



Siemens & SAP Partnership **Update**

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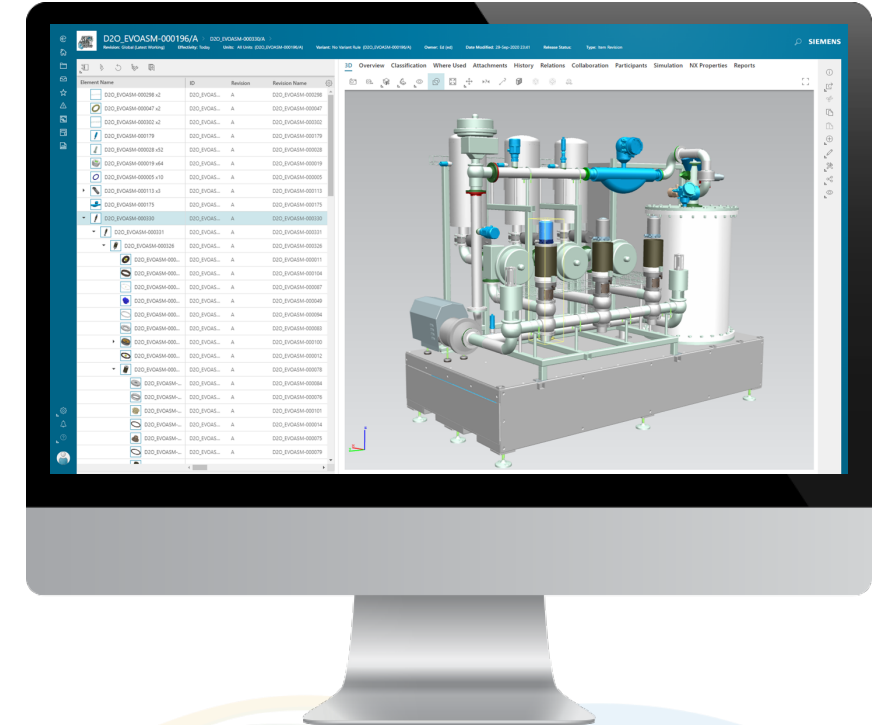
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Agenda

SBN Webinar 09.04.2021

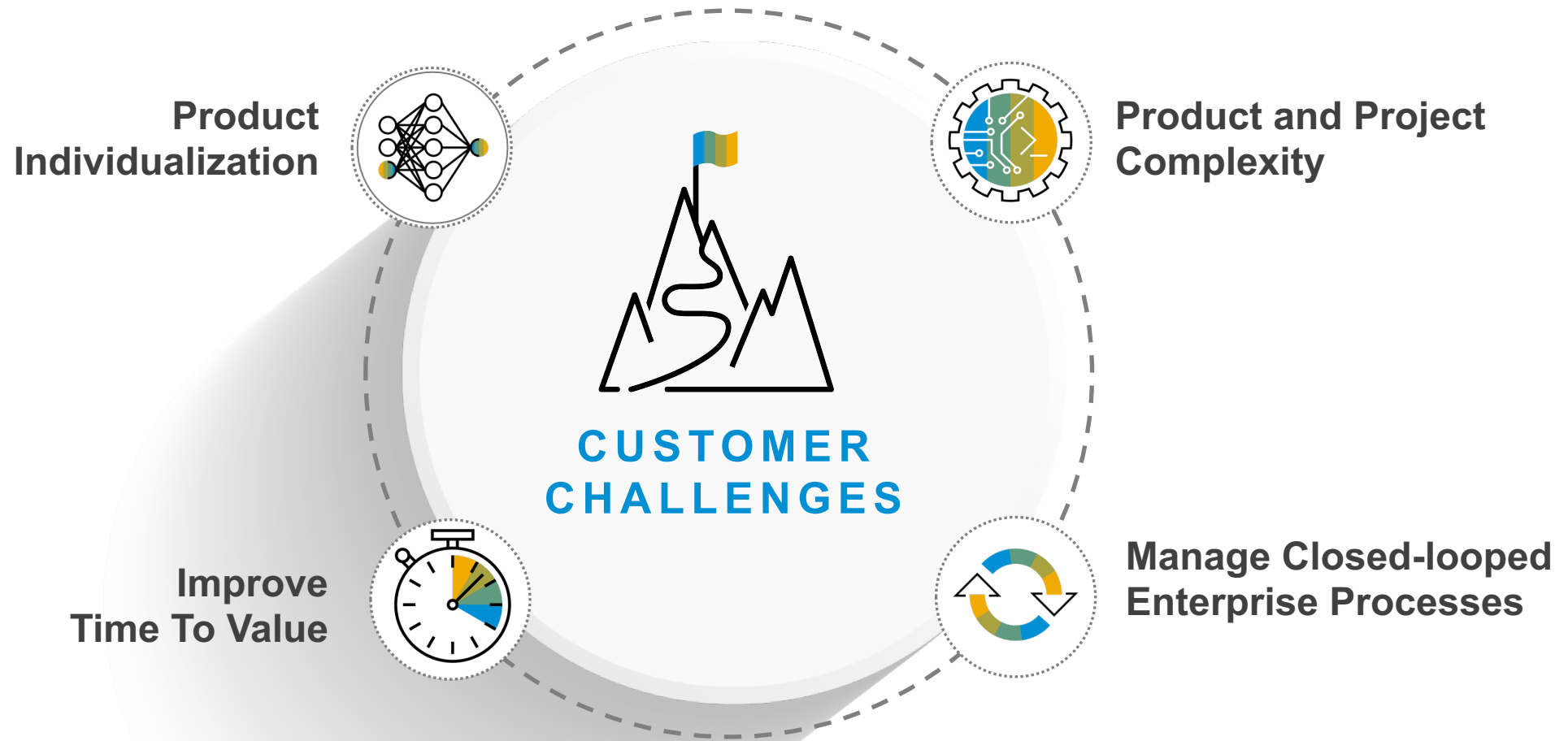
- Industry challenges
- SAP/Siemens partnership in PLM
- SAP Teamcenter and synergy areas
- Update on the Teamcenter/SAP integration
- Q&A



Challenges of the industry



Customer Road To Value – Customer Challenges



Product Development **Execution Challenges**



24%

Frequent Design Changes

How can I decrease the amount of effort and costs put into frequent design changes?



34%

Changing Design Requirements

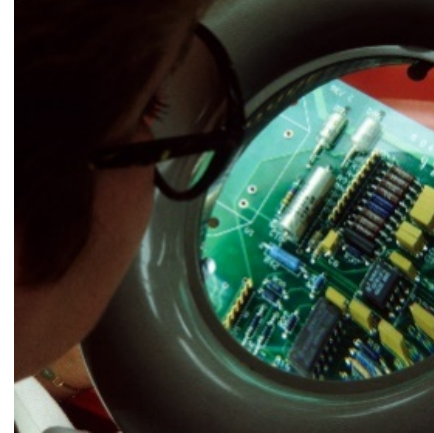
How do I effectively track & manage continuous change in product requirements?



29%

Projects are understaffed

How can I improve my product development collaboration process to do more with less?



25%

Increased Product Complexity

How can I manage product complexity, ensure quality & meet compliance requirements?



19%

Problems/errors are found too late

How can I catch errors early in the game in order to control costs & maximize profits?

SAP/Siemens Partnership

“Enterprise Wide – Engineering Deep”



The best of **both** worlds

SAP

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



SIEMENS

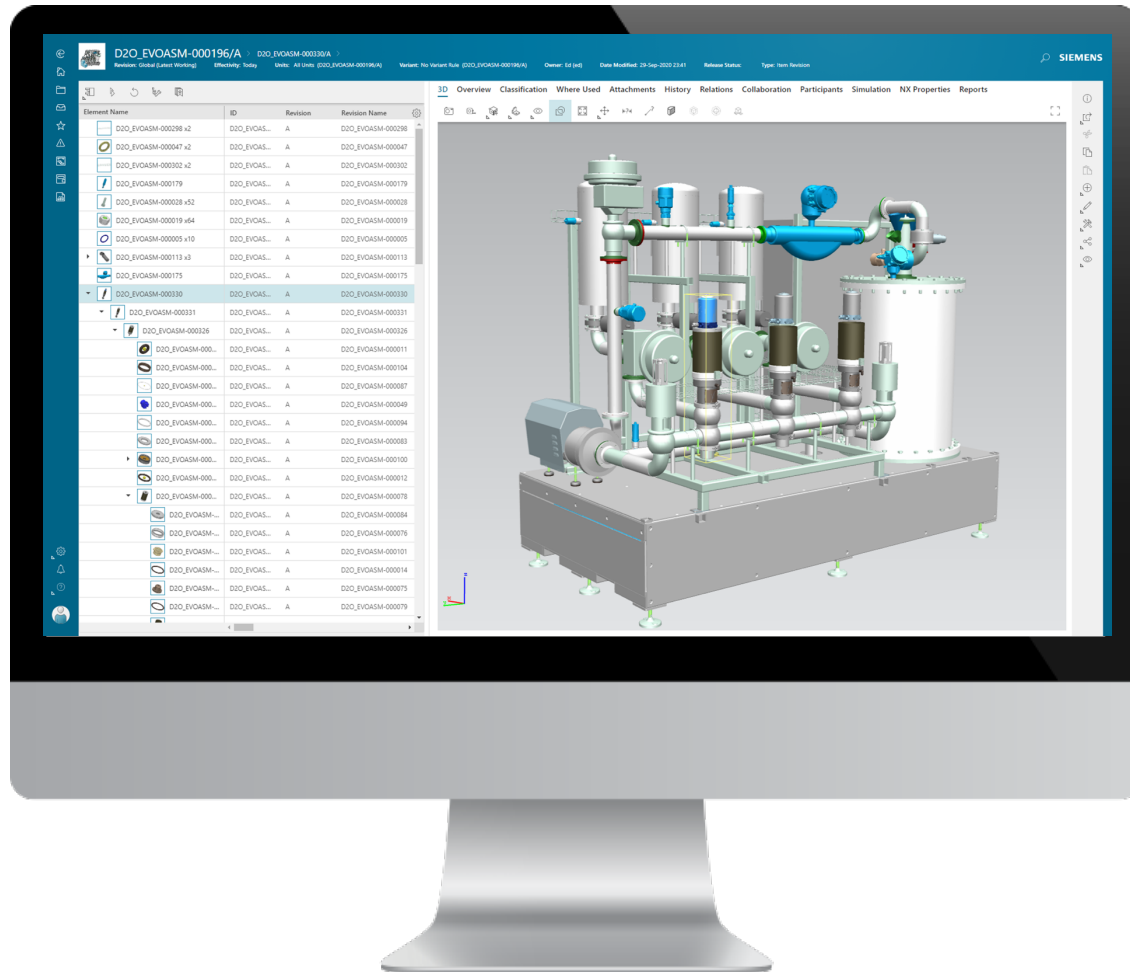
The leader in product lifecycle software, industrial automation and digitalization.



- Dramatically improve time to value
- Design products with real-time supply chain
- Create a sustainable product development process
- Create a single digital thread

SAP Teamcenter by Siemens

SAP will now offer Siemens Teamcenter as part of the SAP portfolio



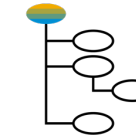
SAP Teamcenter by Siemens is a modern, adaptable product lifecycle management (PLM) system that connects people and processes, across functional silos, with a digital thread for innovation.



Vault



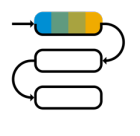
Design



BOMs



Documents



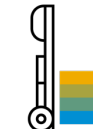
Process



Requirements



Systems
Engineering



Supplier

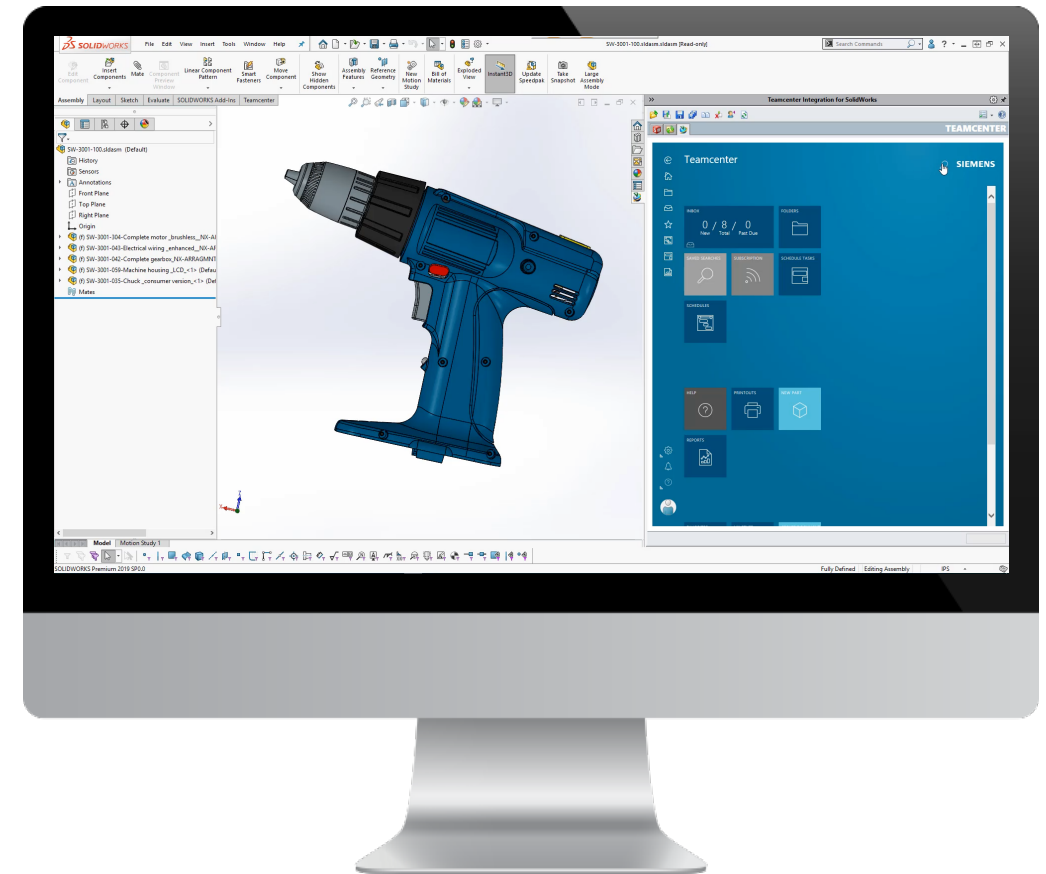


Manufacturing



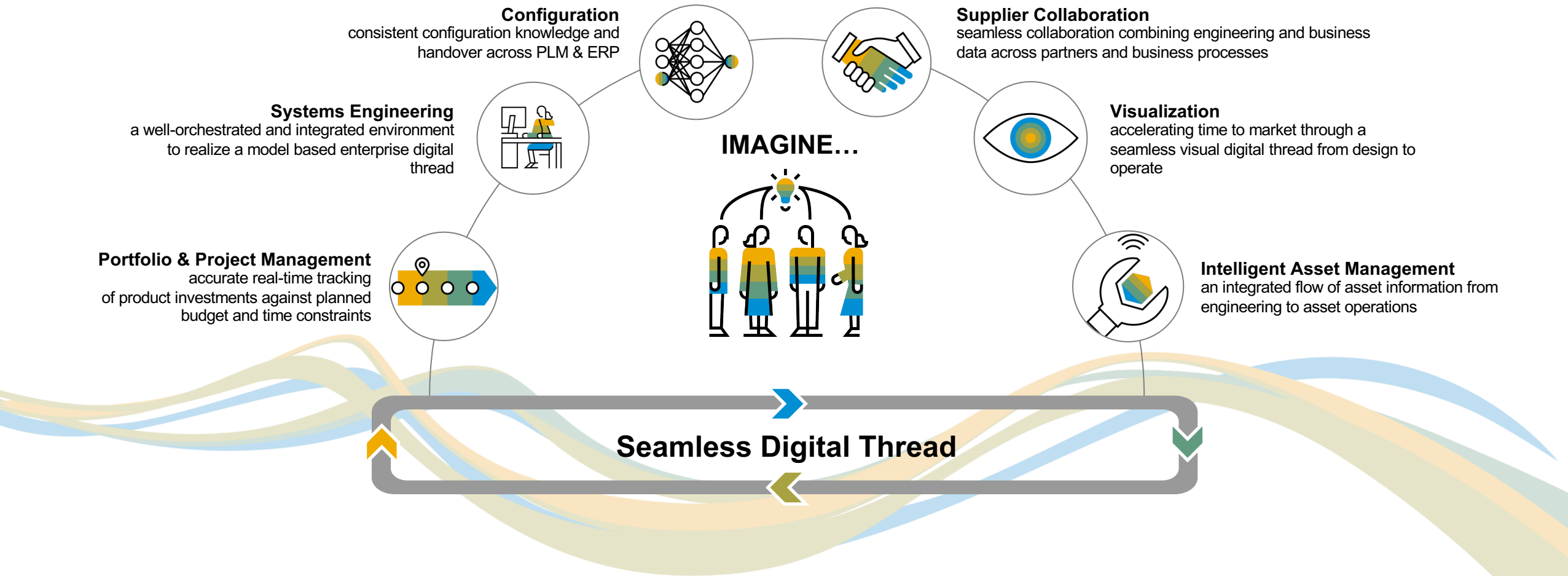
Service

SAP Teamcenter by Siemens



Siemens & SAP: Creating End-to-End Process Threads

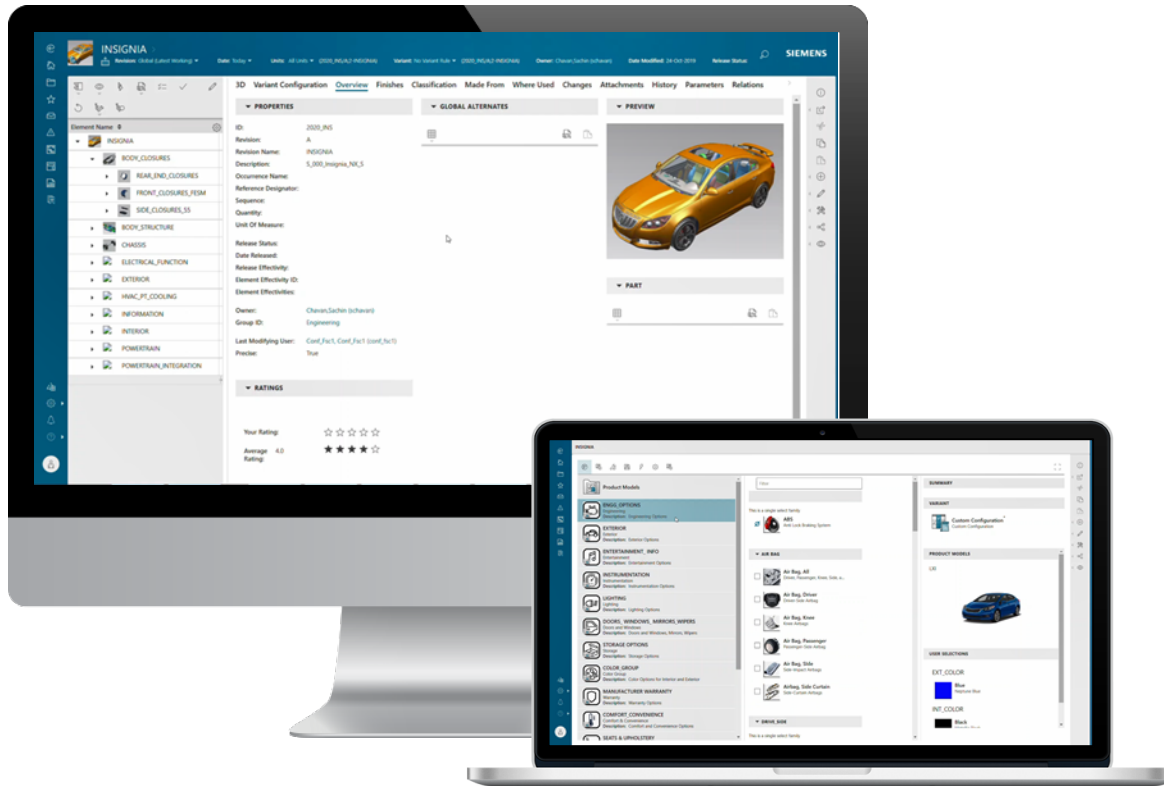
Partnership and Synergistic Areas



Update on the **Teamcenter/SAP** integration



“Engineering Deep” – Example: **Engineering product configuration**



- **Engineering Automation:**
 - Automatically create part designs and documents, capture requirements
 - Integrate with MCAD and Office Applications
 - Support advanced variant calculations
- **Support of Configurable Product Lines**
 - Manage configuration items independent of product design
 - Define a global dictionary to manage product families, features and rules
- **Visualization of Product Configurations**
 - CAD expertise is not required
 - Real time 3D visualization as product is configured
 - Extend visual configuration to SAP Teamcenter solutions

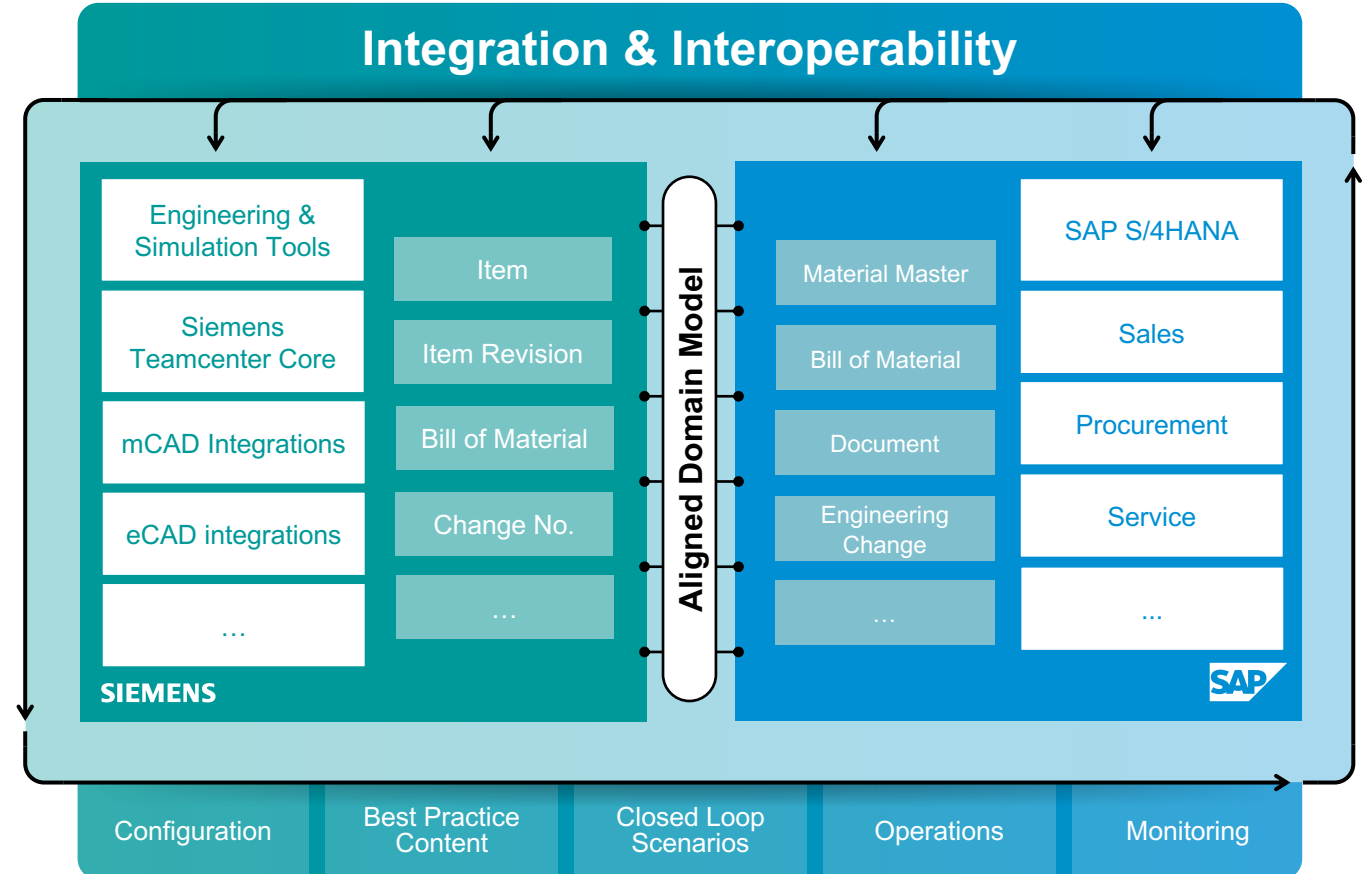
Value Proposition:

- Reduce time to market for engineer to order and configure to order product engineering use cases
- Reduce error through validated design rules
- Promote data reuse through design automation

The Foundation of our Vision: Best in class **Integration and Interoperability**

One joint integration solution which:

- Builds on SAP and Siemens know how
- Aligns on a common Domain Model
- Comes with proven integrations
- Provides access to data across solutions
- Supports seamless setup and operation
- Offers existing customers a path
- Supports on-premise, hybrid and cloud



Challenges for our Integration

Flexibility of the TC Data Model

TC Data Model - Flexibility

- **TC Data Model** is **flexible** regards to object relations and attributes
- TC Data Model is pretty **generic**, without a clear defined Business Semantics
- TC delivered about 120 Object Types over the years with variations

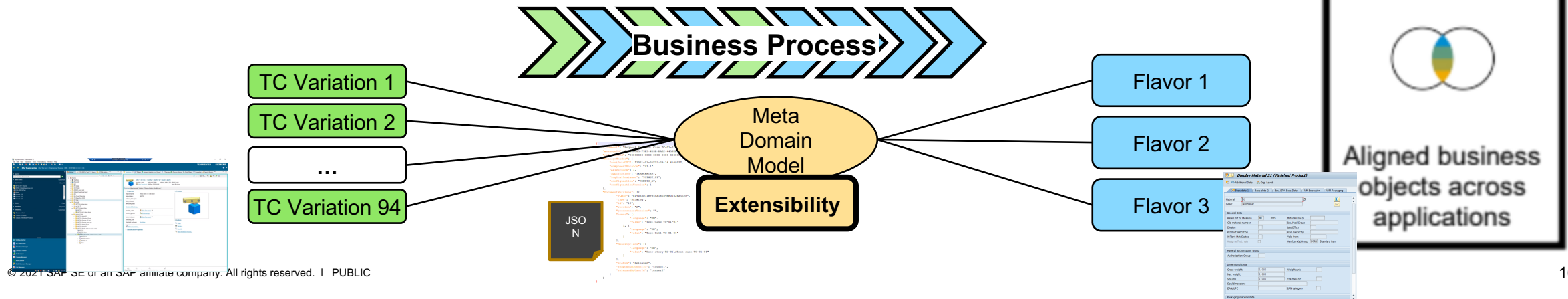
TC Data Model – Customer Situation

- TC Customers and Partners used different approaches to solve business problems
- TC Customers adjusted their object relations and properties
- TC Customers installations are different with high deviations

➔ Biggest Challenge for Integration

SAP Data Model

- The business process defines the **data flow** and the **relevant** master data entities
- The business process may deviate from customer to customer
- **SAP Master data itself** is **agnostic** from the process delivering this data
 - Enable down stream SAP processes, which requires a high standardization of the data
 - There are a few flavors on the master data (e.g. validity), but semantically defined for the processes



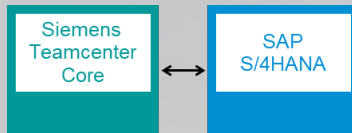
Development Direction combining our Experience, following a joint Vision

2020

2021

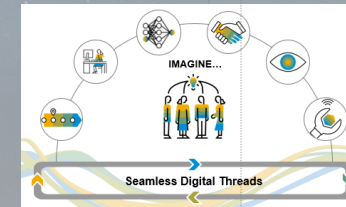
2022

- Siemens-SAP development core components
- Begin development of first, joint integration solution release*

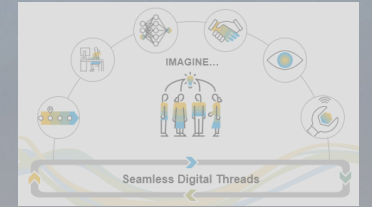


- Core scope on new architecture
- Leveraging common frameworks for object exchange
- Targeted equivalence to robust capabilities

- Continuous extension across areas and scenarios
- Variant configuration scope
- Continuous evolution of use cases



- Continuous extension across areas and scenarios
- Variant configuration scope – improvements
- Advanced features



Foundation

Partnership
announced

Today

Planned **Scope** of the joint SAP – Siemens Integration Solution



Focus of integration

- Seamless exchange of product relevant data to enable a bidirectional process integration
- Solid and reliable foundation for extended processes
- Extend the end-to-end process coverage for specific industry and business processes including configure and engineer to order

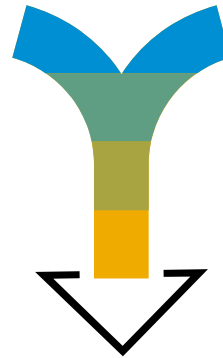
Method

- Start with business entities which are required for all industries and business processes
- Establish a master data alignment (e.g. in the area of Unit of measure, Basic material libraries, material revisions) to ease implementation
- Solid foundation for operating, maintaining and configuring cross end-to-end processes to be able to monitor, control and trace all system interactions

Domain model

History of highly coupled systems – dependent on **specific components** on other side.

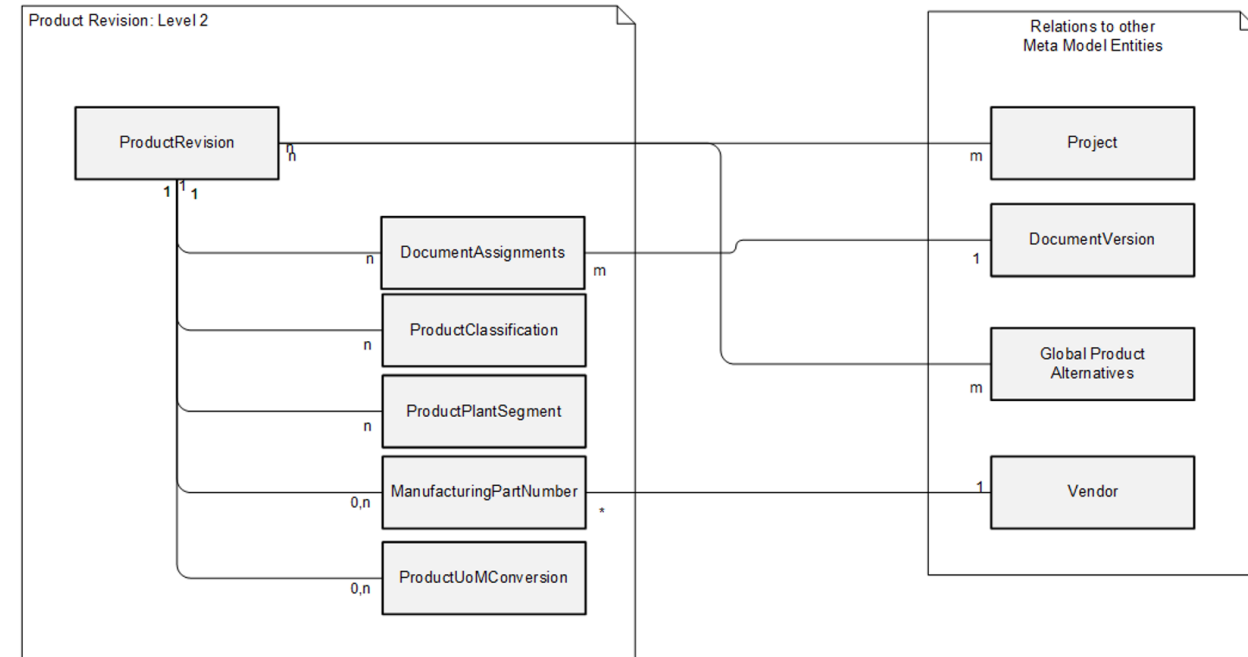
Current integrations developed with a specific system point of view – **making changes and upgrades harder**
Creating **unnecessary dependencies** between systems



Create an abstraction layer between the systems –
with **agreed interfaces and business logic** for how to
exchange information
Prescriptive processes and implementation for
reduced cost and risk

Domain model

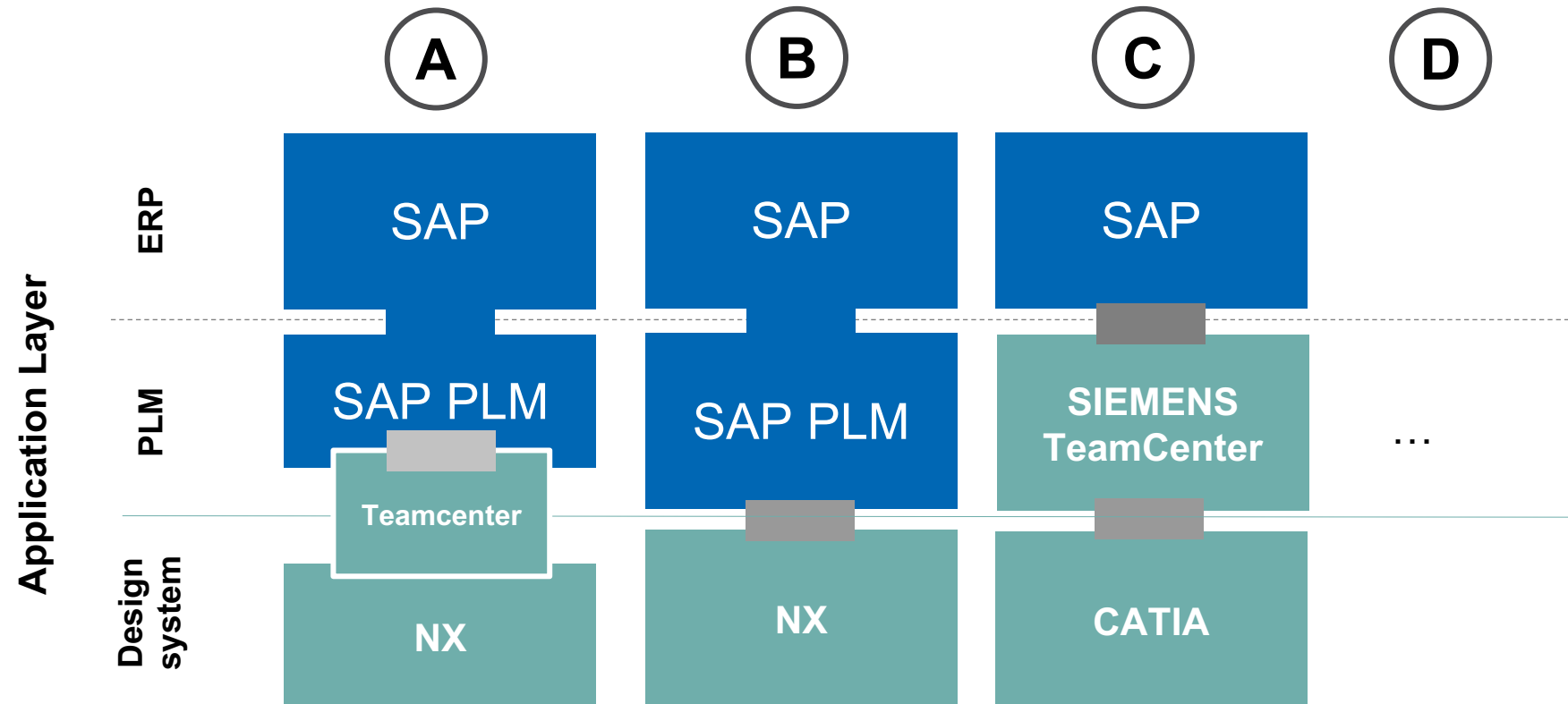
- Well defined entity model
- Supports internal variation – examples
 - with and without CAD-part separation Siemens
 - Change master and change record SAP
 - Defined keys and object identifiers



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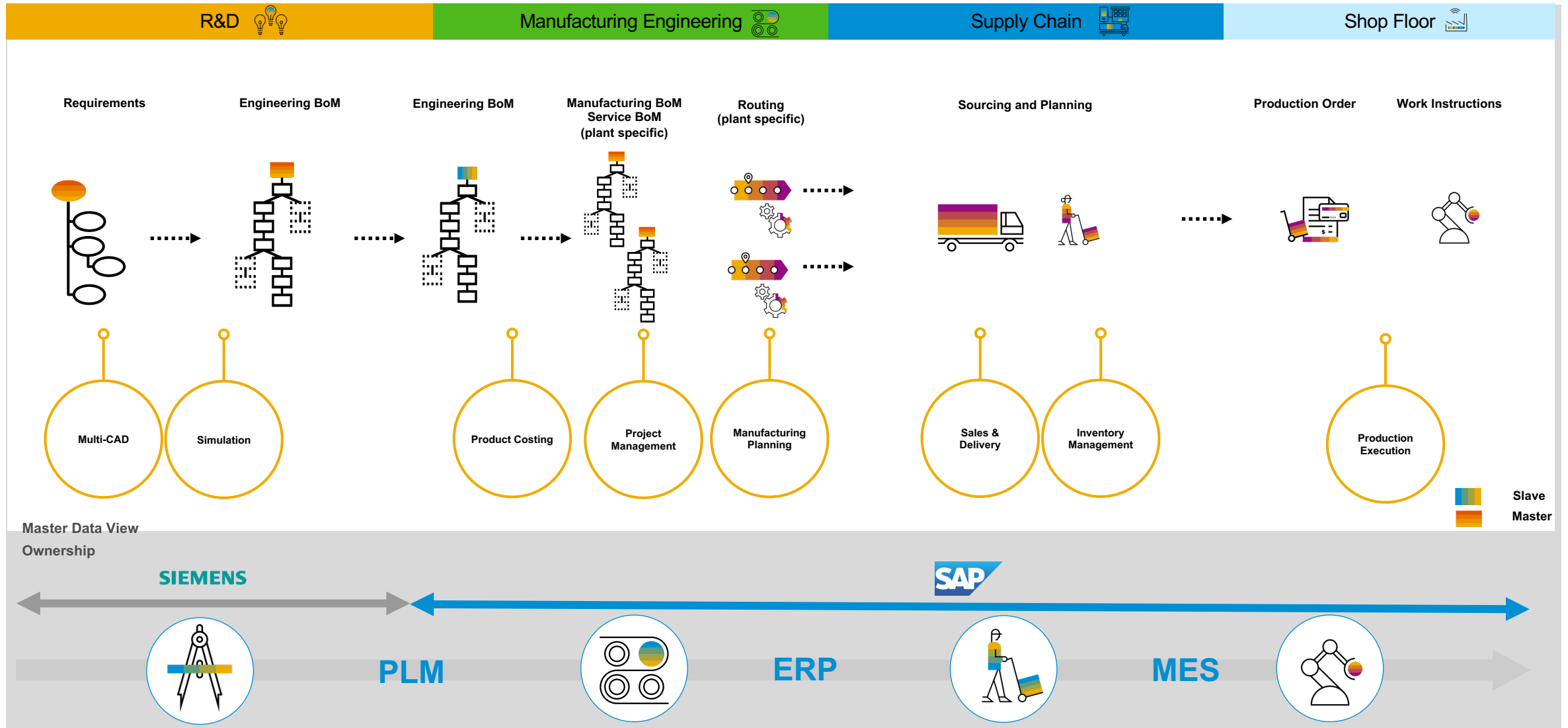
Deployment Options

Product Lifecycle Management



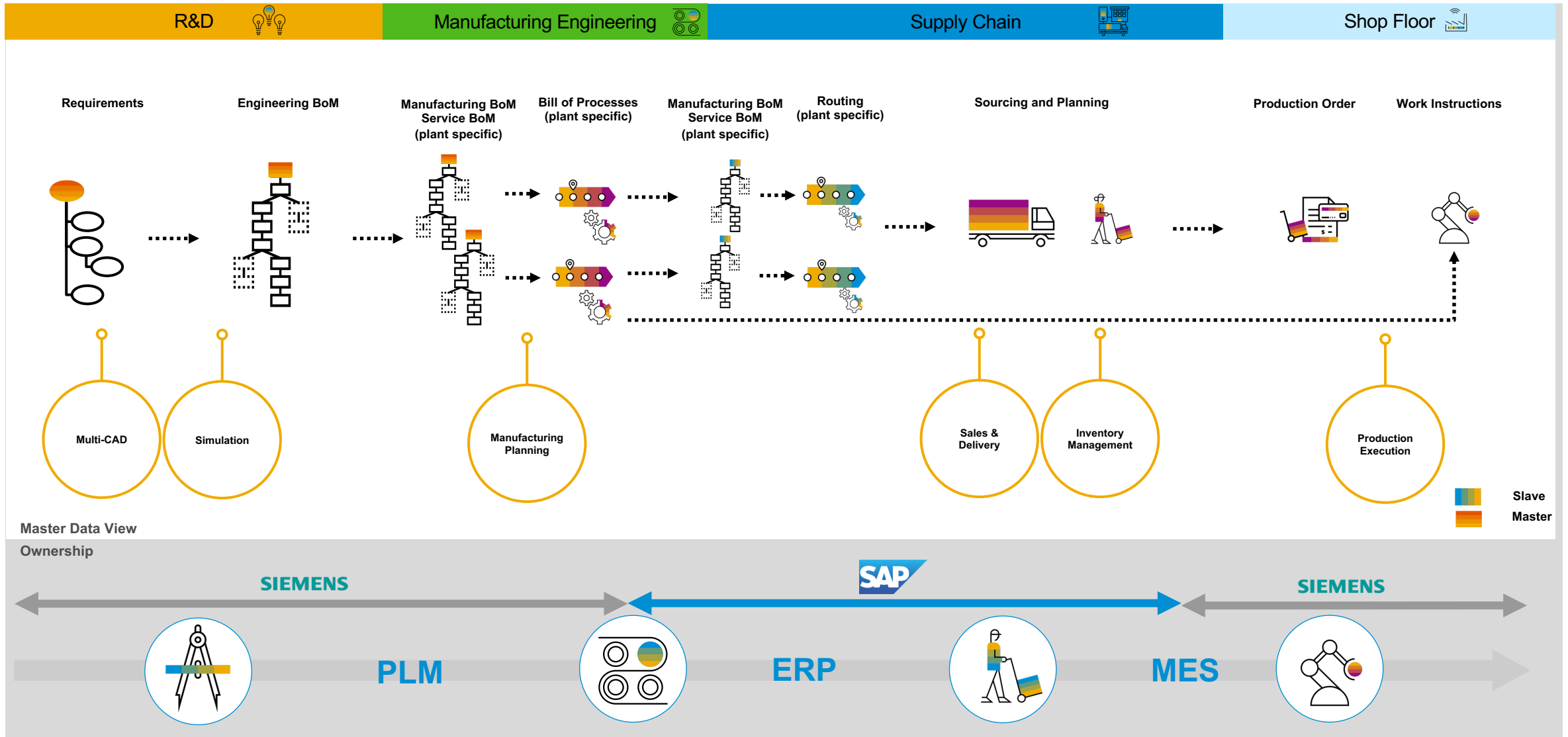
Make to Stock – ERP Focus

E2E industry value chain with intelligent industry scenarios embedded



Make to Stock – PLM Focus

E2E industry value chain with intelligent industry scenarios embedded



Planned **Scope** of the joint Solution: Material Management

LABS
PREVIEW



Area	Scope	Details
Advanced Material Master Management	Allow Product Development to create Material Masters in SAP based on business semantics	The SAP Business Process Integration for Teamcenter enables the maintenance of material masters within SAP based on business semantics. The integration enables the engineers to: - Semantic alignment of product revisions between SAP and Siemens - Synchronize attributes between engineering and supply chain domain - Handle basic alternative Units of Measure
Advanced Material Master Management and classification handling	Exchange of classification information to enable a consistent information flow	The SAP Business Process Integration for Teamcenter allows the exchange of attributes and classification values. This enables the engineering department and extended supply chain stakeholders to work on a shared set of information.
Advanced Material Master Management for Alternative Unit of Measures	Maintenance of alternative Units of Measure enabling advanced BOM management capabilities	The SAP Business Process Integration for Teamcenter enables the maintenance of alternative units of measure for material masters within SAP based on business semantics. This enables the engineer to maintain the required Unit of Measure within the product structure.
Extended Material Master Management	Allow Product Development to create plant specific and configurable Material Masters in SAP based on business semantics	The SAP Business Process Integration for Teamcenter enables the maintenance of plant specific material masters within SAP based on business semantics. The integration enables the engineers to: - Create plant specific material masters - Create configurable material masters - Create Manufacturing Part Numbers - Leverage reference materials during material master creation
Revision level support	Support of revision levels	The SAP Business Process Integration for Teamcenter enables to assign Revision Levels to documents and material masters



Planned **Scope** of the joint Solution: Document Management

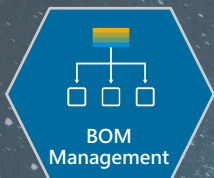
LABS
PREVIEW



Area	Scope	Details
Advanced Document Management	Allow Product Development to create Document Info Records in SAP based on business semantics	The SAP Business Process Integration for Teamcenter enables the maintenance of Document Info Records within SAP based on business semantics. The integration enables the business to: • Create and Update Document Info Records based on Siemens Teamcenter Objects and their business semantics • Trigger viewable conversion of JT files into VDS files
Advanced Document Management relations	Allow the business to handle advanced document material master relations	The SAP Business Process Integration for Teamcenter enables the maintenance of Document Info Records within SAP based on business semantics. The integration enables the business to: • Build on advanced object link handling between Material Masters and documents • Maintain document info records links on BOM header level
Advanced Document Management structures	Allow the business to create bill of documents for technical documents	The SAP Business Process Integration for Teamcenter supports the maintenance of bill of documents to structure non-CAD related information



Planned **Scope** of the joint Solution: Bill of Material



Area	Scope	Details
Advanced Bill of Material management	Maintenance Bill of materials in SAP based on business semantics	The SAP Business Process Integration for Teamcenter enables the maintenance of bill of materials within SAP based on business semantics. The integration enables the business to: • Maintenance of SAP classic enterprise level Bill of Material • Support of Date effectivity • <i>Support of geometric instance handling on BOM item level*</i>
Extended Bill of Material management	Allow Product Development to maintain plant specific and configurable Bill of materials in SAP based on business semantics	The SAP Business Process Integration for Teamcenter enables the maintenance of bill of materials within SAP based on business semantics. The integration enables the business to: • Maintain SAP classic plant level Bill of Material • Maintain software components • Maintain object dependencies on BOM item level • Maintain alternative BOMs
Support of BOM Versions*	Allow Product Development to maintain BOMs under version control	The SAP Business Process Integration for Teamcenter enables the maintenance of bill of materials under version control within SAP based on business semantics. The integration enables the business to Maintain SAP Bill of Materials under version control
Model Unit effectivity for BOM	Allow Product Development to maintain Model Unit effectivity for BOMs	The SAP Business Process Integration for Teamcenter enables the maintenance of Model Unit effectivity for bill of materials
Order specific Bill of Material management	Allow Product Development to maintain order specific Bill of materials in SAP based on business semantics	The SAP Business Process Integration for Teamcenter enables the maintenance of order specific bill of materials within SAP based on business semantics.



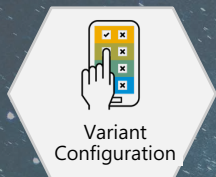
Planned **Scope** of the joint Solution: Change Management



Area	Scope	Details
Change Management Integration triggered by Engineering	Teamcenter triggered Engineering Change	The SAP Business Process Integration for Teamcenter enables the Creation and Maintenance of Change Master with Valid From date effectivity based on Teamcenter Engineering Change Notice.
Change Management Integration triggered by logistics	SAP triggered Engineering Change	The SAP Business Process Integration for Teamcenter enables the Creation and Maintenance of a Siemens Engineering Change Notice by SAP Engineering Change Management.
Advanced Change Management Integration triggered by Engineering	Advanced Teamcenter triggered Engineering Change	The SAP Business Process Integration for Teamcenter enables the Creation and Maintenance of SAP Change Record based on Siemens Teamcenter Problem Report, Engineering Change Request, Engineering Change Notice.
Advanced Change Management Integration triggered by logistics	Advanced SAP triggered Engineering Change	The SAP Business Process Integration for Teamcenter enables the Creation of Teamcenter Problem Report and Change Request based on SAP Change Record.



Planned **Scope** of the joint Solution: Variant Configuration



Area	Scope	Details
Variant Configuration Model Transfer	Transfer of variant definition for Variant Configuration	The SAP Business Process Integration for Teamcenter enables the transfer of the product model for Variant Configuration within SAP based on business semantics. The integration enables the engineers to: Transfer of Configuration Context, Family Groups, Families and Features into the SAP VC classification model
Variant Configuration Model Synchronization for Engineering Constraints	Exchange of product model for Variant Configuration and Engineering Constraint rules	The SAP Business Process Integration for Teamcenter enables the exchange of the product model for Variant Configuration within SAP based on business semantics. The integration enables the engineers to: • Semantic harmonization of VC modeling methodologies • Transfer of Siemens Teamcenter Configuration Context and associated rule sets to SAP constraints and variant tables
Simplified Engineer to Order scenario	Enablement of streamlined Engineer to Order scenario	The SAP Business Process Integration for Teamcenter enables the exchange sales order specific information to Engineering and logistics.



Planned **Scope** of the joint Solution: Visualization & Innovation Topics

LABS
PREVIEW



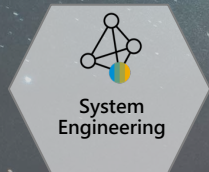
Visualization



Cross Project
Management



Supplier
Collaboration



System
Engineering

Area	Scope	Details
SAP EPD Visualization Integration	Integration of EPD Visualization	The SAP Business Process Integration for Teamcenter integrates into SAP EPD visualization
Supplier Part Management	Exchange Supplier information based on vendor information	The SAP Business Process Integration for Teamcenter enables the exchange of vendor and manufacturing part number information. The integration enables the business to: • Maintain an SAP Business Partner based on a Siemens Teamcenter Vendor • Import SAP Business Partner as Vendor into Siemens Teamcenter • exchange supplier status information
SAP EPD Collaboration Integration	Integration of EPD Collaboration	The SAP Business Process Integration for Teamcenter integrates into SAP EPD collaboration
SAP EPD System Engineering Integration	Integration of EPD System Engineering	The SAP Business Process Integration for Teamcenter integrates into SAP EPD System Engineering and allows to exchange related information with Siemens Teamcenter.
Portfolio & Project Management Integration	Enable cross system portfolio and project management	The SAP Business Process Integration for Teamcenter improves transparency across different domains by sharing project and portfolio related information between Engineering and extended supply chain. The integration enables to: • Share portfolio relevant information like but not limited to milestones, budget information and status. • Share project or program relevant information like but not limited to milestones, actual dates and progress status. • Implement a ETO business process across Engineering and extended supply chain



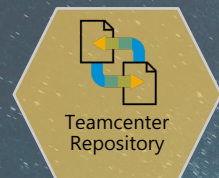
Planned **Scope** of the joint Solution: Production Planning



Area	Scope	Details
Transfer PMI information to logistics*	Allow business to access PMI data along the whole business process	The SAP Business Process Integration for Teamcenter enables the access to PMI information along the business process.
Transfer of manufacturing relevant information*	Allow business to access manufacturing relevant information along the whole business process	The SAP Business Process Integration for Teamcenter enables the access to manufacturing relevant information originated in Siemens Teamcenter like but not limited to: • Gerber Files, ODB++ files • STL for 3D printing • NC programs • Manufacturing drawings • Work Instructions • Simulation results
Classic PP Routing Integration*	Transfer of classic SAP routing	The SAP Business Process Integration for Teamcenter enables the transfer of classic PP routings based on Teamcenter bill of processes to SAP based on business semantics. The integration enables the business to maintain: • Routing structure with operations • Component allocation • Product resources and tools
Engineering Snapshot PE&O Integration*	Support of Engineering Snapshots for Production Engineering & Operations	The SAP Business Process Integration for Teamcenter enables the creation of Engineering snapshots for Production Engineering and Operations.
PE&O integration*	Transfer Bill of process to SAP PE&O staging area	The SAP Business Process Integration for Teamcenter enables the transfer of Teamcenter bill of processes into the SAP PE&O Staging area based on business semantics. Semi-automatic and manual maintenance of the PE&O Shopfloor Routing in reference to Siemens Teamcenter Bill of Processes will be supported.



Planned **Scope** of the joint Solution: Foundation



Area

Cross System data federation between Siemens and SAP

Scope

Enable Teamcenter and SAP UI to show business critical information in both systems

Details

Enable Teamcenter and SAP UI to show Entity data of the integrated system to access business-critical data in the context of a leading object. Following business objects will be supported:

- Material Master
- Document Info Record



Advanced cross system data federation between Siemens and SAP

Enable Teamcenter and SAP UI to show business critical information in both systems for Change Management

Enable Teamcenter and SAP UI to show Entity data of the integrated system to access business-critical data in the context of a leading object. Following business objects will be supported:

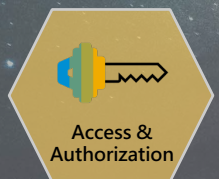
- SAP Change Record
- SAP Engineering Change Master
- SAP Bill of materials



Master Data Management Integration

Allow the business to leverage the benefits of a MDM driven master data creation process

The SAP Business Process Integration for Teamcenter enables the Integration of SAPs master data management solution.



File Exchange

Allow SAP business users to replicate files to SAP

The SAP Business Process Integration for Teamcenter provides the option to replicate Siemens Teamcenter files into a SAP content repository.

Advanced File Exchange

Allow SAP business users to access files out of Teamcenter repository

The SAP Business Process Integration for Teamcenter provides the option to connect Siemens Teamcenter as content repository



Cross system Workflow

Enable cross system traceability for workflows

The SAP Business Process Integration for Teamcenter improves transparency across different domains by sharing information between Engineering and extended supply chain. The integration enables to start and trace cross system workflows.

Cross system Impact analysis

Enable cross system impact analysis

The SAP Business Process Integration for Teamcenter improves the transparency across different domains by sharing information between Engineering and extended supply chain. The integration enables full change impact analysis from design to operate. The information can be accessed from Teamcenter and SAP.



Q&A



Thank you

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