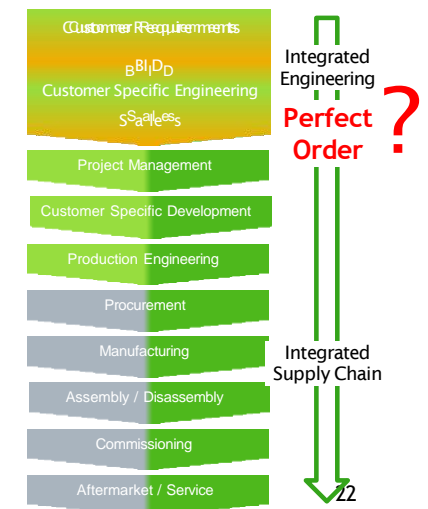
# But what is the Business Challenge in complex Industrial Manufacturing and Engineering, Procurement & Construction?
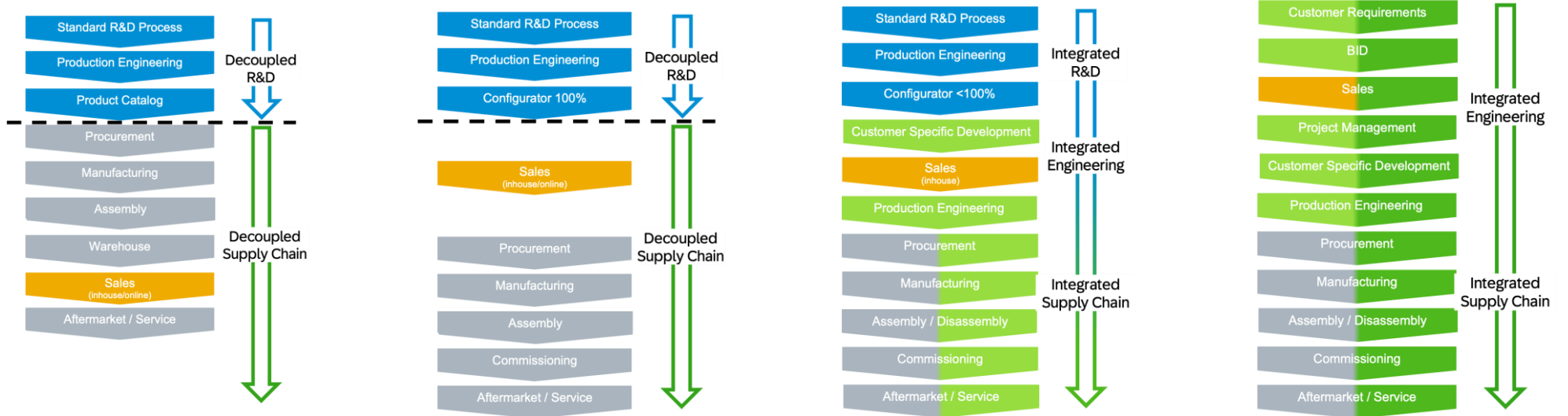
# The Challenges

1 – Different business models

2 – New market trend in industrial manufacturing

3 – Different order processes

# Industrial manufacturing market trend (simplified)

## Highly variable products
### (Configure-to-Order - CTO)

**Moving to CTO+**

- High variance in products with low margin per unit
- Need for high automation in the handling and manufacturing process
- Market demand for fast response and delivery times

**Task:**
**Enable R&D and Engineering to bring a customer order development seamlessly in a resilient end-to-end CTO+ Supply Chain**

## Customer Products
### (Configure-to-Order Plus - CTO+)

- Modularization of products, platform build, and product templates
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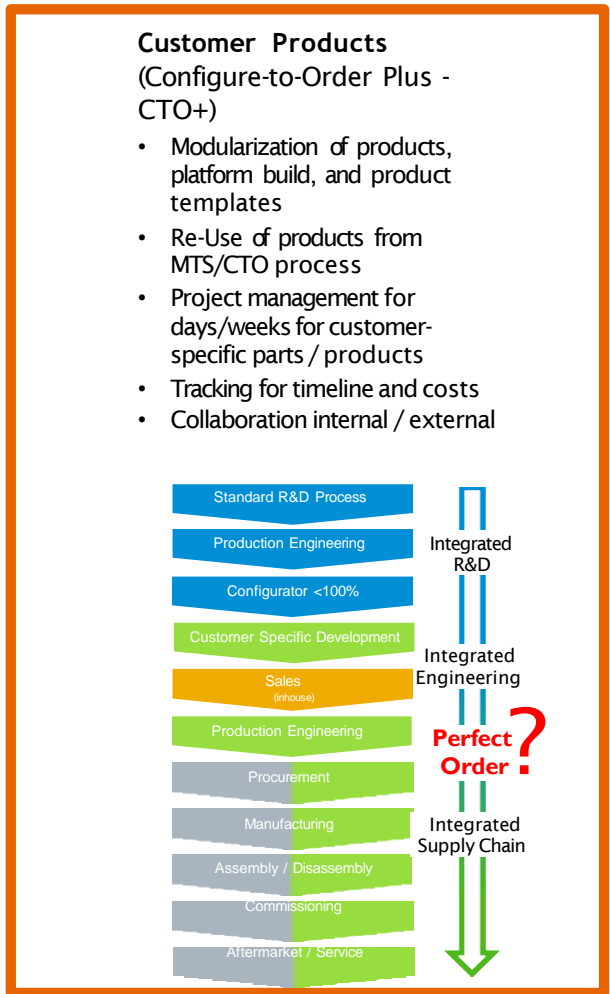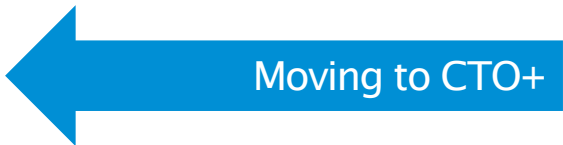- Collaboration internal / external

| Process | |
|---|---|
| Standard R&D Process | Integrated R&D |
| Production Engineering | |
| Configurator <100% | |
| Customer Specific Development | Integrated Engineering |
| Sales (inhouse) | |
| Production Engineering | Perfect Order ? |
| Procurement | |
| Manufacturing | Integrated Supply Chain |
| Assembly / Disassembly | |
| Commissioning | |
| Aftermarket / Service | |

## Customer Solutions
### (Engineer-to-Order - ETO)

**Moving to CTO+**

- BID phase first
- Project management for several weeks/months/years in different project phases
- Re-Use of products from MTS/CTO/CTO+
- Interaction of internal departments, customers, and suppliers with many handovers
- Tracking for timeline and costs
- Collaboration internal / external

**Task:**
**Develop Products/Platforms/Product Catalogs as Hybrid Modular Kits (with Variant Configuration) for a resilient end-to-end CTO+ Supply Chain**
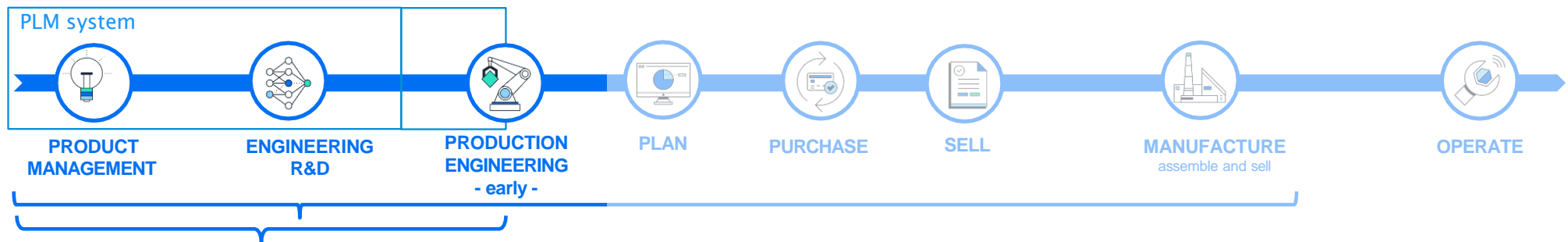
# The Challenges

1 – Different business models

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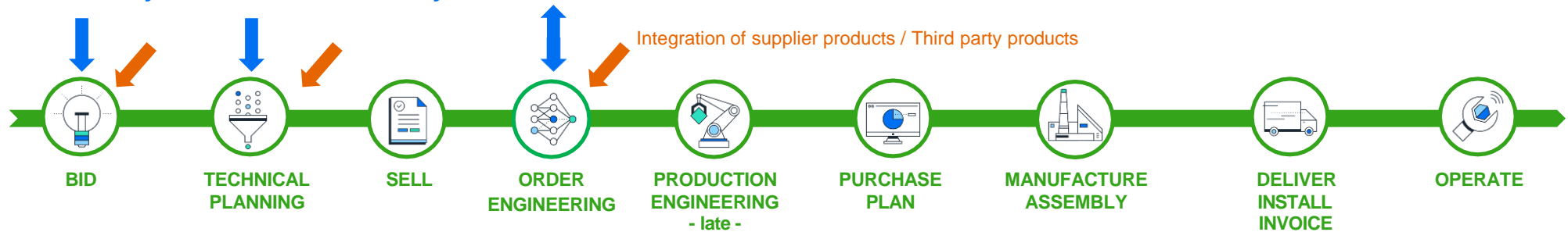
SAP Bring out your best.

# What is typical for CTO and CTO+/ETO order processes?
# What is different? Products and Solutions have different Lifecycles

## STO/CTO – PRODUCTS – HYBRID MODULAR KITS – IN PARTS INDUSTRIALIZED



PLM system

| PRODUCT MANAGEMENT | ENGINEERING R&D | PRODUCTION ENGINEERING - early - | PLAN | PURCHASE | SELL | MANUFACTURE assemble and sell | OPERATE |

**Re-Use of configuratable, industrialized products and/or hybrid modular kits and systems**

Integration of supplier products / Third party products

| BID | TECHNICAL PLANNING | SELL | ORDER ENGINEERING | PRODUCTION ENGINEERING - late - | PURCHASE PLAN | MANUFACTURE ASSEMBLY | DELIVER INSTALL INVOICE | OPERATE |

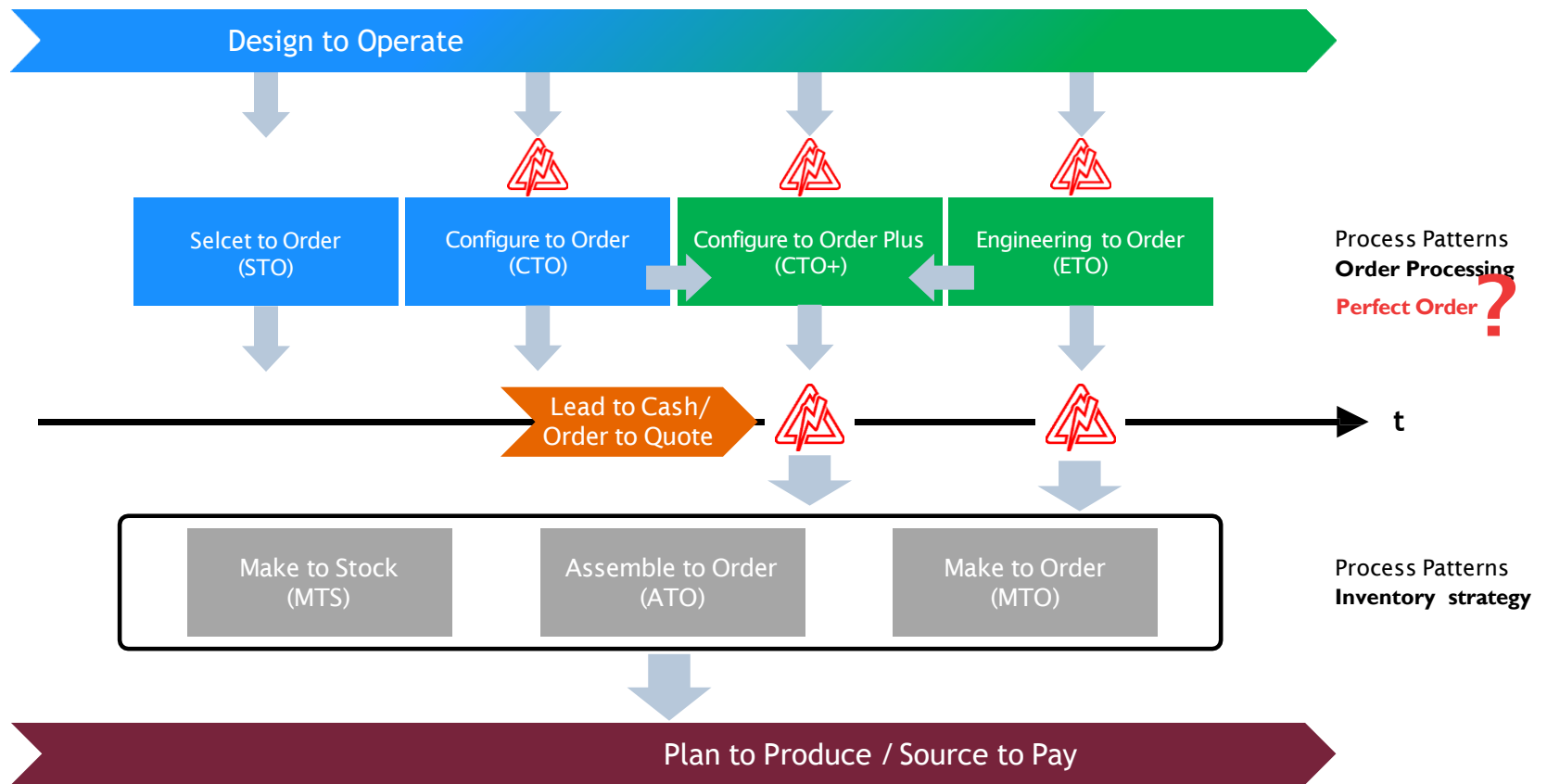## CTO+/ETO – SOLUTIONS – FINISHING INDUSTRIALIZATION

# And all together?

# The Need for
# ERP-near-Lifecycle Management

## SAP Product and Process Governance

# There are missing links in the CTO+ and ETO order process

# And what is the ERP challenge?
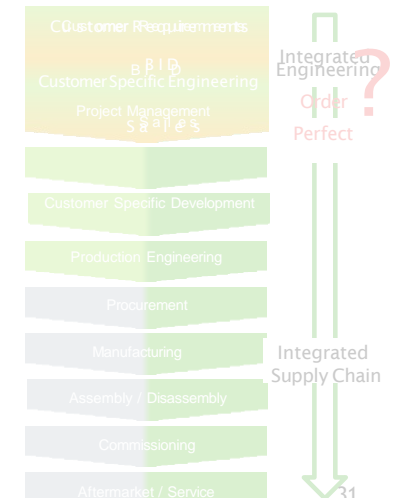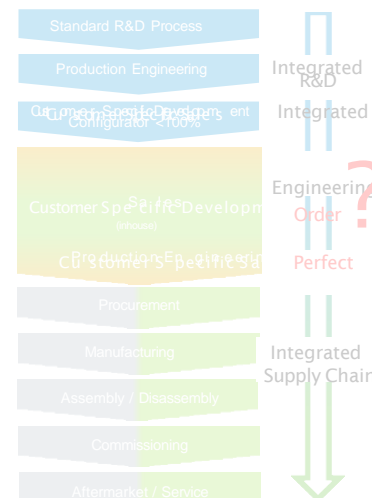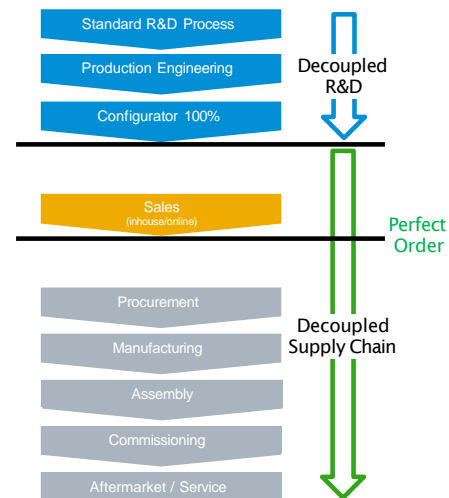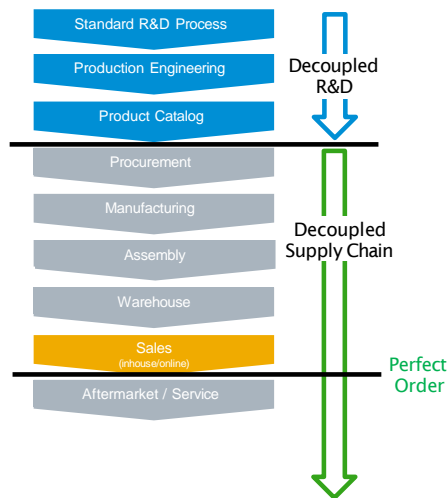
## STO and CTO is covered well by ERP.

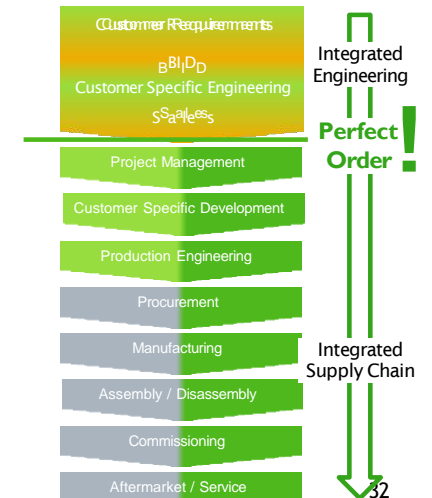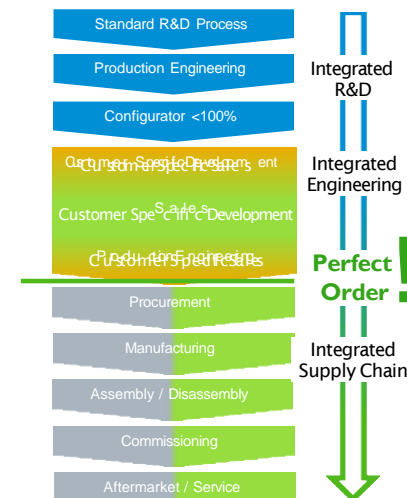**Stock / Order products**
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**Highly variable products**
(Configure-to-Order - CTO)

Customer Products
(Configure-to-Order Plus - CTO+)

Customer Solutions
(Engineer-to-Order - ETO)

## Using ERP as known and as always



**Column 1 (STO):**
- Standard R&D Process
- Production Engineering
- Product Catalog
- Procurement
- Manufacturing
- Assembly
- Warehouse
- Sales (inhouse/online)
- Aftermarket / Service

Decoupled R&D
Decoupled Supply Chain
Perfect Order

**Column 2 (CTO):**
- Standard R&D Process
- Production Engineering
- Configurator 100%
- Sales (inhouse/online)
- Procurement
- Manufacturing
- Assembly
- Commissioning
- Aftermarket / Service

Decoupled R&D
Perfect Order
Decoupled Supply Chain

**Column 3 (CTO+):**
- Standard R&D Process
- Production Engineering
- Configurator <100%
- Customer Specific Development (inhouse)
- Customer Specific Sales
- Procurement
- Manufacturing
- Assembly / Disassembly
- Commissioning
- Aftermarket / Service

Integrated R&D
Integrated Engineering Order ?
Perfect
Integrated Supply Chain

**Column 4 (ETO):**
- Customer Requirements
- Customer Specific Engineering
- Project Management
- Customer Specific Development
- Production Engineering
- Procurement
- Manufacturing
- Assembly / Disassembly
- Commissioning
- Aftermarket / Service

Integrated Engineering Order ?
Perfect
Integrated Supply Chain

# And what is the ERP challenge? The Perfect Order to be more agile, faster, resilient, and customer oriented

## STO and CTO is covered well by ERP.
### But CTO+ and ETO order processes?

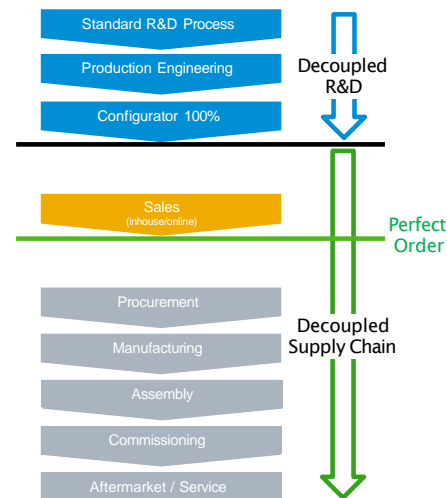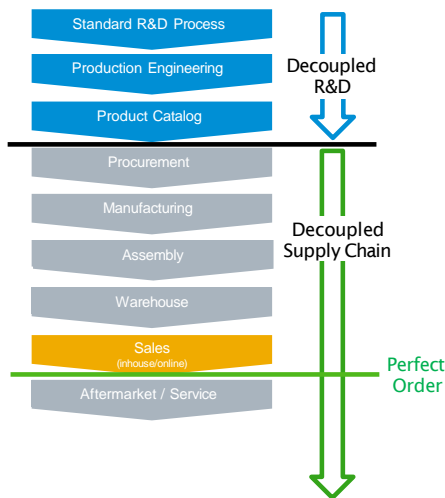**Stock / Order products**
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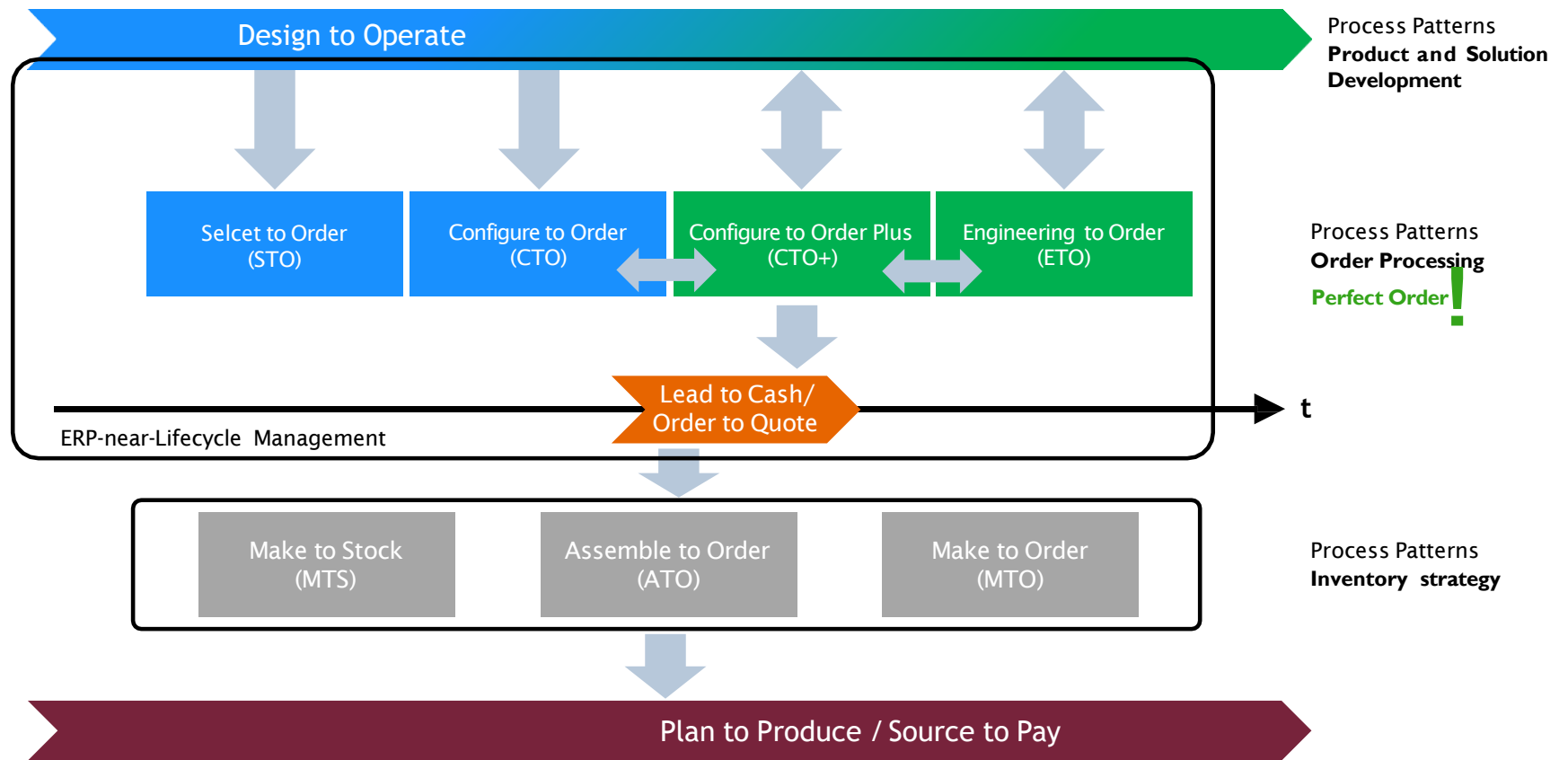
**Customer Solutions**
(Engineer-to-Order - ETO)

## Using ERP as known and as always

## ERP-near-Lifecycle Management with SAP Product and Process Governance

# ERP-near-LM functionality closes a gap in ERP
## SAP Product and Process Governance by BDF



Design to Operate

Process Patterns
**Product and Solution Development**

| Selcet to Order (STO) | Configure to Order (CTO) | Configure to Order Plus (CTO+) | Engineering to Order (ETO) |
|---|---|---|---|

Process Patterns
**Order Processing**

**Perfect Order**!

Lead to Cash/ Order to Quote

ERP-near-Lifecycle Management

t

| Make to Stock (MTS) | Assemble to Order (ATO) | Make to Order (MTO) |
|---|---|---|

Process Patterns
**Inventory strategy**

Plan to Produce / Source to Pay

# ERP-near-PLM with SAP Product and Process Governance
## From Products to Solutions



**Automation of customer-specific order processes across the enterprise**

Boosting efficiency throughout the product lifecycle
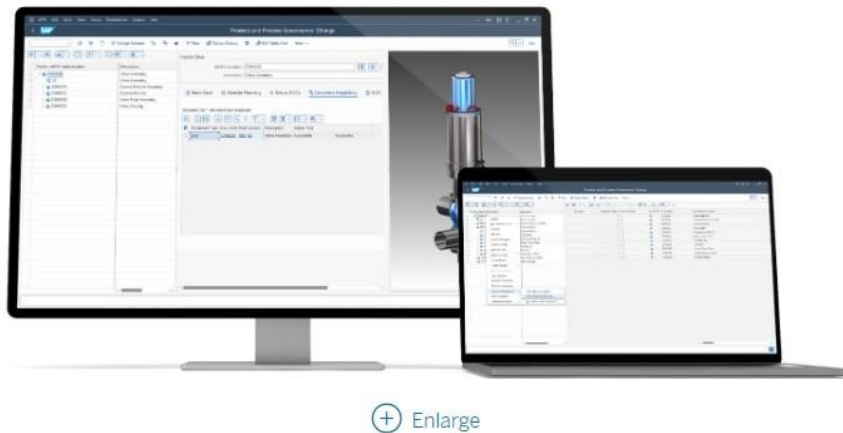
The SAP Product and Process Governance application by BDF offers a design-to-operate process framework for the entire engineering process, supporting engineer-to-order and configure-to-order workflows. It also integrates with SAP S/4HANA.

✔ Synchronized product data, structures, access, and documents

✔ Generation of different types of production bills of materials and stock variants

✔ Harmonization of master and transactional data for downstream processes

⊕ Enlarge

# ERP-near-Lifecycle Management with SAP Product and Process Governance
From products to solutions
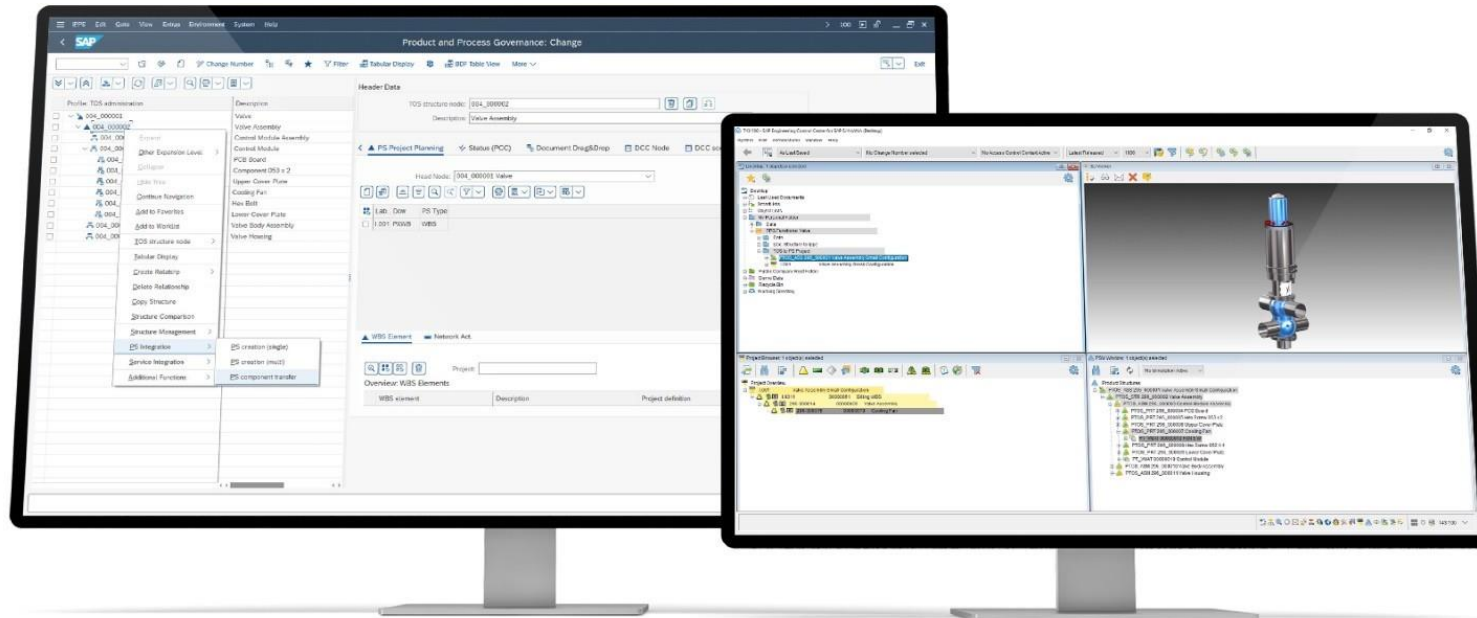


(+) Show more

**Centralized product data model**

- Summarize relevant product data in a specific digital product model

- Generate new data necessary for order processing and control planning for the logistics process

- Offer new specific object types to enable straightforward and flexible mapping of the virtual product structure, even in early stages

**Synchronization and automation of downstream processes**

- Automate creation of ERP data such as material masters and configuration profiles

- Generate different types of production bills of materials and routings for each configured order

- Enable data structure transformation into digital twins for service and maintenance

**Advanced integrations to various SAP modules**

- Configure and reuse templates for order management through service and delivery

- Integrate with SAP Engineering Control Center, SAP Enterprise Product Development, and SAP Digital Manufacturing Cloud

- Apply integration interfaces to SAP ERP, SAP S/4HANA, and SAP S/4HANA Cloud

What we learned

# ERP-near-Lifecycle Management is Teamwork

# Many parties are involved for success

Sales – R&D – Engineering –Procurement – Manufacturing – Service

SAP Bring out your best.

# Hinweis

## SAP Innovation Day PLM 2024

# SAP Innovation Day PLM 2024
## Produktentwicklung neu begreifen und clever umsetzen

Nach fünf Jahren sind wir zurück und laden Sie sehr herzlich ein zum SAP Innnovation Day PLM!

Treffen Sie **PLM-Profis von SAP und Partnern** wieder live und entdecken Sie, wie durchgängige, digitale Prozesse in Ihrem gesamten Netzwerk Sie dabei unterstützen, Ihre **Produktentwicklung leistungsstark und zukunftsfähig aufzustellen.**

Verpassen Sie nicht unser **Vorabendevent am 20.11.2024** als aktiven Einstieg in das Networking mit Peers und PLM-Profis von SAP und Partnern.

### Highlights

- **Spannende Keynotes** zu den neuen Horizonten, die intelligente Technologien für die Produktentwicklung eröffnen

- Praxisberichte von unseren Kunden in den beiden **Tracks Fertigungsbranche und Prozessindustrie** sowie topaktuelle Infos im Track **SAP-PLM-Innovationen**

- Panel-Diskussion mit tiefen Einblicken in die SAP-PLM-Roadmap von unseren Vordenkern aus der PLM-Entwicklung

Wo?
SAP University
SAP-Allee 27
68789 St. Leon-Rot
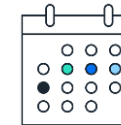
Wann?
21. November 2024

**Jetzt anmelden**

# SAP Innovation Day PLM 2024, 21. November 2024 in St. Leon-Rot
## Agenda

08:00 Uhr: Check-in und Besuch des Partner Exchange Circle

09:00 Uhr: Begrüßung und Vorstellung der Agenda

09:15 Uhr: Warum es sich lohnt, PLM neu zu denken: Das optimierte Zusammenspiel von Supply Chain und Design Chain als Motor für Erfolg von morgen

10:00 Uhr: Pfade zu Ihrem digitalen Unternehmen: Erklimmen Sie den besten Weg mit Ihrer Ausrüstung – PLM und ERP

10:30 Uhr: Partner Pitch / Partnervorstellung

11:00 Uhr: Pause und Besuch des Partner Exchange Circle

11:50 Uhr: SAP Product Lifecycle Management - neu begreifen und clever umsetzen

12:25 Uhr: Parallele Tracks zur Fertigungsindustrie, Prozessindustrie und zu SAP-Innovationen

12:55 Uhr: Mittagspause und Besuch des Partner Exchange Circle

14:05 Uhr: Parallele Tracks zur Fertigungsindustrie, Prozessindustrie und zu SAP-Innovationen

15:10 Uhr: Pause und Besuch des Partner Exchange Circle

16:00 Uhr: Parallele Tracks zur Fertigungsindustrie und zu SAP-Innovationen

16:35 Uhr: Abschluss-Panel: Die Zukunft von SAP PLM

ab 17:05 Uhr: Get-together und Besuch des Partner Exchange Circle

## Partners onsite:

# LinkedIn Group

**in**

Receive Updates about latest product or events information

Interact with the posts from other public group members by reacting and commenting

**You are invited** to join the new <u>SAP PLM Experts Forum</u> group on LinkedIn

Invite your colleagues from the PLM space to join the group!

# Thank you.

**Frederik Breckwoldt**

Business Development, Center-of-Excellence, Digital Supply Chain

frederik.breckwoldt@sap.com

**SAP** Bring out your best.