



Modular Type Package (MTP) and SIMATIC PCS neo – the future standard

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SIEMENS

Demonstration at the mini fair

Perspectives and motivation behind the Modular Type Package-concept (MTP)

- How to configure a flexible and modular production plant based on multiple stand-alone "Units", realized with Siemens TIA-Portal, WinCC Unified and the MTP compatible Library "Process Function Library" (PFL).
- How to import "Unit" information about Monitoring and Control into the Process Control System SIMATIC PCS neo (in this context called "Process Orchestration Layer" –POL).

Enable plug & produce with modular production

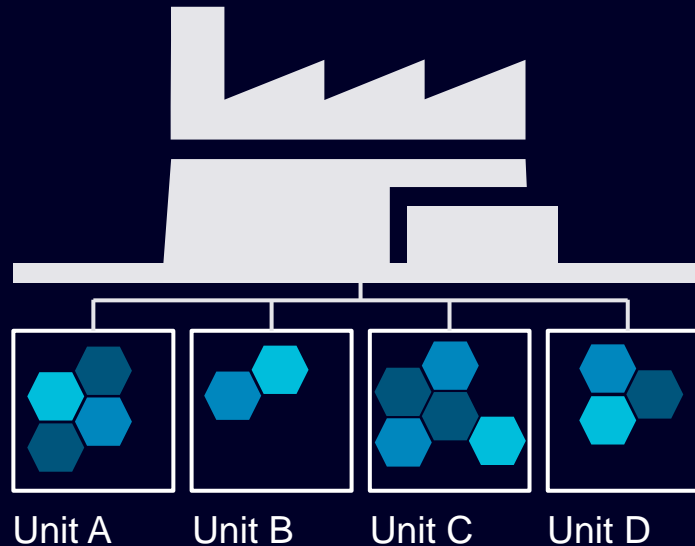
Flexibility with Module Type Package (MTP)

Challenges

- Fluctuations in demand
- Fast changing products
- Smaller batch sizes
- Adjustable orchestration
- Delivery Situations



“Modular Production”



Benefits

- Reduced costs
- Increased flexibility
- Shorter time-to-market
- Freedom of choice
- Easy re-use
- Pre-tested (Pre Validated)



Modular production leads to modularization of assets perfectly embracing discrete and process modules

Automation today

- 1 Manual interconnection and integration of process equipment
- 2 Proprietary SW interfaces
- 3 Different pre-engineered communication channels
- 4 Manual engineering of process sequence
- 5 Centralized large-scale controllers



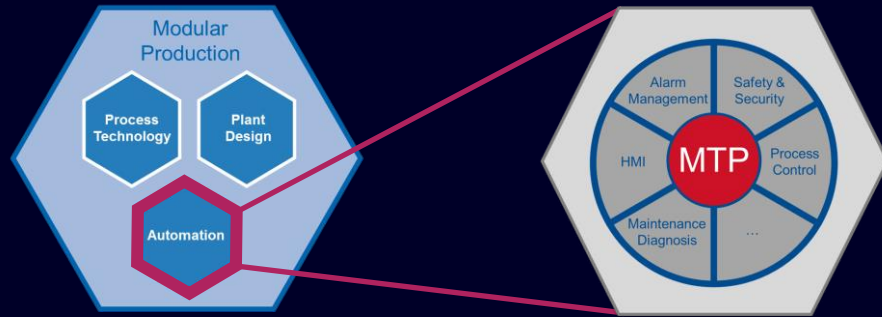
Future of automation

- 1 Modules with defined physical interfaces
- 2 SW interfaces based on standardized semantics (data structures, services, etc.)
- 3 Open and flexible connectivity frameworks
- 4 Orchestration of modules via services
- 5 Decentralized intelligence: Modules/components with small controllers



Modular Production requires modular automation, which is continuously standardized by NAMUR and ZVEI

Motivation – MTP as driver for shorter time-to-market and increased flexibility in several industries



Module Type Package (MTP)

- A **standard description** of Process Equipment Assemblies and their **runtime interfaces**
- Standardized in NAMUR, ZVEI and VDI

Chemicals



Pharma



Glass



Water and Wastewater



Food & Beverage



Traditionally DCS oriented industries expect **increased flexibility** and **shorter time** to market by Modular Production

Traditionally PLC/SCADA oriented industries with OEM-footprint expect **faster machine integration**

Agile MTP standardization (VDI/VDE/NAMUR 2658) is spreading fast to further industries

¹ NAMUR: User Association of Automation Technology in Process Industries, primarily chemical and pharmaceutical industries

Modular production with MTP is driven by NAMUR but applicable for several industries



Chemicals



Marine



Glass



Food and beverage



Electronics



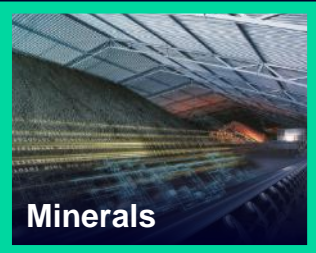
Aerospace



Automotive



Water and wastewater



Minerals



Pharmaceuticals



Batteries



Wind



Machine building



Intralogsitics



Oil and gas



Power and utilities



Paper



Tire



Additive manufacturing



Cranes



Robotics

MTP is perfectly embracing discrete and process industries

The interdisciplinary cooperation between machine builders, plant integrators/owners and system suppliers is one key to success

IEC63280

Global International Standard for MTP¹⁾

ZVEI

German Electrical and Electronic Manufacturers' Association



Plant Owner/Operator

Universities/Associations

Modul/Plant Manufacturers

NAMUR

User Association of Automation Technology in Process Industries

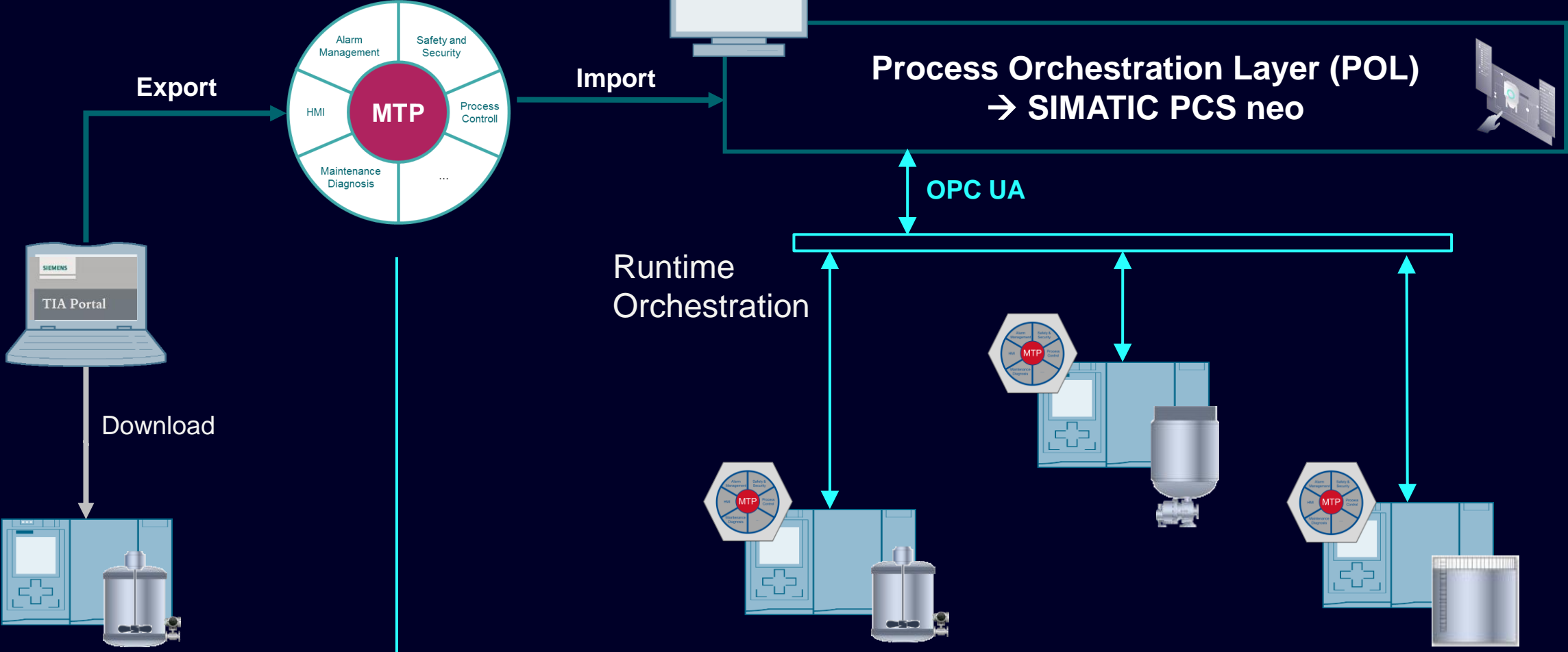


¹⁾ in progress

Modular Automation Workflow

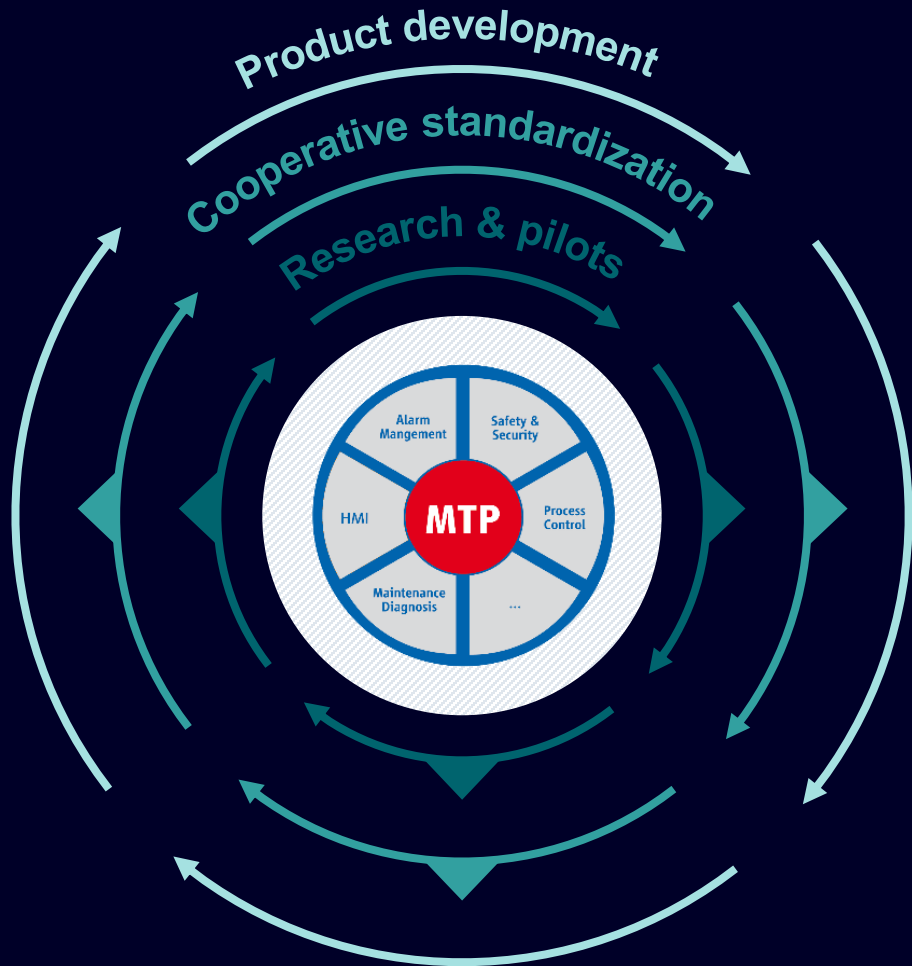
Module Engineering

Plant Engineering



Modular production with the MTP standard

Agile implementation of ever new features – VDI/VDE/NAMUR 2658



VDI/VDE/NAMUR 2658-1 – Basic Concept

➤ Published

VDI/VDE/NAMUR 2658-2 – Static HMI Elements

➤ Published

VDI/VDE/NAMUR 2658-3 – Data Structures for HMI

➤ Published

VDI/VDE/NAMUR 2658-4 – Process Control

➤ Draft published

VDI/VDE/NAMUR 2658-5 – Runtime and communication aspects

➤ Draft under development

VDI/VDE/NAMUR 2658-6/7 – Alarm Management

➤ Draft under development

VDI/VDE/NAMUR 2658-8/9 – Safety

➤ Concept phase

VDI/VDE/NAMUR 2658-10 – Diagnose/Maintenance

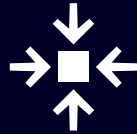
➤ Concept phase



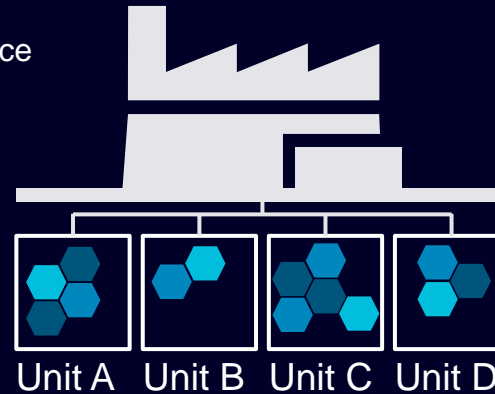
Modular automation

Our offering for your product flexibility

Keep your existing plant untouched and lift it to modular production with **MACHINE PROXY¹⁾** for industrial edge



Integrate standardized **MODULAR PRODUCTION** to achieve time-savings
cost effectiveness
flexibility and
vendor independence



Enable modular production and orchestration with just one click in the **SIMATIC MTP CREATOR¹⁾**



Use footprint- & performance-optimized **SIMATIC CONTROL FUNCTION LIBRARY (CFL)¹⁾** for quick & efficient engineering with MTP-ready function blocks for S7-1200 and S7-1500 PLC and HMI faceplates



Use advanced **SIMATIC PROCESS FUNCTION LIBRARY (PFL)** with standardized function blocks and faceplates harmonized with SIMATIC PCS neo for S7-1500 PLC, WinCC Unified and SIMATIC PCS neo

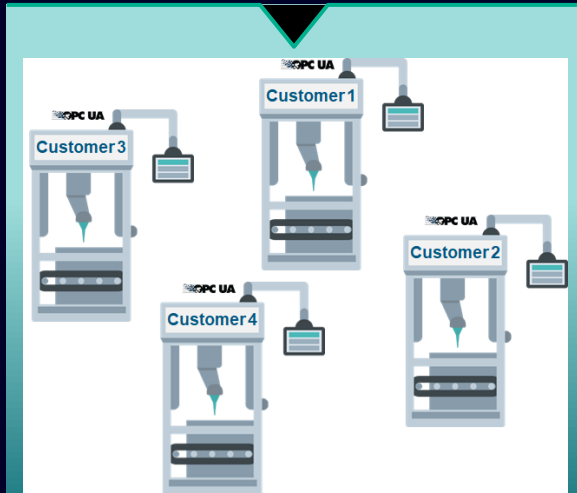


¹⁾ Future Portfolio

Modular automation

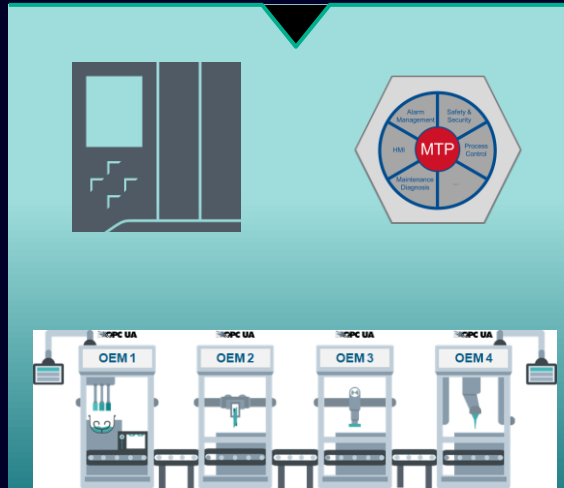
Benefits due to MTP integration

Benefits for module manufacturers



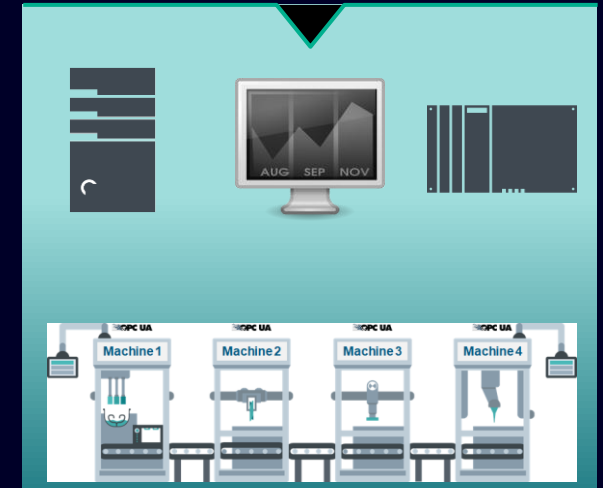
Less engineering effort due to pre-simulation and reusable interfaces for multiple customers

Benefits for line integrators



Integration of pre-tested units for plug & produce and vendor-independence

Benefits for operators



Quick adaption to market requirements and process capacities

MTP information and products from Siemens

The screenshot shows the Siemens Industry Online Support interface. The main content area displays a product note titled "Sales and Delivery Release incl. Download: SIMATIC Process Function Library (PFL) V2.0 SP1". The note includes a table of contents with sections like "Use and Area of Application", "Product Information", "Structure", "Software and Hardware prerequisite", "SIMATIC Process Function Library Licensing", "Download and Readme", and "Product and Ordering Information". A list of industries is provided: Chemicals, Pharmaceuticals, Water and wastewater, Glass, and Food and beverages. The right sidebar contains a "mySupport Cockpit" with user information for Jens Norling Mathiasen and a "Product information" section with links for Presales info, Catalog and ordering system online, Technical info, Support, Service offer, Training, and Contact & partners. A "Related links" section includes Wastewater treatment, Compatibility Tool, Water treatment, Water pump station, and Compatibility analysis for SIMOTION, SINUMERIK and SINAMICS.

SIEMENS Modular Production Overview

This block contains a video thumbnail for "SIEMENS Modular Production Overview". It features a blue square with a white lowercase 'i' icon and a mouse cursor pointing to it. To the right is a screenshot of a Siemens software interface with the text "Modular production with Module Type Package (MTP)". A globe icon is visible on the right side of the thumbnail.

Modular Production Video's

This block contains a video thumbnail for "Modular Production Video's". It features three blue squares with white lowercase 'i' icons and mouse cursors pointing to them. To the right is a white play button icon.

SIMIT TIA Portal

This block contains a video thumbnail for "SIMIT TIA Portal". It features two blue squares with white lowercase 'i' icons and mouse cursors pointing to them. To the right is a speech bubble icon.

SIMATIC MTP Products

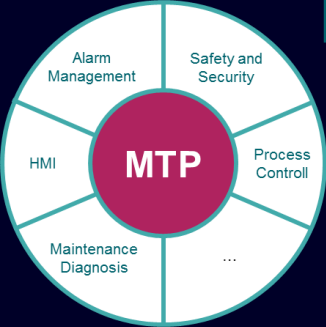
This block contains a video thumbnail for "SIMATIC MTP Products". It features two blue squares with white lowercase 'i' icons and mouse cursors pointing to them. To the right is an '@' symbol icon. A green arrow from the screenshot above points to this thumbnail.

Lets talk MTP etc. at the mini fair

Process Orchestration Layer (POL)
→ **SIMATIC PCS neo**

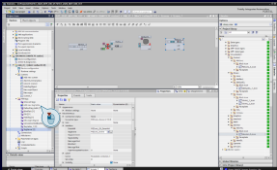
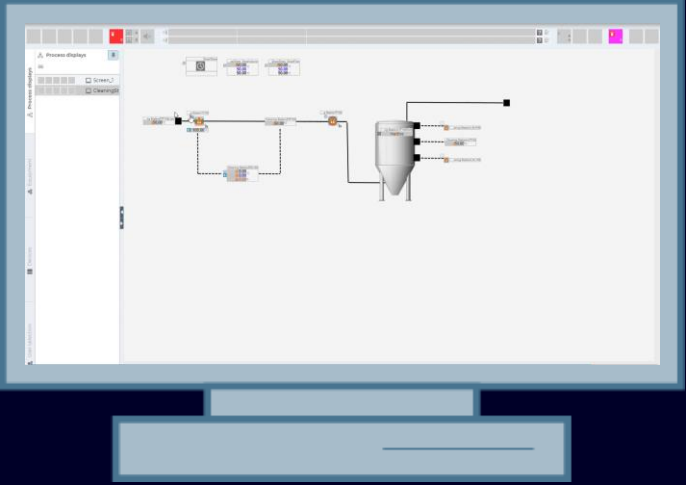
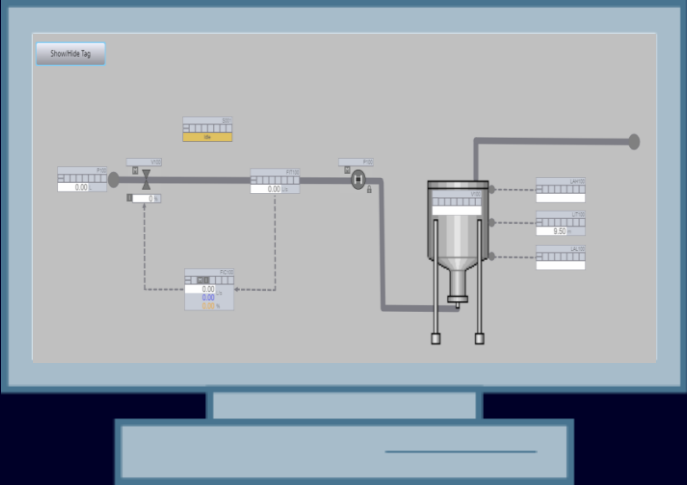
Module Engineering

Export



Import

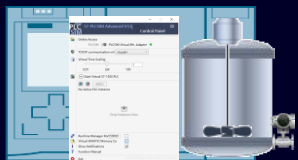
Plant Engineering



TIA-PORTAL



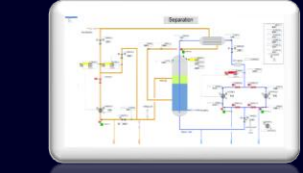
WinCC Unified



PLCSIM Advance



SIMIT & SIMIT Virtual Controller



SIMATIC PCS neo

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