



SAP Teamcenter PLM system integration

SAPSA Webinar 15.06.2022

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SAP Digital Supply Chain

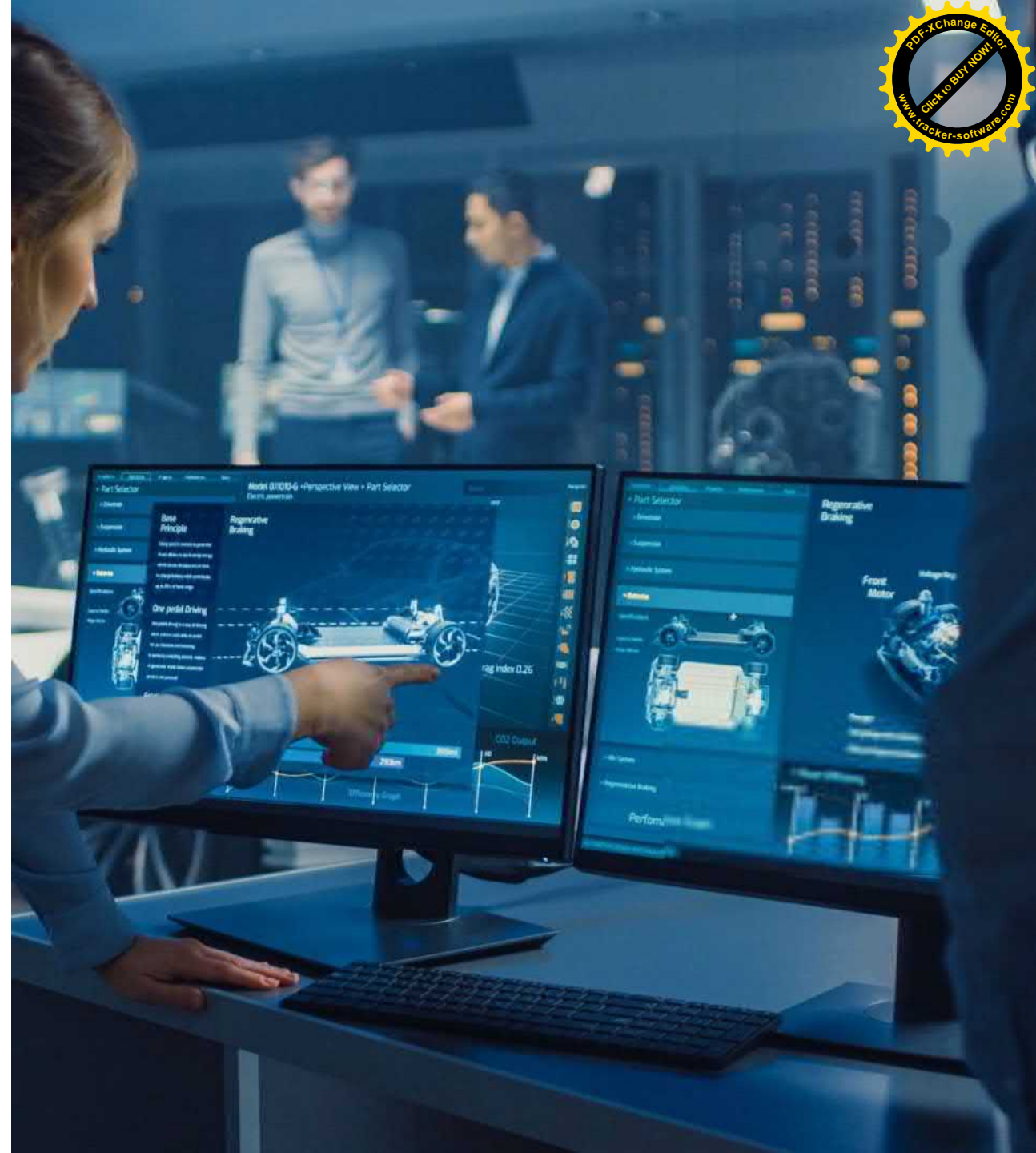


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- The Digital Thread
- Value Opportunities with Integration
- Solution Overview
- Business Processes & Capabilities
- Product Roadmap
- Summary

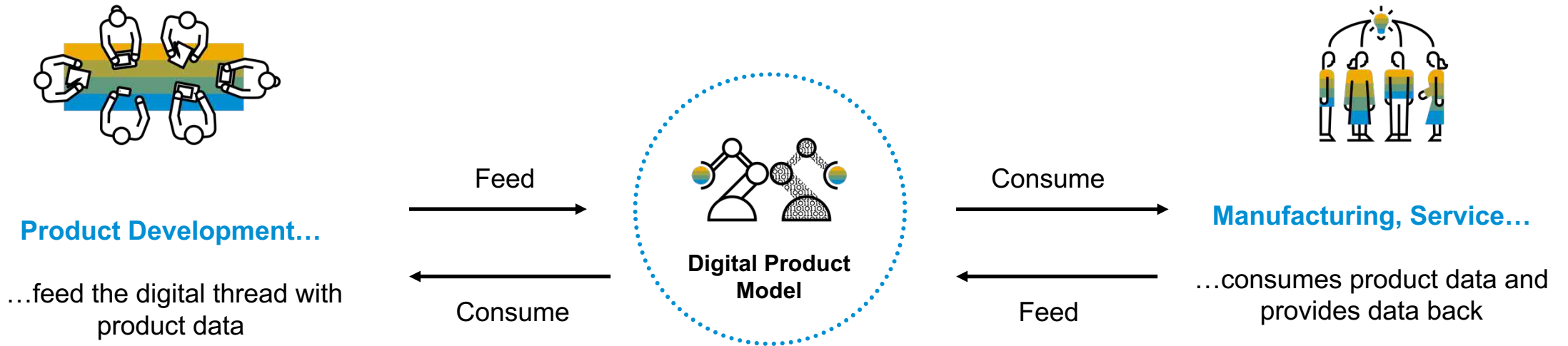


- **The Digital Thread**
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To capture the value at stake, it is today more important than ever to create an end-to-end digital thread across the value chain.

Our Mission: Deliver an integrated Digital Thread



A **single digital thread** that integrates all the real-time information, feedback, performance, and data on a product from inception to sunset.

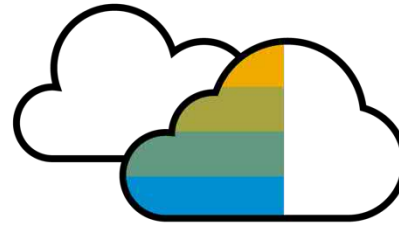


The solution portfolio with S/4HANA, EPD and SAP Teamcenter by Siemens provide end-to-end processes required to develop the digital thread.

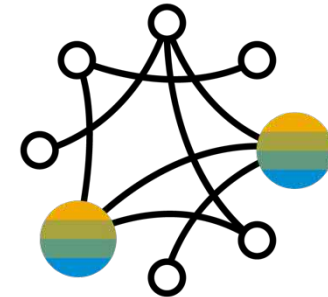
Solution Portfolio



PLM in S/4HANA as the system of record and downstream business process integration. Including SAP ECTR and SAP PLM System Integration.



SAP Enterprise Product Development as the system of differentiation & innovation for product development as a native Cloud PLM.



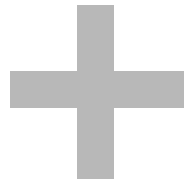
SAP Teamcenter by Siemens to extend and complement the SAP PLM portfolio.

SAP and Siemens partnership

The best of both worlds

SIEMENS

The world leader in **product lifecycle management software** and industrial automation



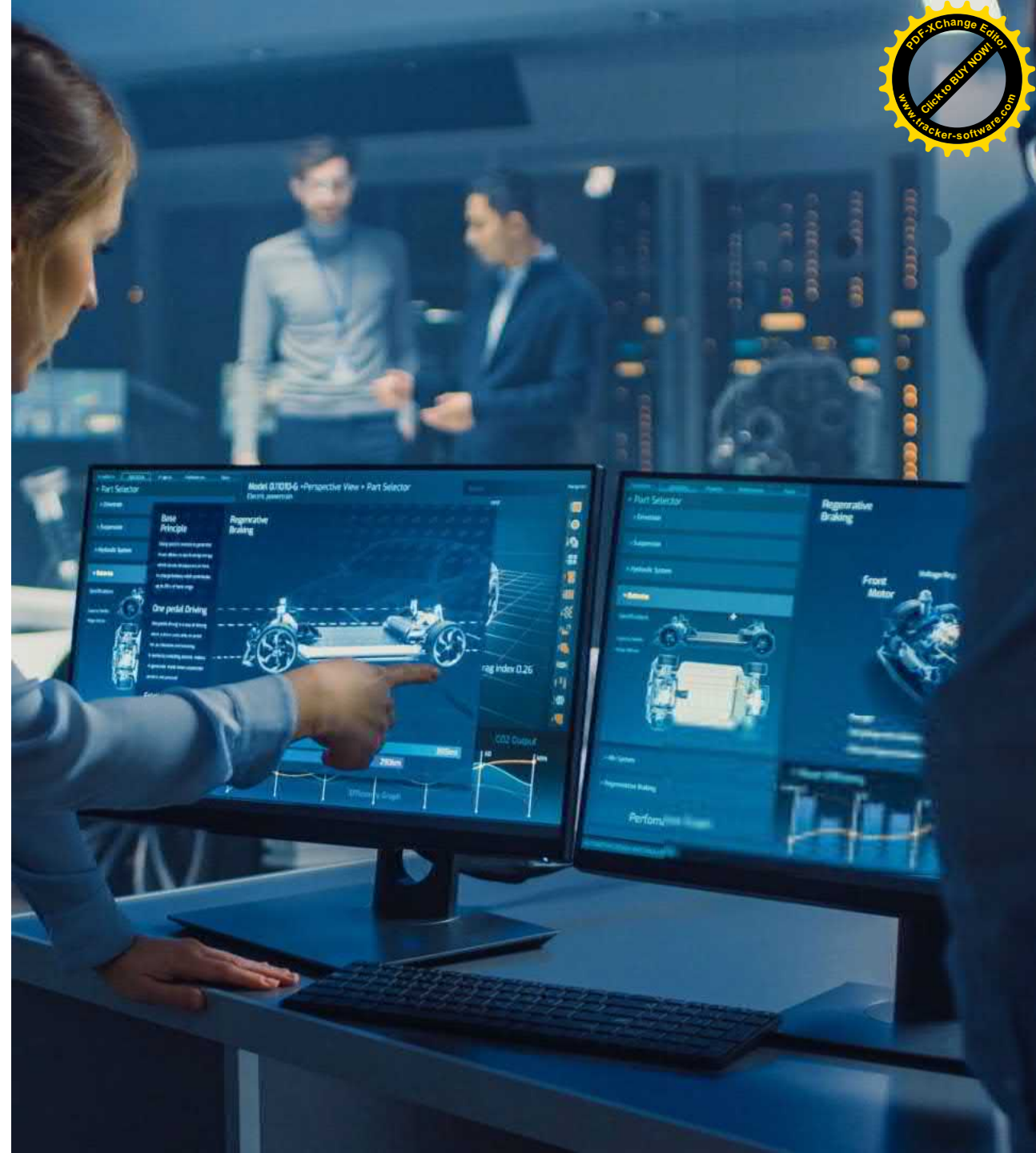
SAP

The world leader in **enterprise application software** and end-to-end supply chain solutions.



- Create a single digital thread
- Break down the silos and improve collaboration
- Share data downstream
- Streamline processes and workflows across the enterprise
- Establish a single source of truth with no manual data replication
- Create a closed-loop product development process
- ▶ **Speed up Time to market**

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and requires a **Next Generation Approach** to Integration

Customer Challenges



High TCI/TCO

Every integration is based on project work. No standard integration on the market based on pre-defined scenarios.



Interoperability

Current integrations tightly couple data models. A change on one system requires adoption on both sides.



Lack of bi-directional process integration

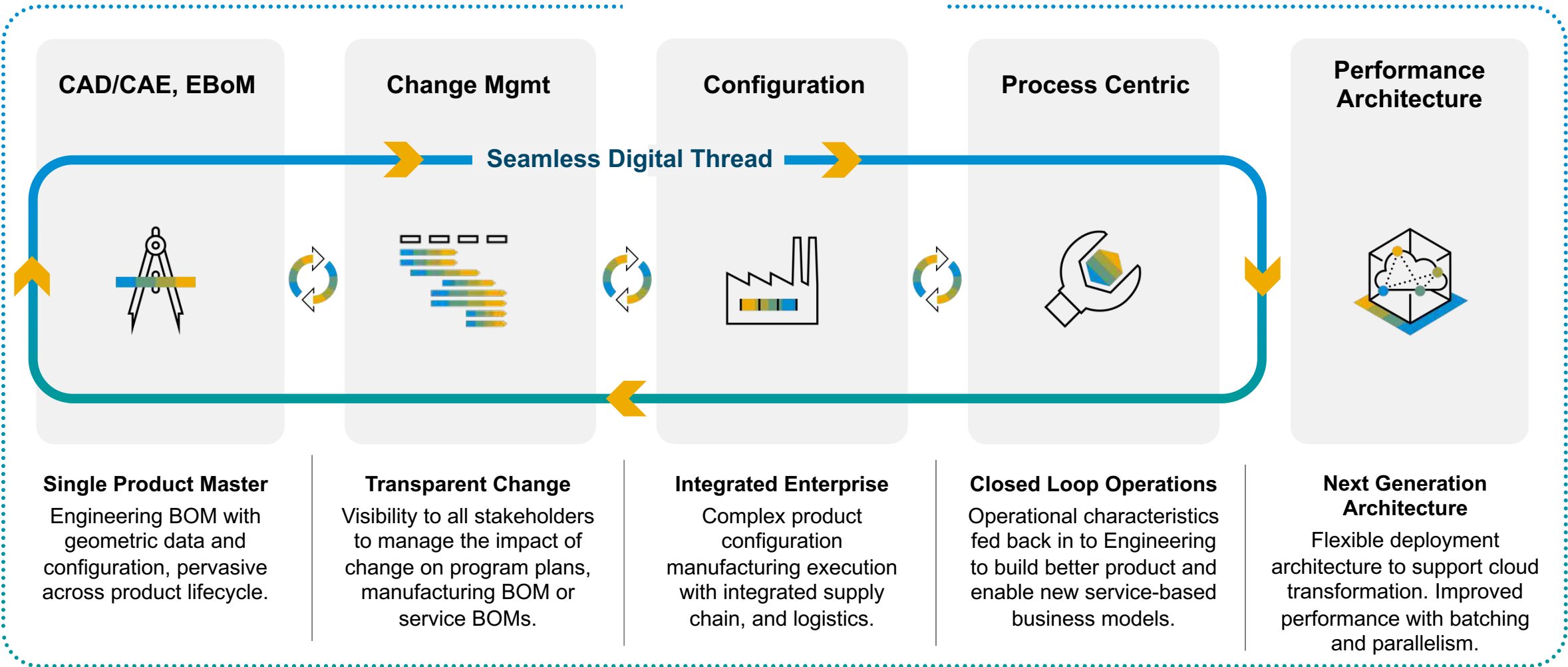
Focus on master data exchange only. No process integration.



Resilient integration

Integrations build on old technology stack and are not cloud ready

Digital Product Data is a critical success factor nowadays



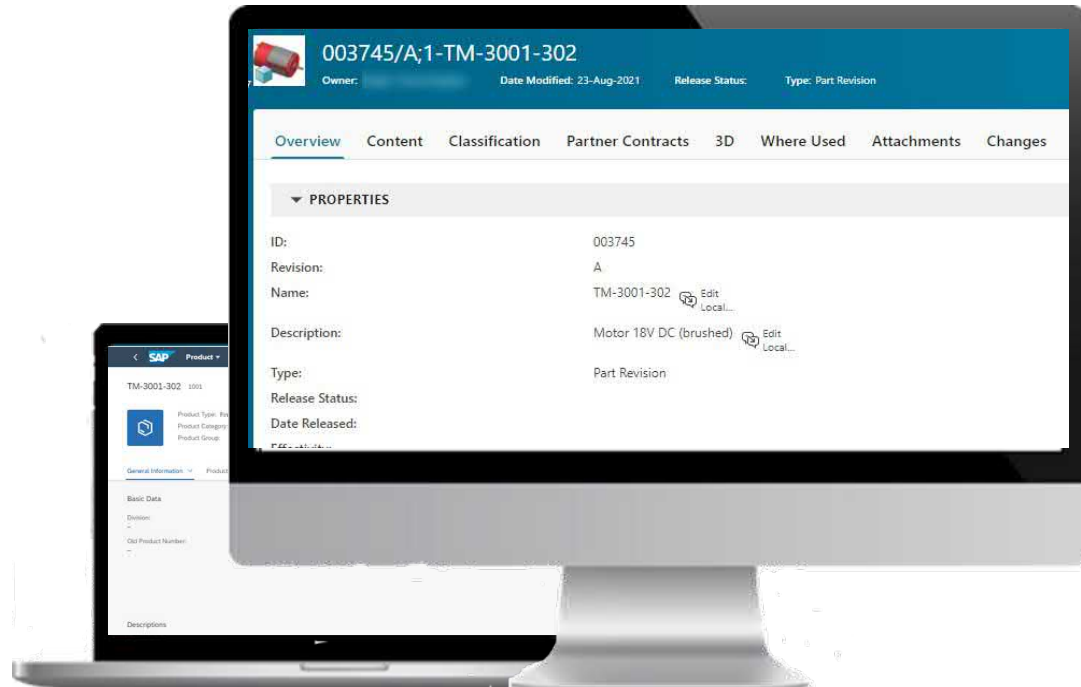
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PLM system integration: Teamcenter embedded End-to-End

Business Outcomes

“PLM system integration is a game changer for the collaboration between engineering and the enterprise, offering **efficient, bi-directional digital product data flows**, embedded end-to-end and out of the box.”



Next Generation Characteristics



Enable the **digital product** with process driven integration on a state-of-the-art architecture.



Leverage **one common, extensible domain model** providing access to data across applications.



Run bi-directional **end-to-end business processes** across all engineering disciplines for the enterprise

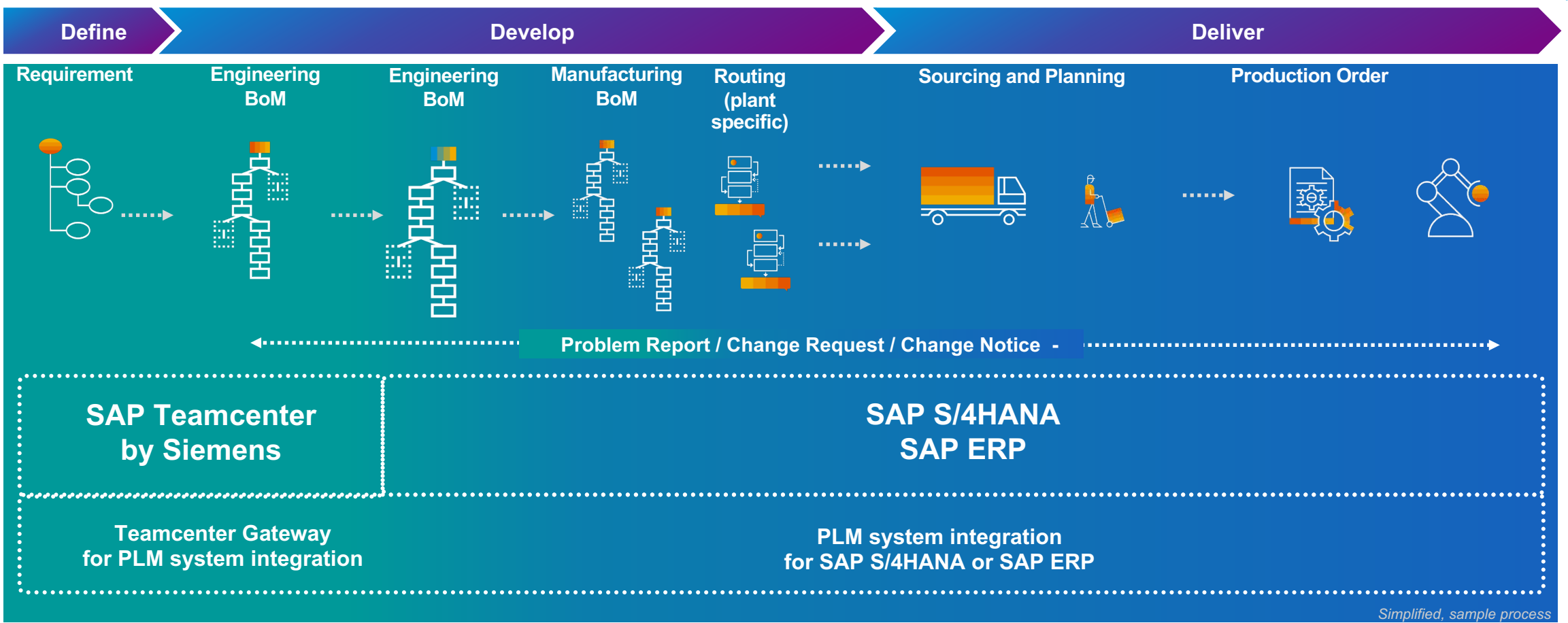


Use a reliable and **scalable Architecture** which supports high performance and efficient operations



PLM system integration for Seamless, Bi-Directional Process Integration

Teamcenter for Product Engineering



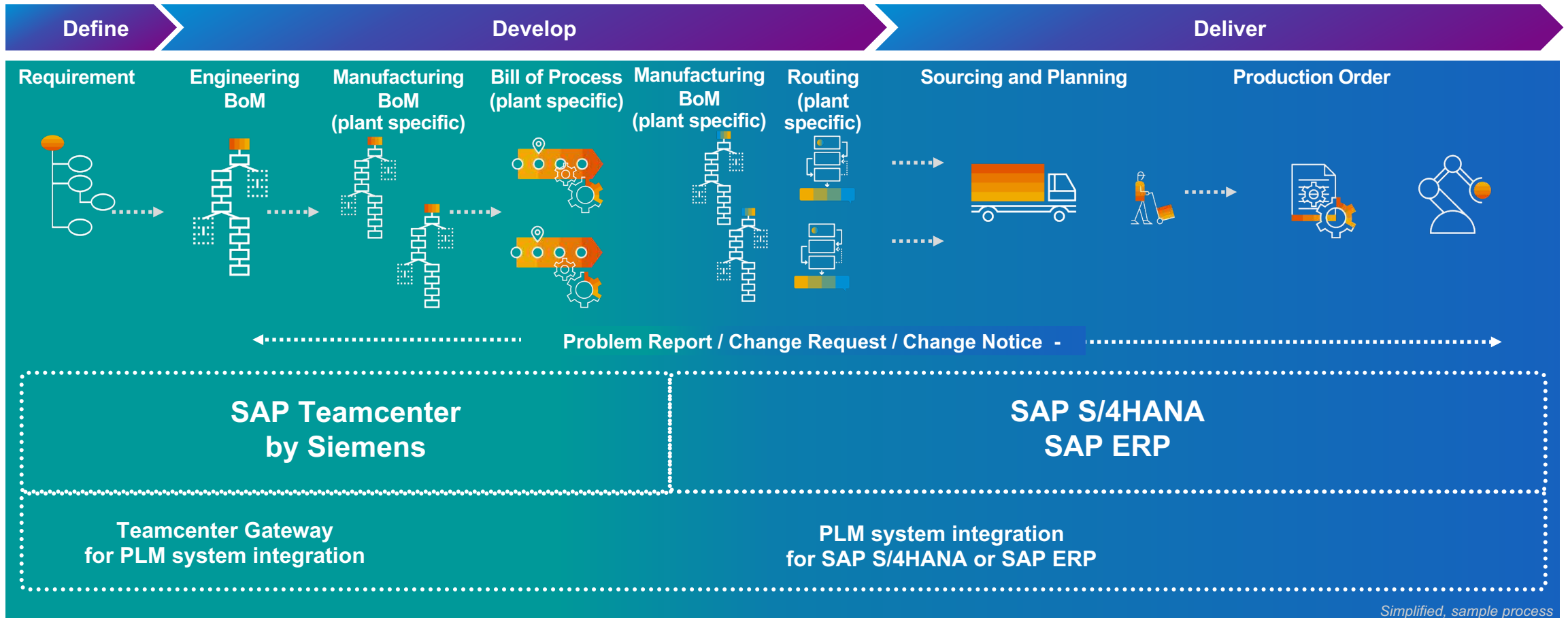
Simplified, sample process

Master Slave



PLM system integration for Seamless, Bi-Directional Process Integration

Teamcenter for Product and Manufacturing Engineering

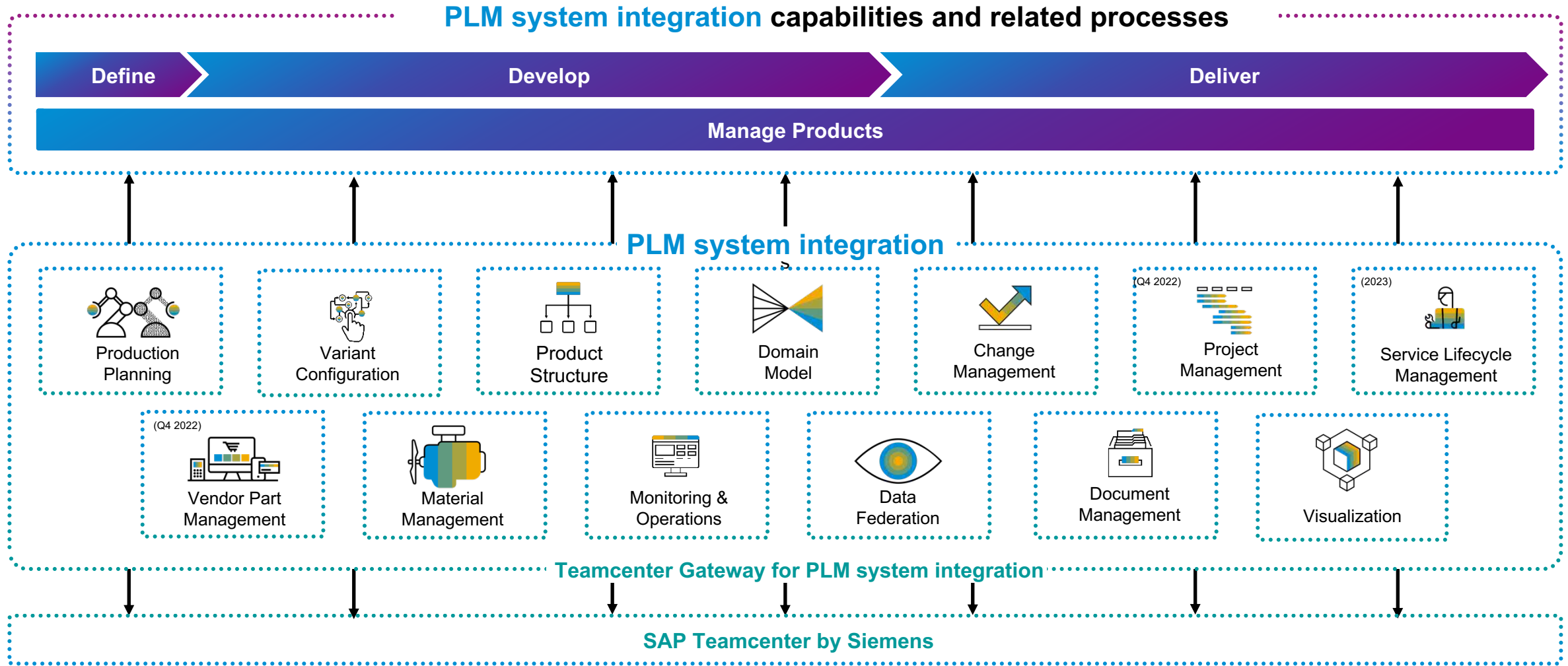


Simplified, sample process

Master Slave



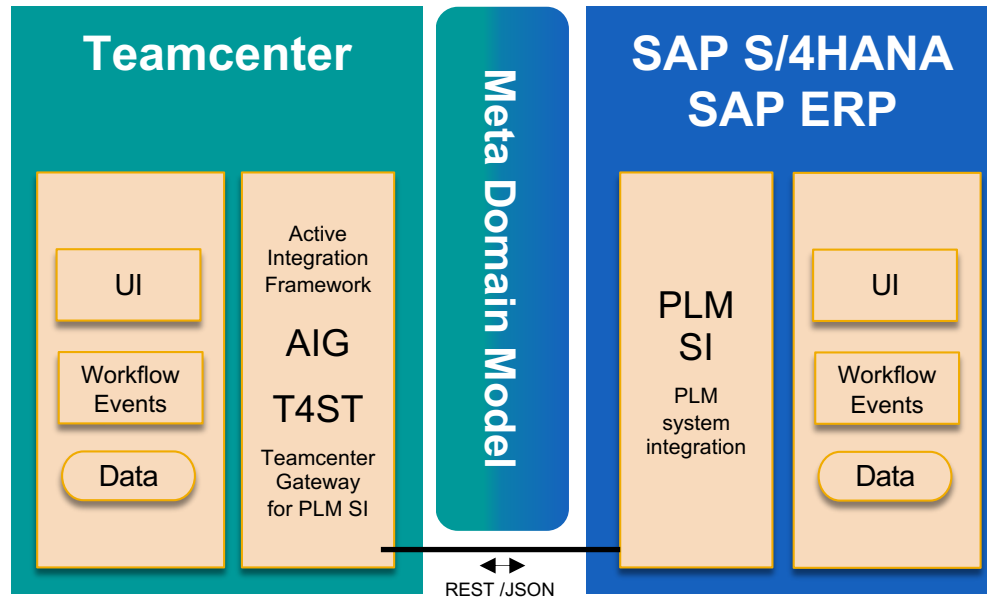
PLM system integration embeds all dimensions of the “Digital Product”



PLM system integration: Architecture for Simplicity & Performance

Business Outcomes

“A simplified architecture with superior integration capabilities and **pre-configured processes** to **minimize costs of implementation and operation.**”



Architecture Highlights



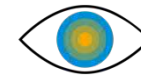
Directly embedded into SAP and Siemens, the architecture enables performance and automatic process triggers based on workflow and events.



By **decoupling data and configuration** through the model (“[Separation of Concerns](#)”), all systems can be changed and upgraded independent from each other.



Pre-configured, aligned processes offer an **out-of-the-box solution**, which can be adapted by advanced extension options.



Data federation enables data access across system boundaries, minimizing the need of redundant data replication.



Real-time or background processing

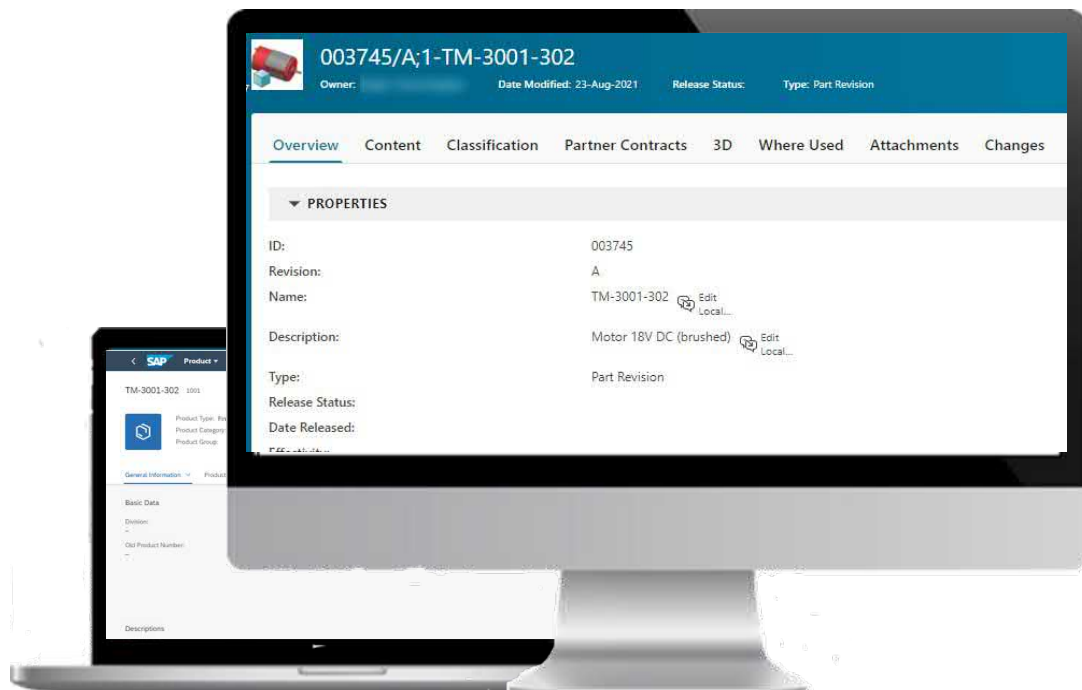
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Material Management: Higher efficiency, quality, transparency

Business Outcomes

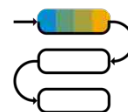
“Increase **efficiency**, **data quality** and **transparency across domains**, by empowering engineers to manage material masters which build on common attributes and classifications and drive subsequent processes.”



Process Highlights



Create and integrate **material masters** in SAP ERP, S/4HANA or Teamcenter based on aligned semantics



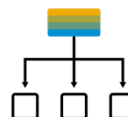
Business process integration driven by semantic information and an aligned, predefined data model



Leverage for product development to create **plant-specific** and **configurable** material masters



Assign **revision levels** to material masters based on versions and change process

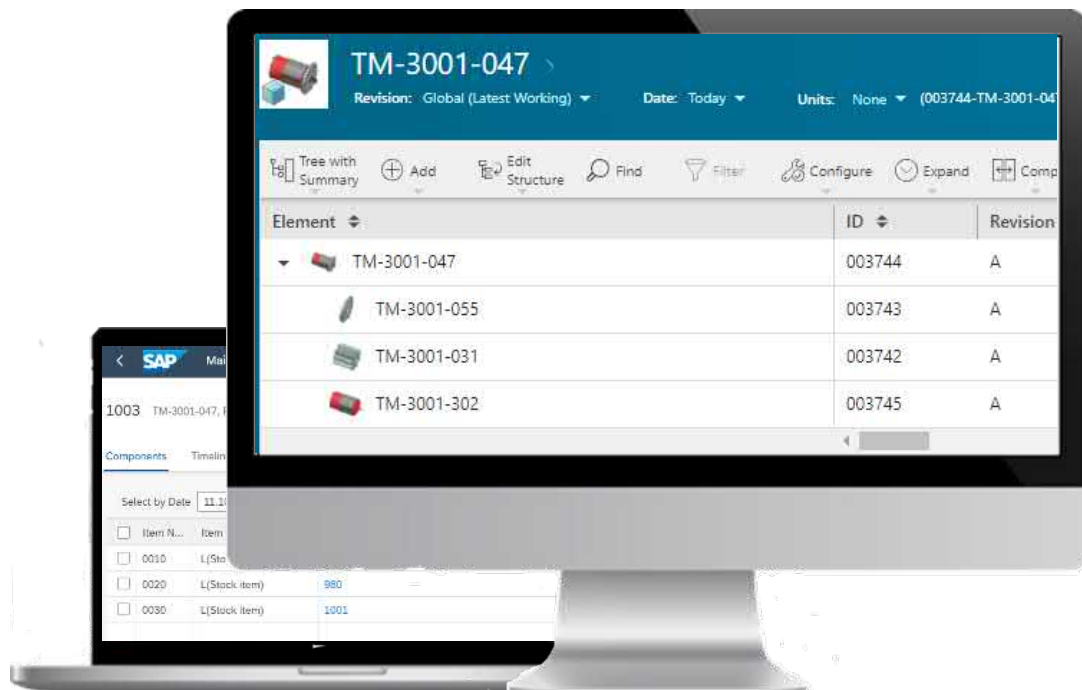


Align material master information, attributes and **classification** values between systems

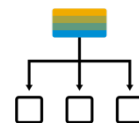
Product Structures: BOM strategy options, tailored to your needs

Business Outcomes

“Increase **efficiency**, **data quality** and **transparency across enterprise** and **plants**, by integrating product structures, alternatives, effectivities.”



Process Highlights



Transfer product structures as “classic” enterprise-level **bill of materials** including **date effectivity**



Create and update **plant-specific** or factory agnostic BOMs based on structure versions



Control BOM component by **model unit effectivity** (SAP parameter eff-) based on structure versions



Integrate structure version **alternatives** as BOM alternatives and maintain alternative unit of measures

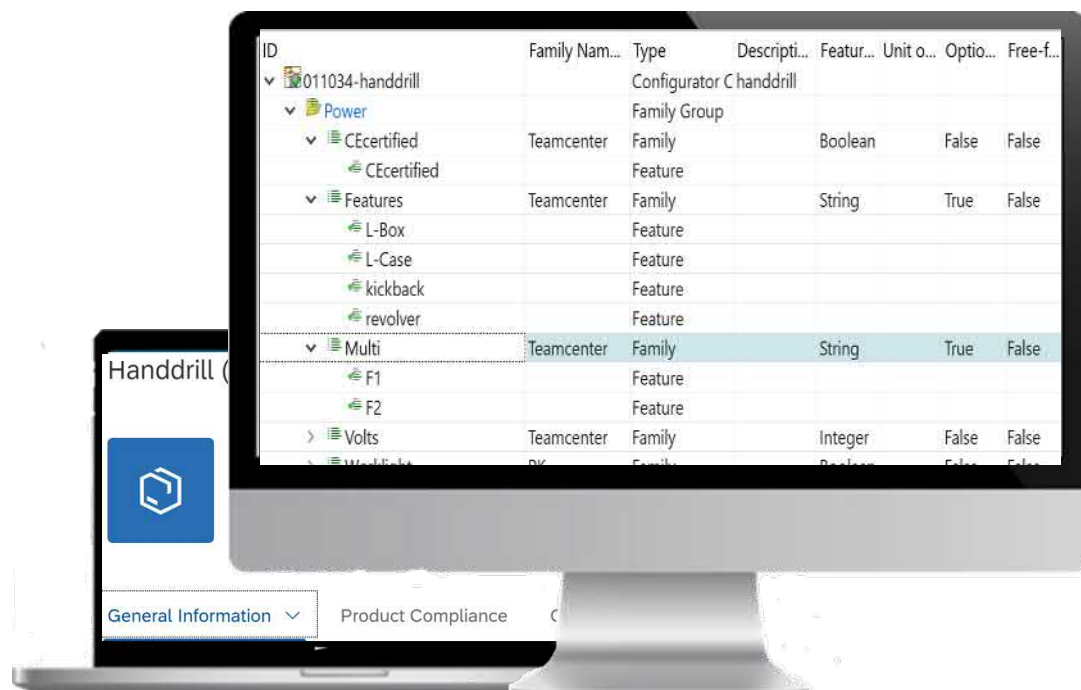


Leverage the capabilities along your preferences by transferring **engineering-** or **manufacturing** BOM

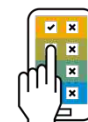
Variant Configuration: Decrease time-to-market and data quality

Business Outcomes

“Decrease **time to market** during the definition and implementation of configurable products by building on variant definitions share by engineering.”



Process Highlights



Receive **variant definitions** from Teamcenter, which were defined by engineering



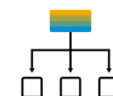
Transfer various **variant option types**, including string, Boolean, Integer, and Decimal, as well as operators



Improve implementation of “**configure to order**” based products through reuse of variant models



Maintain variant conditions on **structure version component** level and **production operation lists**



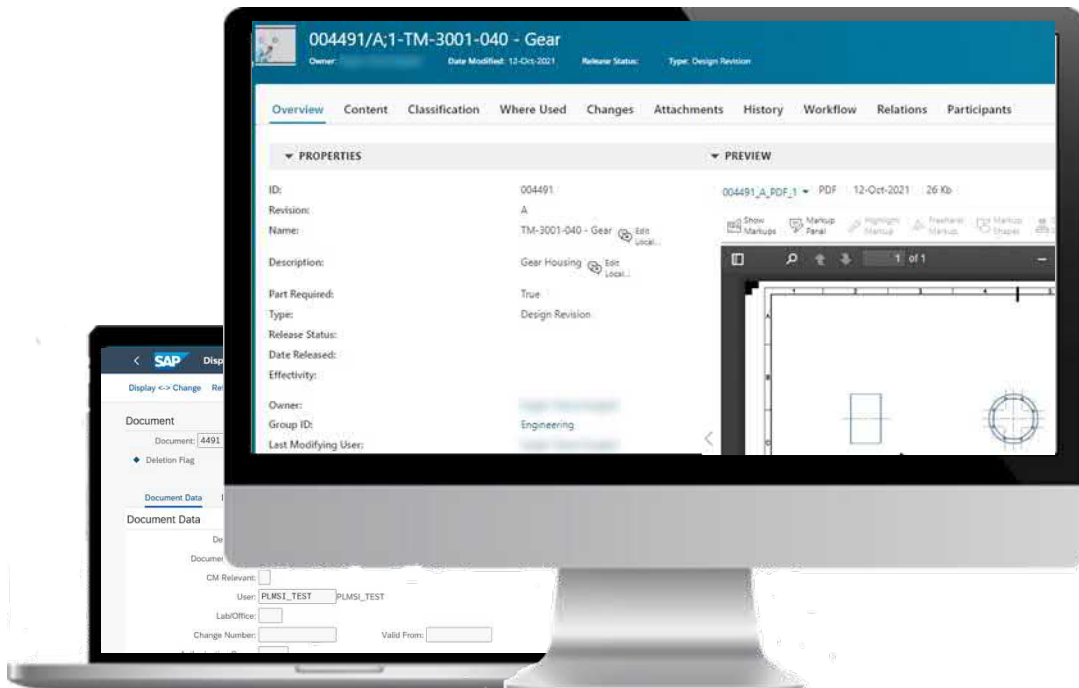
Receive **configurable structures**, transferred together with a variant condition, assigned to a BOM



Document Management: Simplify Collaboration and Increase Efficiency

Business Outcomes

“**Simplify collaboration** and **increase efficiencies** of document handling through a structured and change driven management of documents and visuals.”



Process Highlights



Transfer and store files as SAP originals, linked to the corresponding **Document Info Record**



Create **revision levels** from SAP DIRs based on versions originating from Teamcenter change notices



Receive documents (e.g. word, pdf, jpeg) with SAP versioning schemas from Teamcenter



Empower engineers to create documents to drive subsequent logistics processes

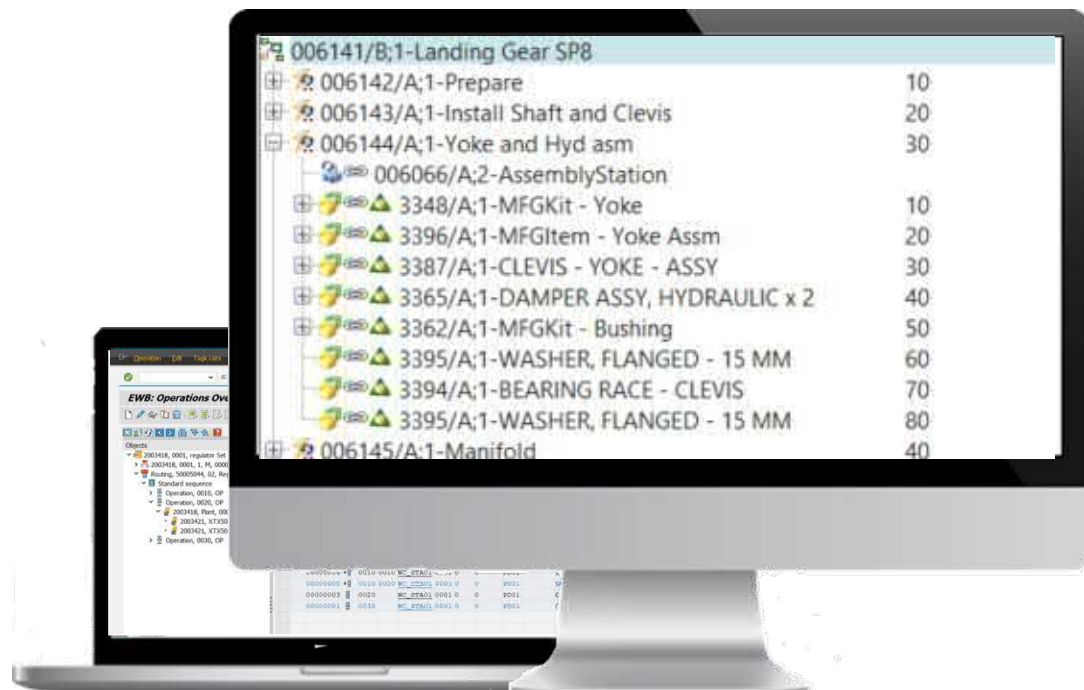


Provide **3D visual data** access for all stakeholders supported by the Visual Enterprise - DMS integration

Production Planning: Efficiency and Quality

Business Outcomes

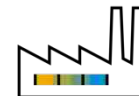
“Increase **efficiency** and **quality**, by leveraging business process integration across product and manufacturing engineering”



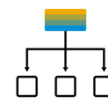
Process Highlights



Production Operation Lists as master data for production planning and creation of SAP routings



Transfer of **work areas, operations, suboperations**, durations, assigned components, doc., prod. version



Coverage of **operations** and sub-operations, depending on required **scenarios**



Optionally enable **manufacturing engineering** and bill of process creation in Teamcenter

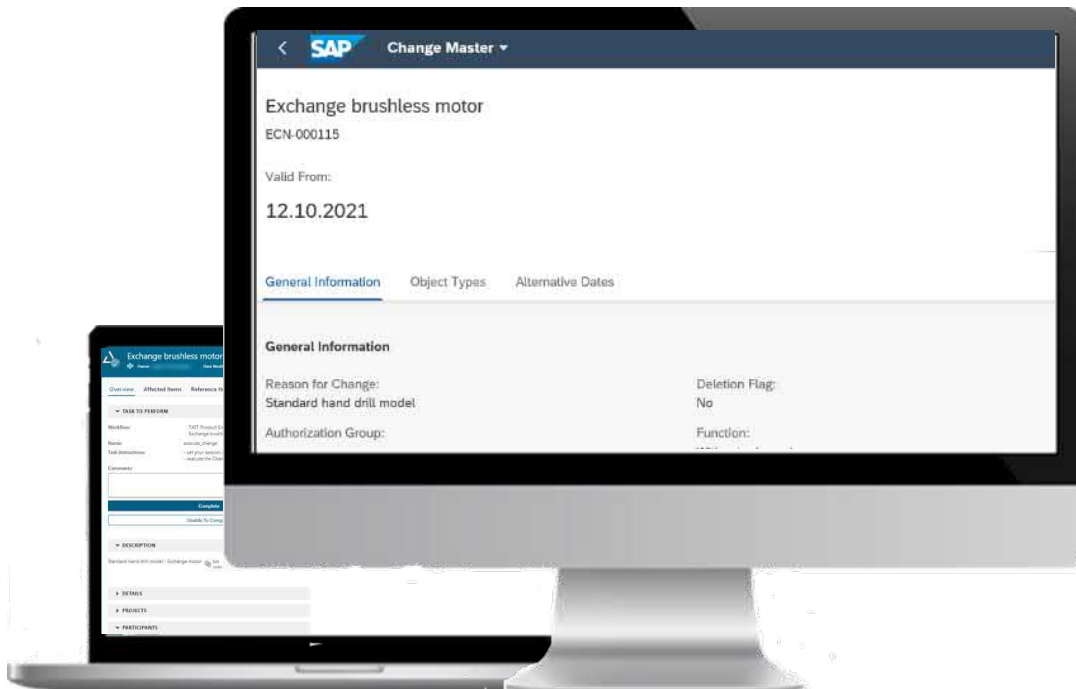


Deploy **variant conditions** at operations and manage change via change management processes

Change Management: Better Quality, Higher Customer Satisfaction

Business Outcomes

“Improve **product quality and customer satisfaction** by implementing a closed loop change management process triggered either by engineering, manufacturing or any other enterprise functions.”



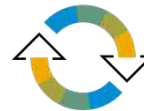
Process Highlights



Implement change for document versions, product versions, structure versions, routing and variants, linked to an SAP change object



Create or update an SAP change object based on an Eng. **problem report/change notice/change request**



Create a problem report/change notice/change request in Teamcenter from an SAP change object



Create and maintain change masters with **valid-from date effectivity** based on a change notice from Teamcenter

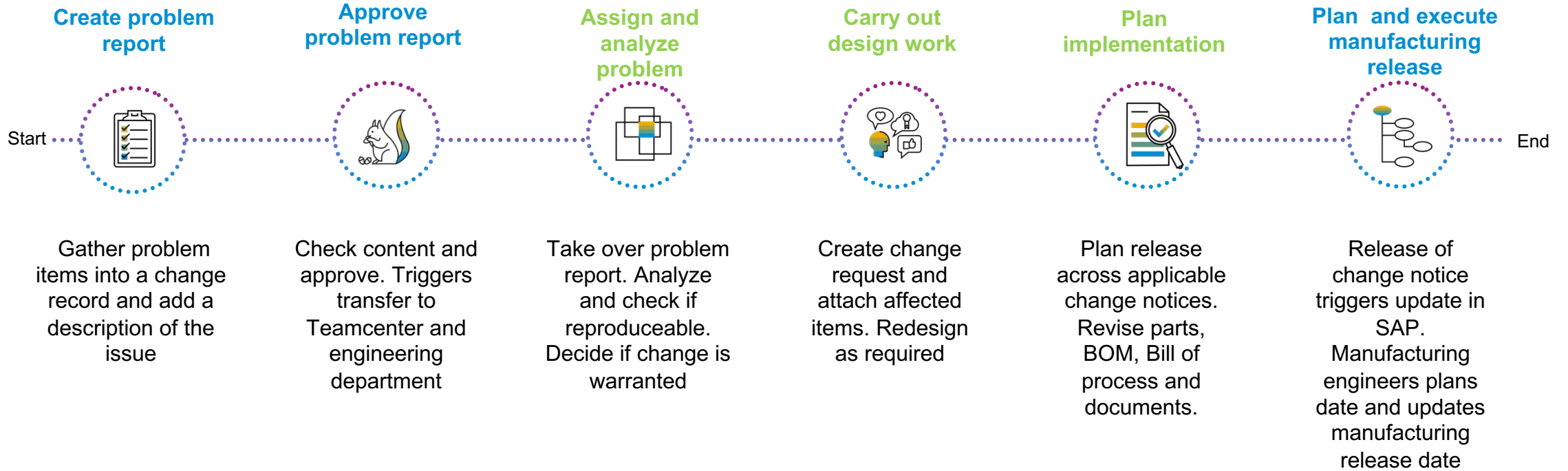


Extend and map additional fields, that are exchanged between SAP and Teamcenter



Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy

Process Overview

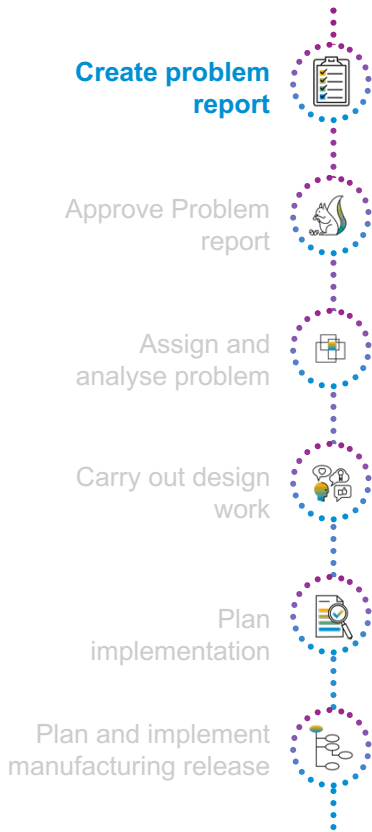


Legend: SAP S/4HANA and Teamcenter



Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy

Process Details



•Step 1

- Create a change record as problem report in SAP
- Describe the problem

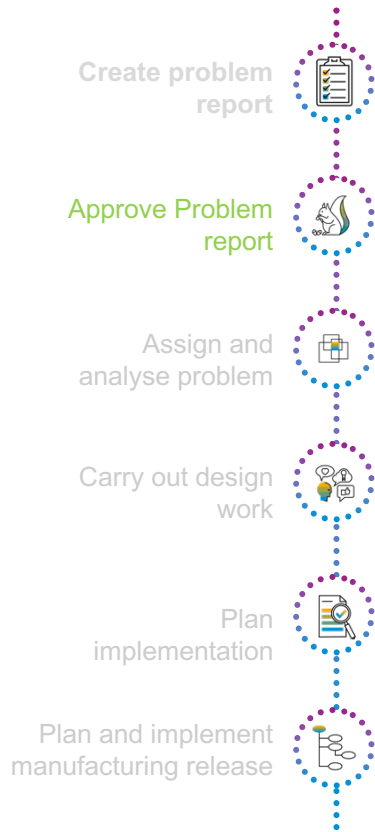
•Step 2

- Link materials, BOM, routings and documents as problem items
- Attach other supporting documents as attachments
- Assign change record to responsible engineer in SAP



Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy.

Process Details



• Step 3

- Review content
- Approve change

• Step 4

- Engineer to take over team workflow in Teamcenter

SAP Change Record

The titanium frame needs more tire space 900192

Header | General Information | **Items** | Attachments | Process Routes

Materials

Material	Material Type	Material Base Unit	Material Status	Relevance
6899	HALB	PC		PRO

Material BOM

Material	Plant	BOM Usage	Alternative BOM	Relevance
No data found.				

BOM Items

Material BOM Items (0)

Item Number	Component	Material	Plant	BOM Usage	Alternative BOM	Relevance
No data found.						

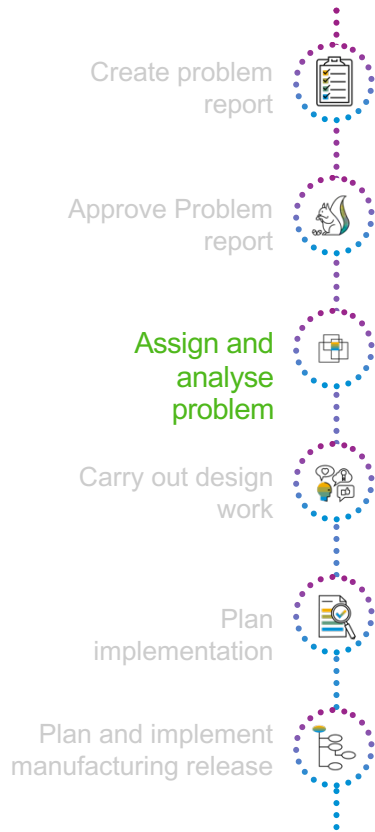
Attachments

Attachments (1)

2021_-_descriptif_JPK_10.30_-_GB_-_HD.pdf Draft Uploaded By: Espen Leknes · Uploaded On: 28-04-2022 10:04:34 · File Size: 176.66 KiB Source: DMS
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Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy.

Process Details



•Step 5

- Take over the workflow in Siemens Teamcenter
- Use the attached PLM objects and documents to assess
- Evaluate if problem is to be solved

900192/A;1-The titanium frame needs more tire space
Owner: 14stproxy (14stproxy) Date Modified: 28-Apr-2022 Release Status: Type: Problem Report Revision

Overview SAP Infos SAP Problem Report Affected Items Reference Items Participants Workflow Relations

DESCRIPTION PROGRESS

Our current titanium frame can only fit 40mm with mudguards over time. We claim 44mm, but that only works if everything is perfectly aligned - which does not work over time.

Closure: Open Disposition: Approved
Maturity: Elaborating Reviewing **Executing** Complete

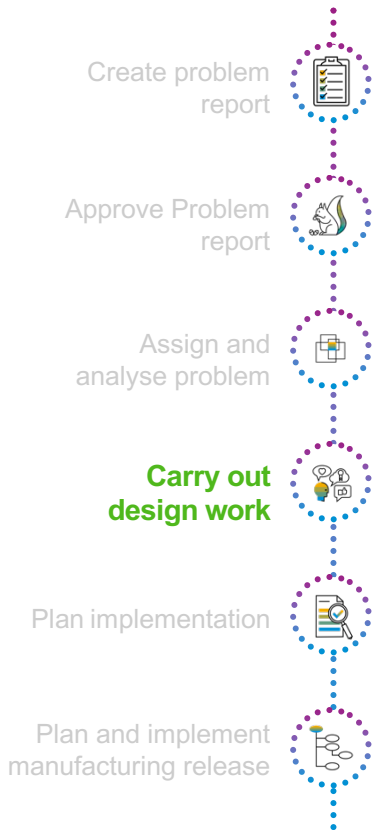
DETAILS PARTICIPANTS

Requestor: Engineering/Designer

Object	Type	Release Status
6899/A;1-TheFrame	Part Revision	

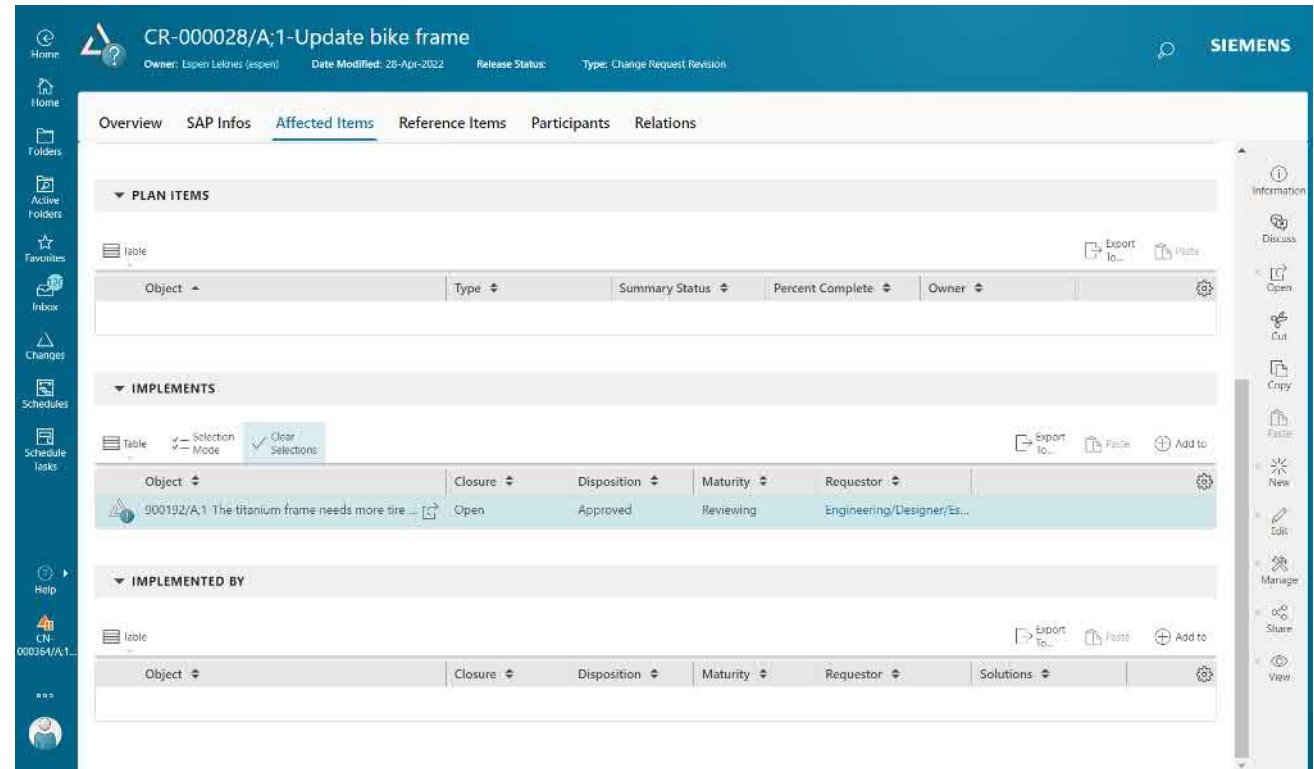
Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy.

Process Details



•Step 6

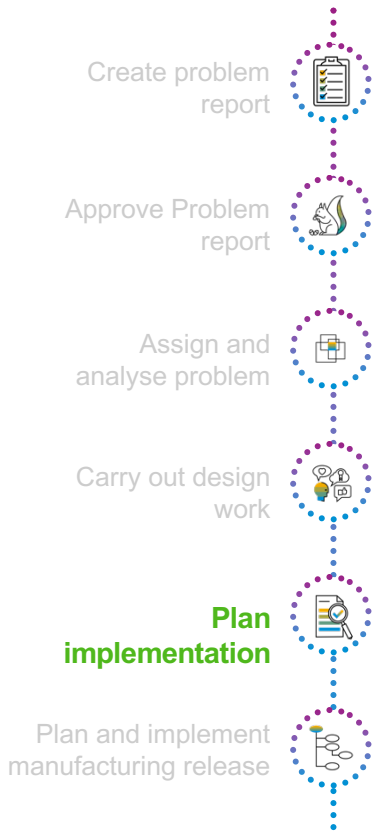
- Create change request incorporating relevant problem request
- Carry out the design changes



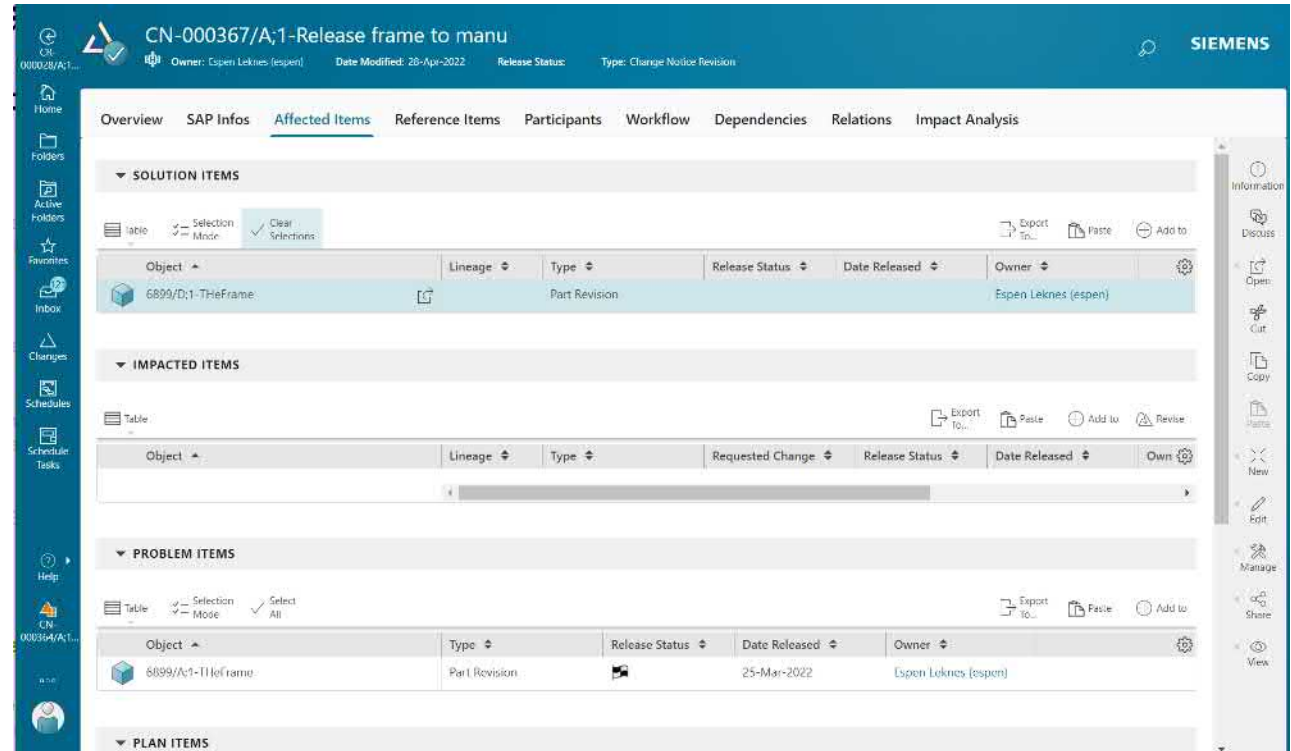


Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy.

Process Details



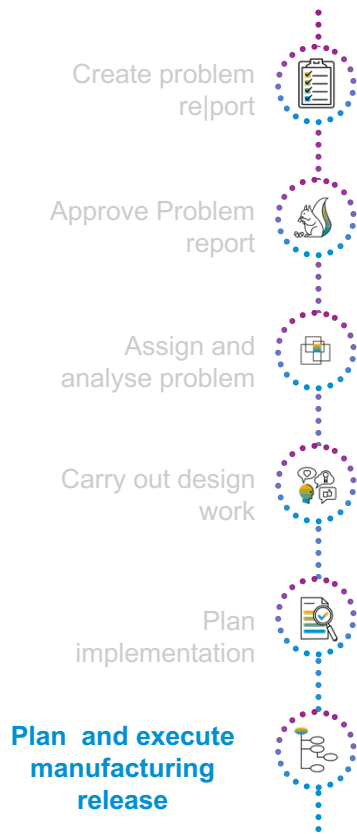
- **Step 7**
- Create new revisions and attach to change notice
- Release workflow to transfer to SAP





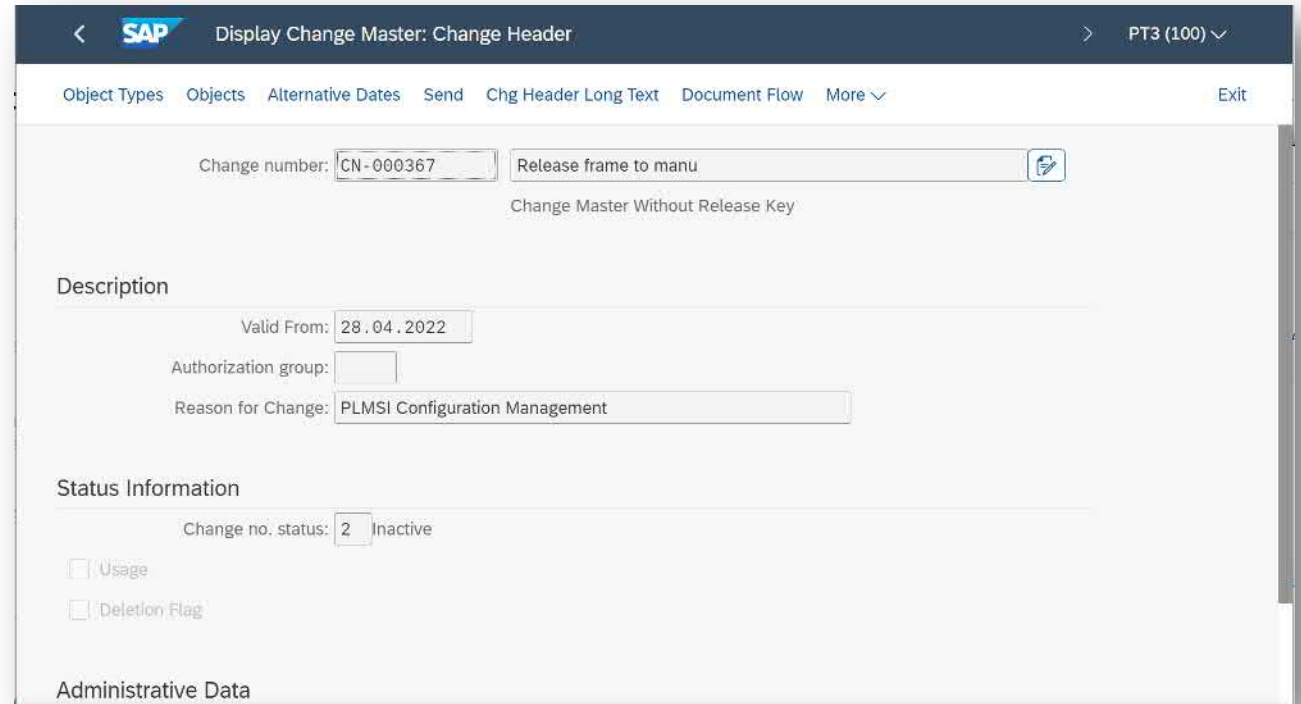
Bi-directional change management enables direct feedback from logistics & operations to engineering teams, improving development speed & accuracy.

Process Details



•Step 8

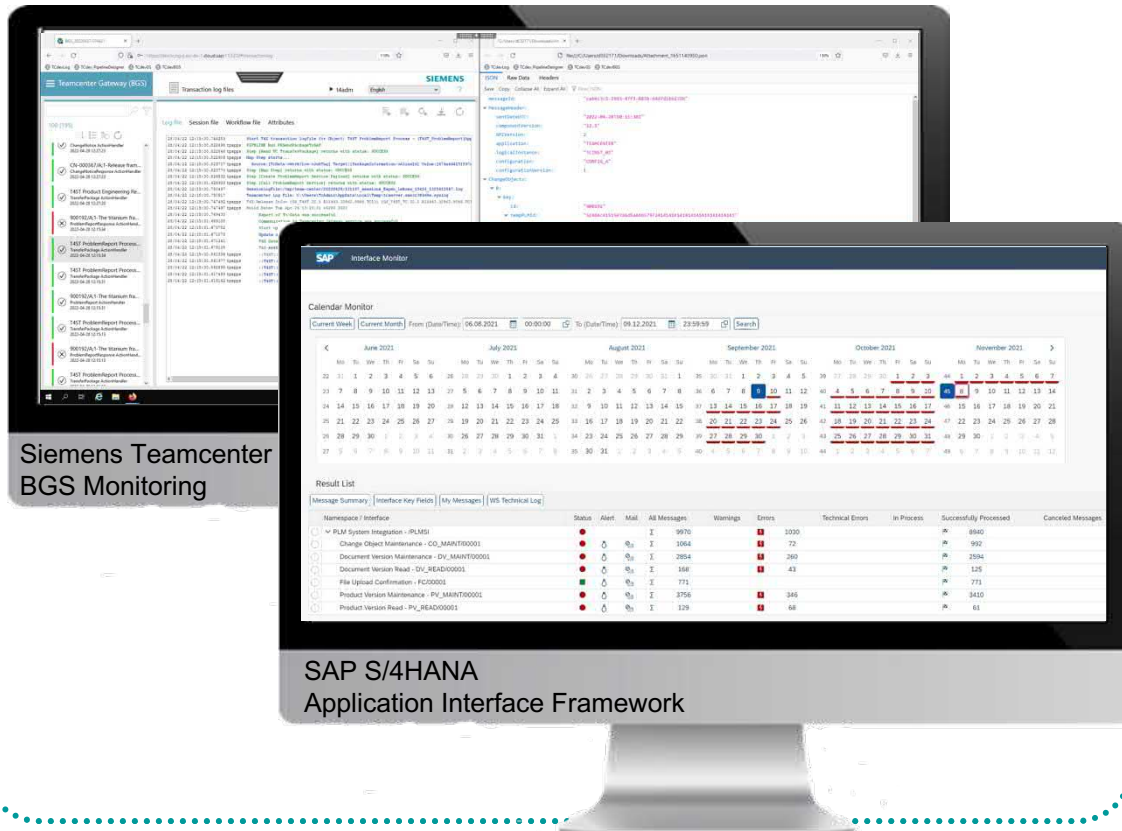
- Engineering released change notice transferred to SAP
- Manufacturing plans implementation and sets correct date for implementation in production



Operations and Monitoring: Efficient and Reliable Process Monitoring

Business Outcomes

“Transparency. Traceability. Clear Responsibilities.”



Process Highlights



Simplicity: configuration, authorization and user management embedded into both systems.



Traceability: Key mappings connect all business objects between systems (→ digital thread), system-specific object IDs point to the corresponding object..



Clear Responsibilities: By analyzing the transferred data (meta domain model), it is easy to see which system caused any issue.

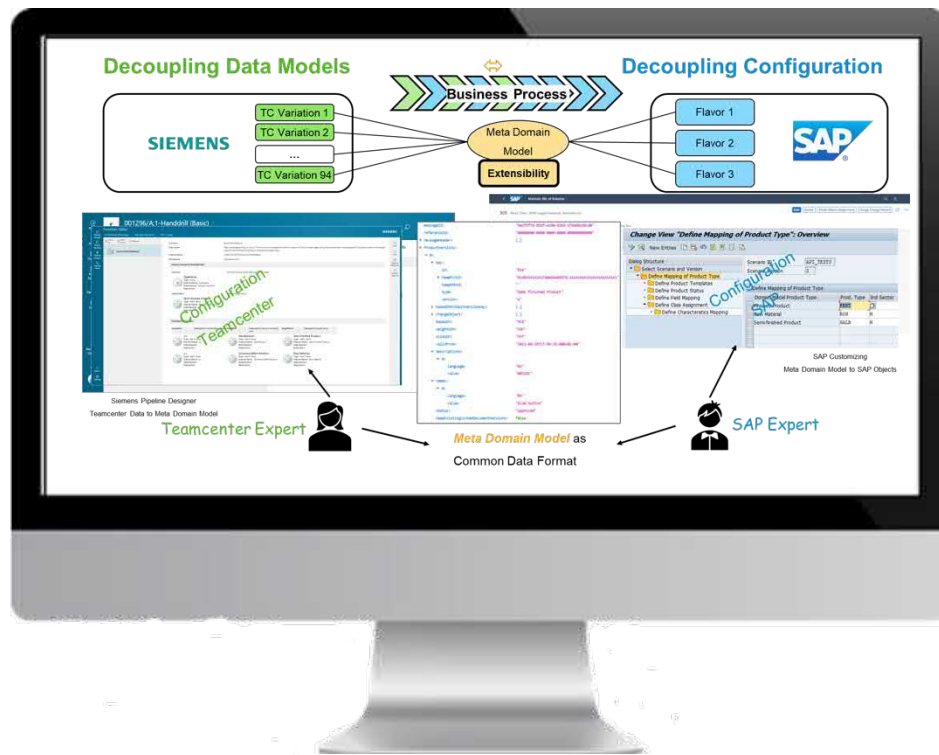


Monitoring for Key Business Users: By using SAP Application Interface Framework, also business users have access to message monitoring.

Architecture: Guiding Principles

Business Outcomes

“Combine the best of two worlds! Let PLM and ERP experts of PLM and ERP jointly define business processes with the help of a common **Meta Domain Model**.”



Process Highlights



Decoupling of System Dependencies, allowing both systems to evolve without disruption.



Key Mapping on both sides for integrated traceability along the complete lifecycle.



Use **Data Federation** to minimize redundant data replication.

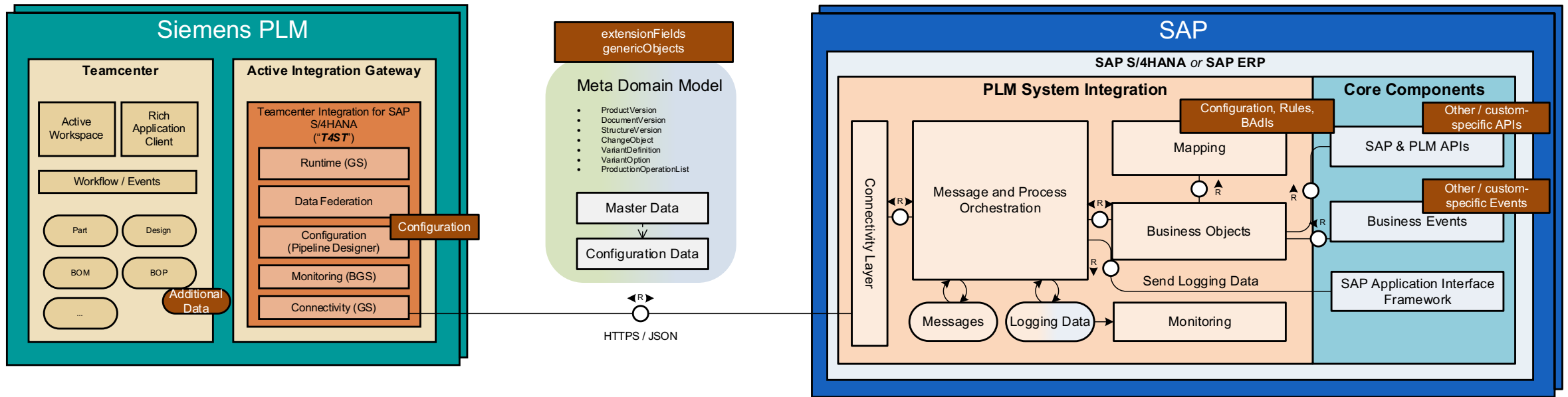


Aligned Standard Content enables out-of-the-box implementations of E2E business processes.



Advanced extensibility to adapt the integration to customer-specific requirements.

Architecture Details of the SAP Teamcenter Integration



Architecture Highlights



Decoupling of System Dependencies, allowing both systems to evolve without breaking the integration.

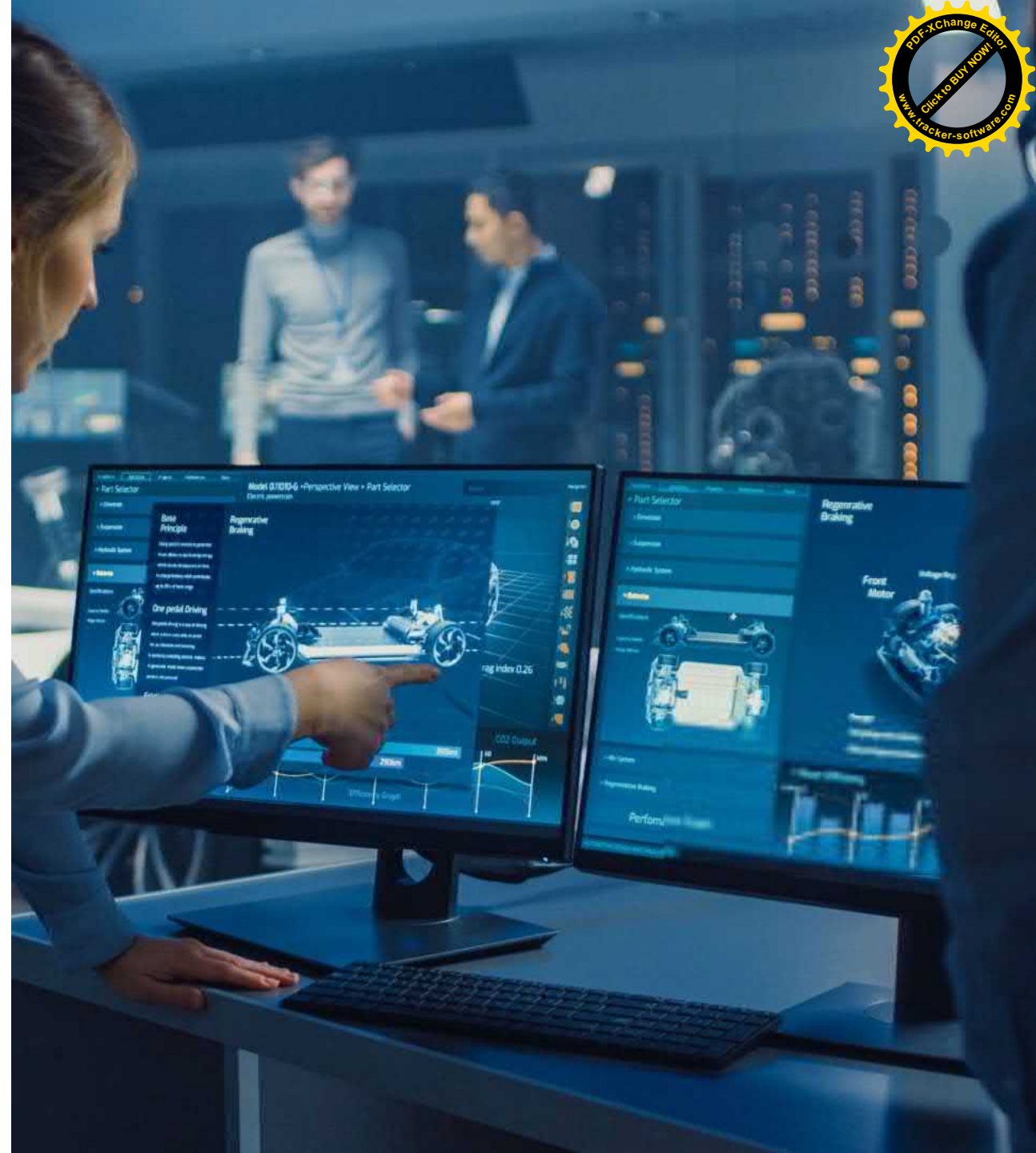


System Requirements:

- SAP ERP 6.0 EhP 7 (or later) and SAP S/4HANA 1809* (or later)
- Siemens Teamcenter 13.2 (or later)

* Some features like "Change Record" require SAP S/4HANA 2020 or later

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Our joint Roadmap






Deliveries and Roadmap

ONE DIRECTIONAL

BI-DIRECTIONAL







Delivered – October 2021

Product Development to SAP Integration

-  Material Master
-  Bills of material
-  Visualization
-  Document Management
-  Part Management

Delivered – April 2022

Closing the loop and expanding to Manufacturing

-  Variant Management
-  Bi-directional Change
-  Bill of Process
-  Cross System Workflow
-  Visuals (2D/3D)
-  Manufacturing Engineering



Q4-2022

Production Engineering & Project Management

-  Planning and Execution
-  Quality Information
-  Impact Analysis
-  Project & Portfolio Management

2023+

Roadmap Candidates

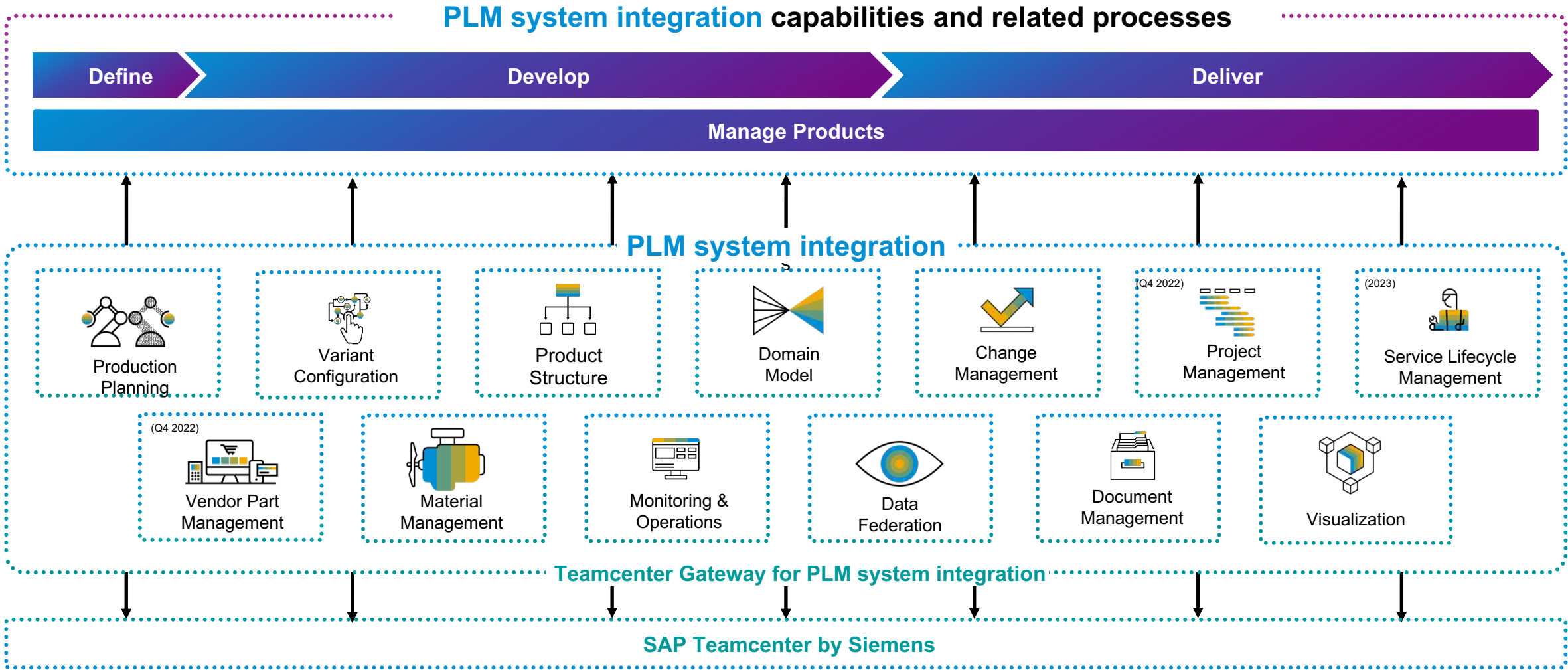
-  Multi-Tenant Cloud
-  Service Lifecycle Management
-  Supplier Collaboration
-  Intelligent Asset Management
-  Advanced ETO & CTO scenarios

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PLM system integration embeds all dimensions of the “Digital Product”





Summary: PLM system integration

5 Take Aways

1. The **prime, end-to-end** integration solution, embedding
2. Teamcenter for **Product Engineering** or
3. Teamcenter for **Product & Manufacturing Engineering across**
4. **Make to Stock, Configure- or Engineer to Order** within
5. **discrete Manufacturing and other Industries.**

Additional Collateral

Important Links

[Teamcenter Page on SAP.com](#)

[PLM system integration Documentation](#)

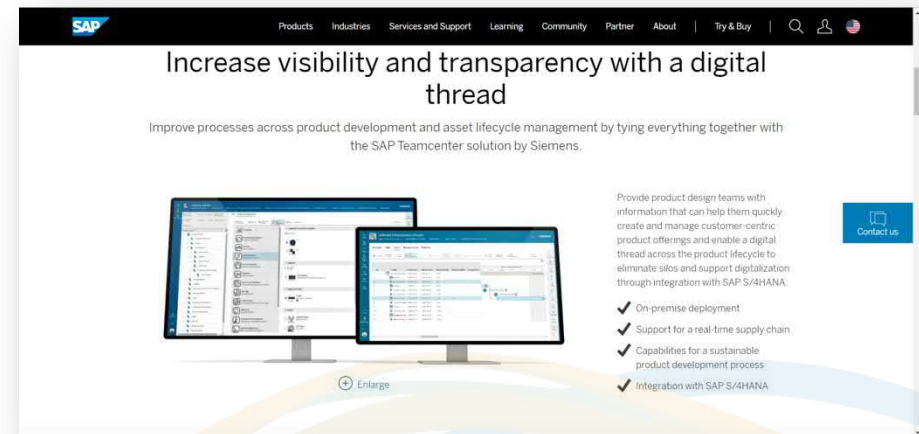
[PLM system integration Concepts, Domain Model, Processes](#)

[PLM system integration Feature Scope Description](#)

[PLM system integration Product Availability Matrix](#)

[Product Roadmap](#)

[PLM system integration Blogs](#)





Thank you.

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THE BEST RUN 