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Tetra Pak: Standardizing Customization on a wide scale

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AVEVA



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TETRA PAK STANDARDIZING CUSTOMIZATION



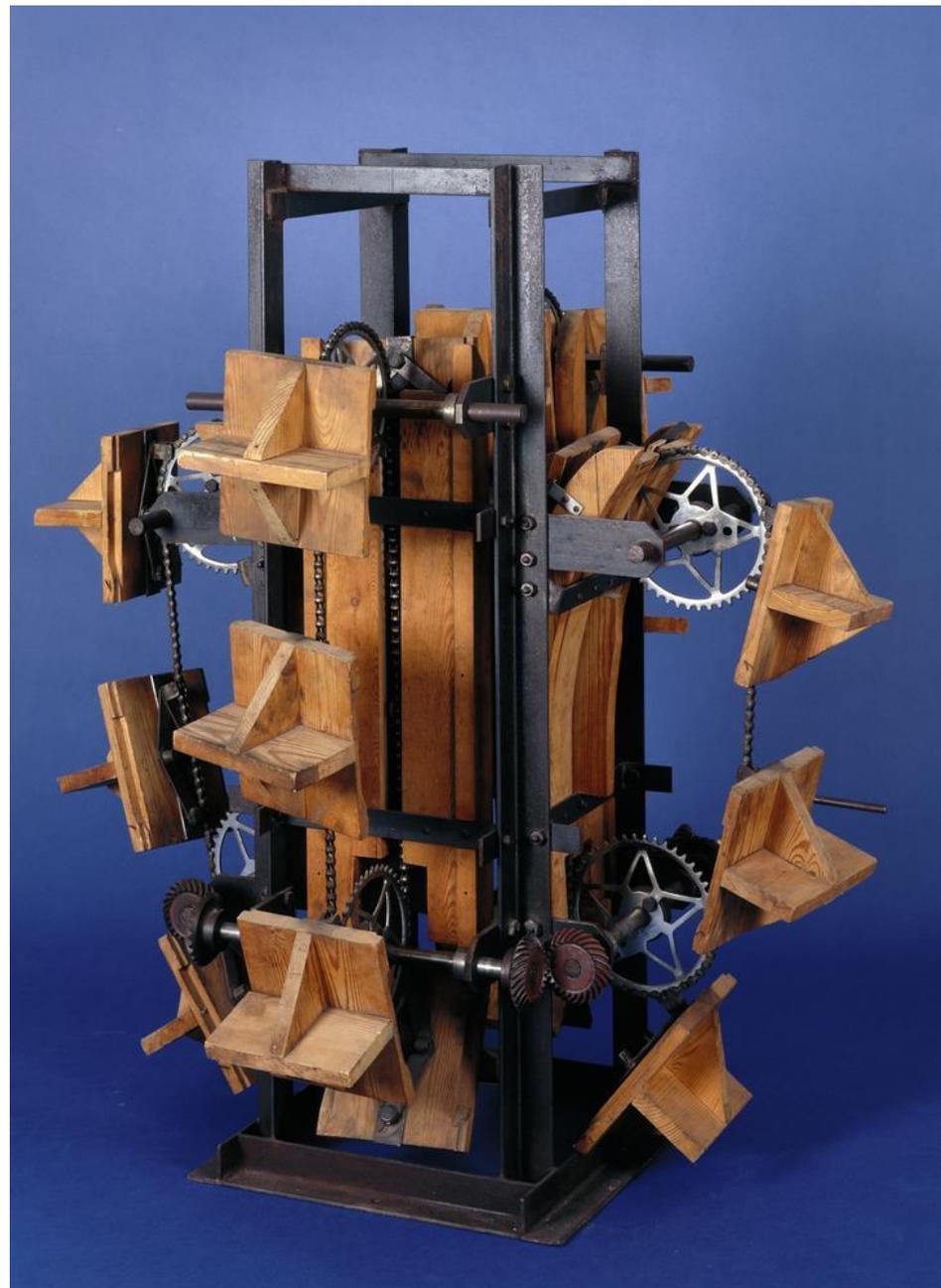
**“A PACKAGE
SHOULD SAVE
MORE THAN
IT COSTS”**

- Ruben Rausing





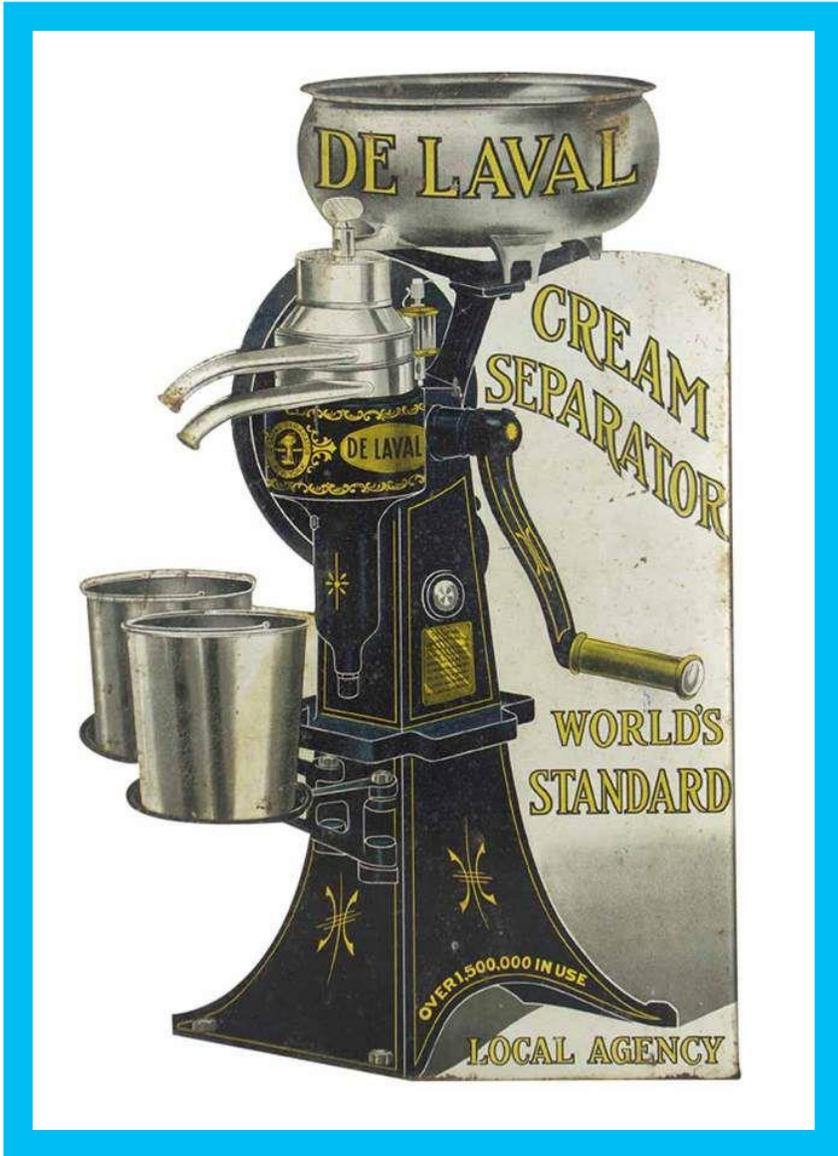
THE FIRST CARTON PACKAGE FILLER PROTOTYPE





THE FIRST CARTON PACKAGE FILLER DELIVERY





THE CREAM SEPARATOR



Processing.

Solutions and equipment for dairy, plant-based, cheese, powder, ice cream, beverages and prepared food



Services.

Helps you improve your performance, optimise costs and ensure food safety throughout the lifecycle of your operations

Packaging.

A complete carton packaging range for consuming fresh and safe products, offering convenience, easy opening and optimal shelf life





GLOBAL PRESENCE

+25,000 Employees

165 Countries

188 billion packages sold in 2022

110,000 FM or units delivered

11.2 billion Euro sales in 2022





TETRA PAK PACKAGES





PROCESSING SOLUTIONS

Provides **complete solutions** and **processing equipment** for cheese, powder, ice cream, dairy, beverages prepared food, and plant-based food.





TURNING PASSION INTO ICE CREAM

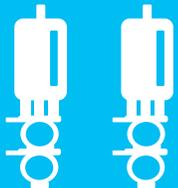
We share your passion for frozen desserts. And we share your ambition to make amazing products today, and to innovate for tomorrow. We have the expertise, the experience and the equipment. Turning passion into ice cream. Together.

Tetra Pak is the world-leading, single-source manufacturer and supplier of complete solutions, equipment and consumables for processing and packaging ice cream.

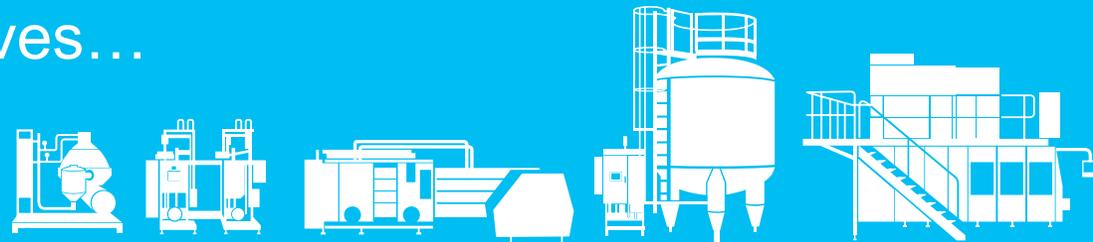




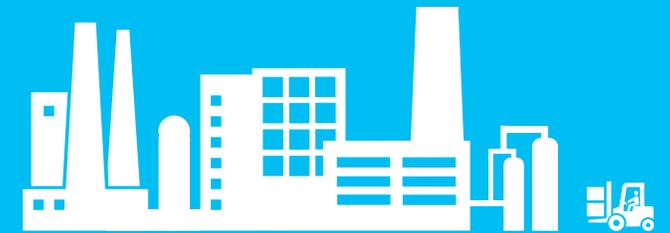
OEM AND SYSTEM INTEGRATOR



From small products
like Valves...



...to complete Production Lines...



....to entire Plants



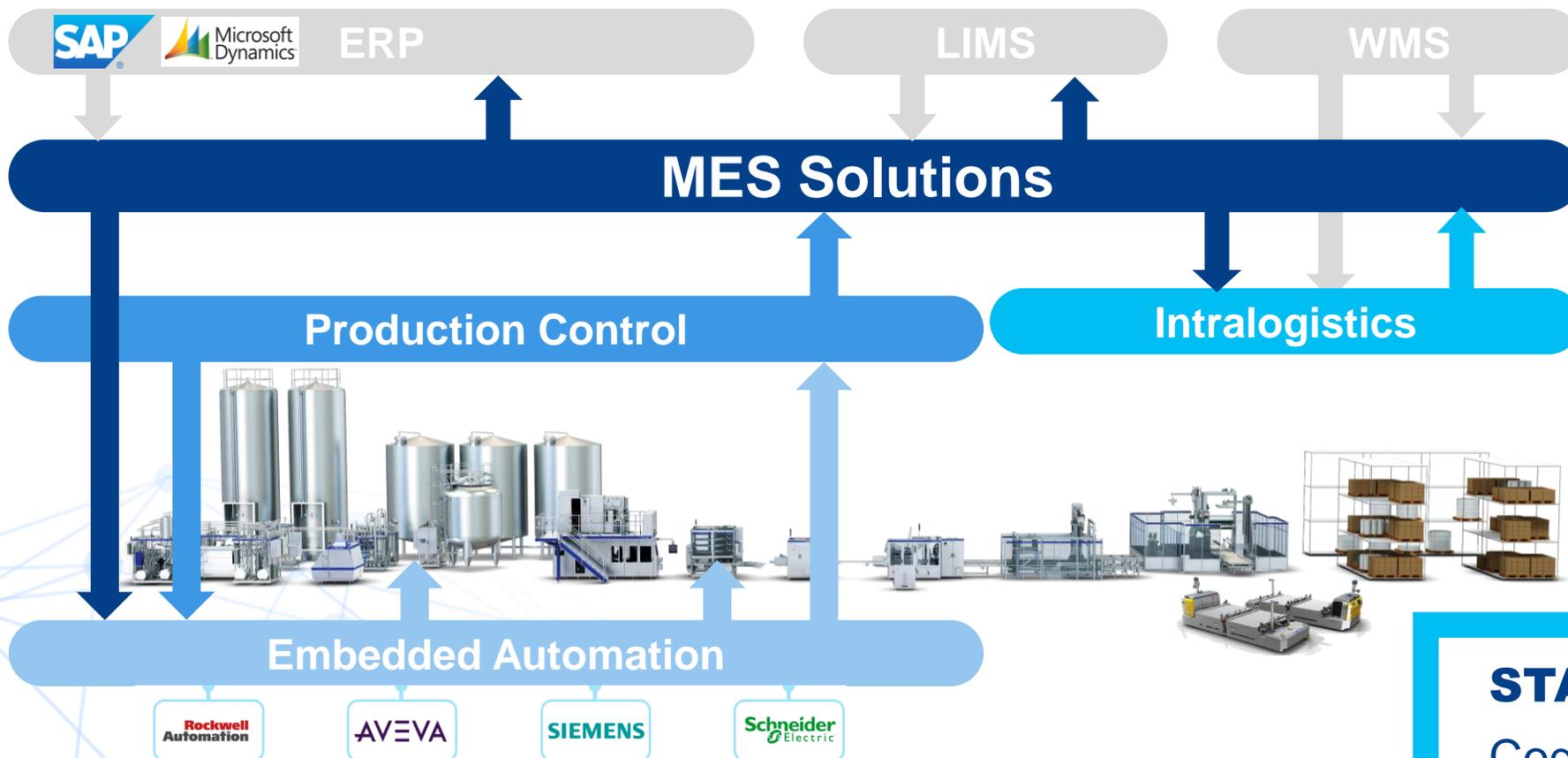
AUTOMATION CHALLENGES

- **Total control of your operations**
- **Reduce time losses, downtime and waste**
- **Secure consistent product quality and full control of food safety**
- **Customize freely and be ready for the future**





END-TO-END SOLUTIONS USING STANDARDS



STANDARDS DRIVE
Code quality, food safety,
user experience, etc.



TETRA PAK® PLANTMASTER

for total control and top performance

- ▶ The world's most advanced plant automation and information solution for food production
- ▶ The only one specifically designed for the food industry and based on extensive food production knowledge
- ▶ The only one that covers your entire operation – from raw material reception to finished packaged and palletized products at all of your sites





PRODUCTION CONTROL LIBRARIES

PLC LIBRARIES

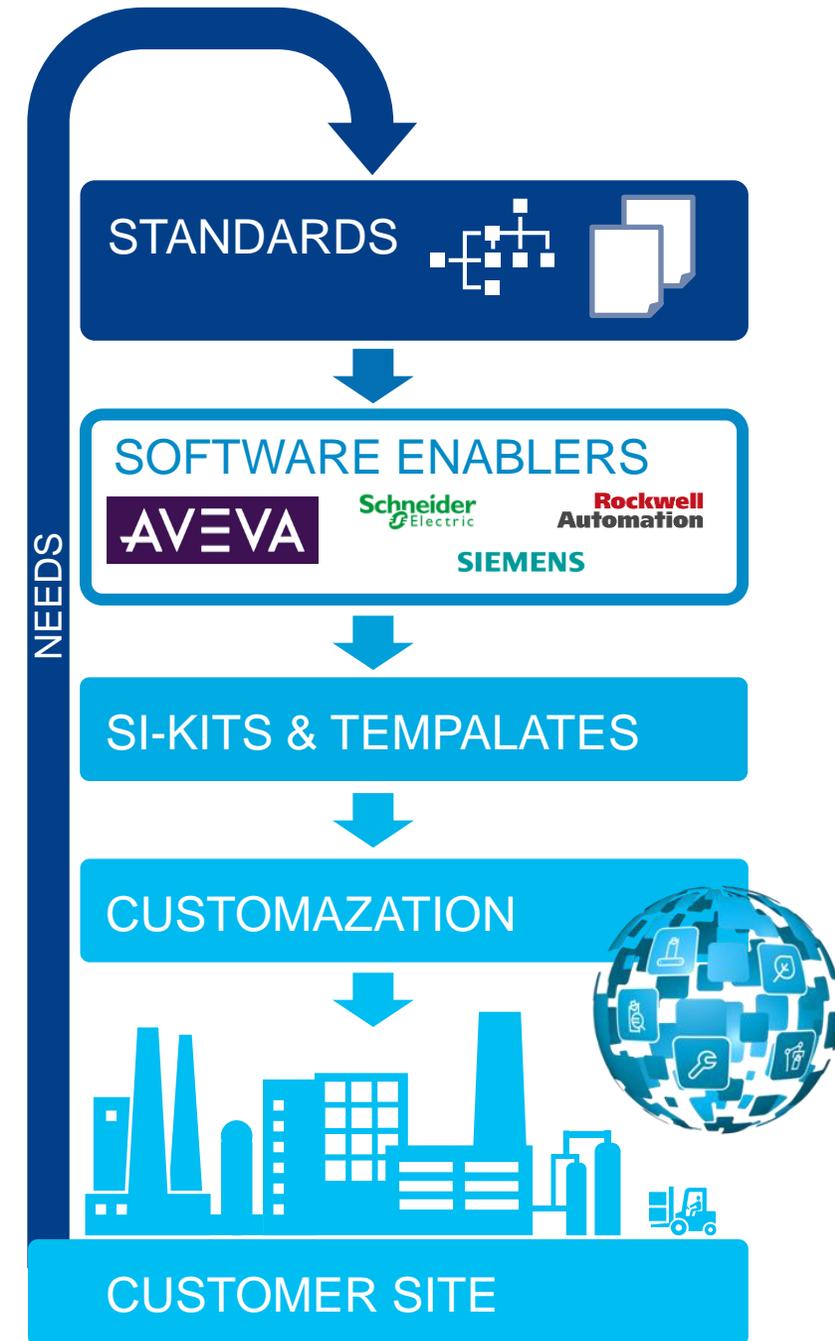
Siemens (TIA), Rockwell (CLx), and Schneider (Modicon)

HMI LIBRARIES

AVEVA InTouch and System Platform
Siemens WinCC, Rockwell FTView

BENEFITS

- Standard structure of code (S88) enables easier maintenance & troubleshooting
- Secure food safety and product quality
- Vast number of functions and equipment types supported
- Well defined data structure provides harmonized information
- Continuously developed with new features





PRODUCTION CONTROL SI-KITS WITH AVEVA

AVEVA SYSTEM PLATFORM SI-KIT

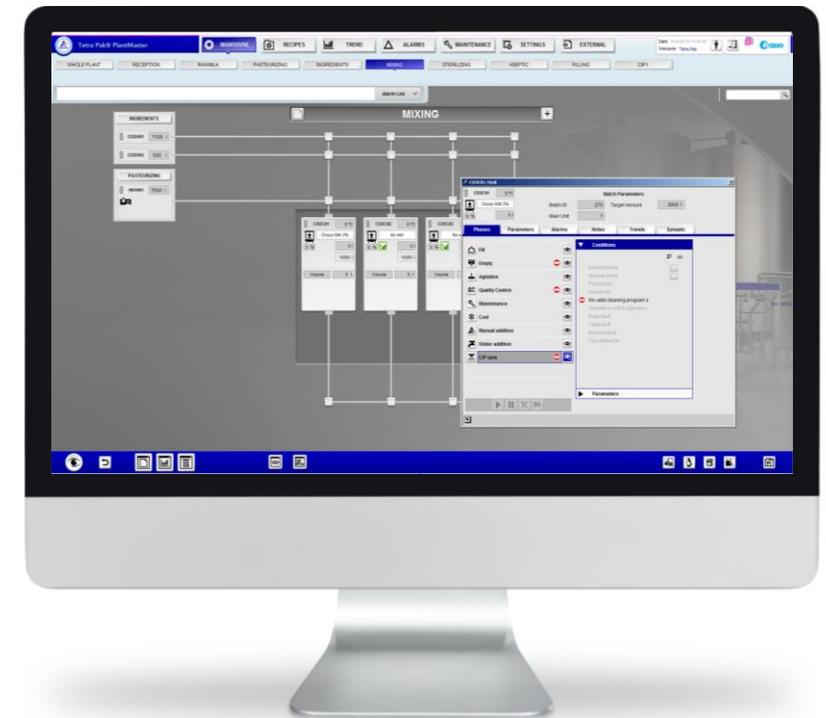
- Templates and Graphic Toolbox
- InTouch for SP application
- Aveva OMI

INTOUCH HMI SI-KIT

- Using Industrial Graphics to create an object-oriented approach together with a naming structure of the tags
- Backbone framework for window handling and navigation

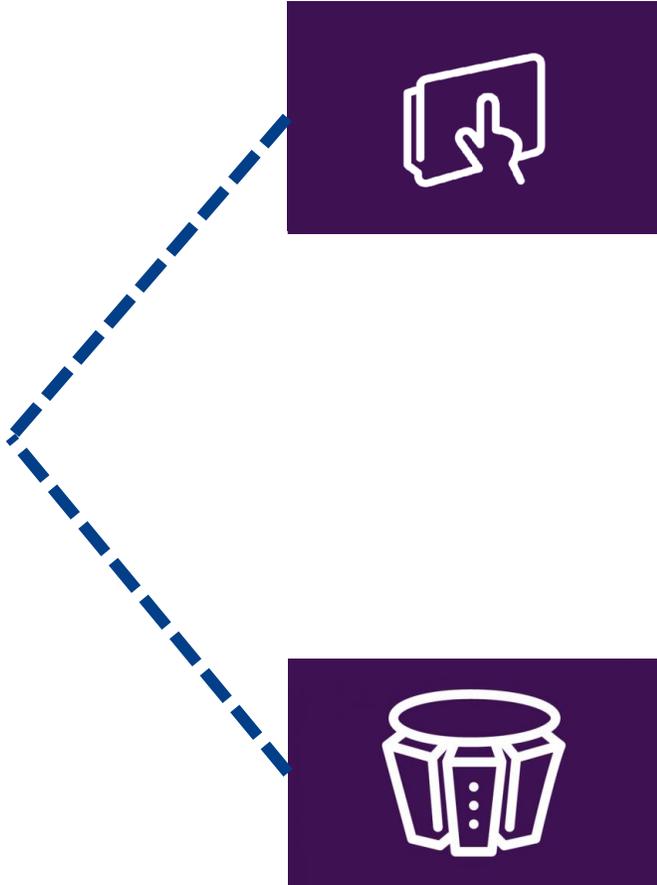
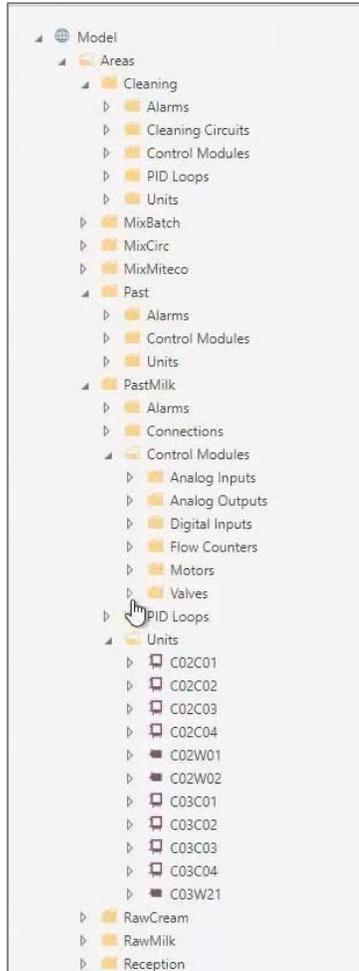
ADDONS

- Database backend
- User Access solution

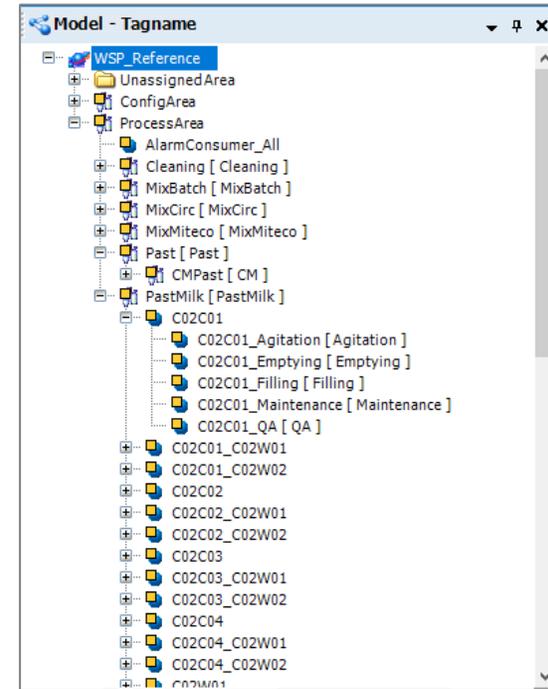




HMI DATA BACKEND EXPANSION



Tagname	Tag Type	Access Name	Alarm Group	Comment
C01C01_H01H02_X...	I/O Discrete	PLC1_STAT	RawMilk	
C01C01_H01H02_X...	I/O Integer	PLC1_STAT	RawMilk	
C01C01_H01H02_X...	I/O Integer	PLC1_STAT	RawMilk	
C01C01_H01H02_X...	I/O Integer	PLC1_STAT	RawMilk	
C01C01_H01H02_X...	I/O Discrete	PLC1_STAT	RawMilk	
C01C01_H01H02_X...	I/O Integer	PLC1_STAT	RawMilk	
C01C01_H01H02_X...	I/O Real	PLC1_STAT	RawMilk	
C01C01_HighLevel	I/O Discrete	PLC1_STAT	RawMilk	Tank High Level
C01C01_Level	I/O Real	PLC1_STAT	RawMilk	Tank Level
C01C01_LowLevel	I/O Discrete	PLC1_STAT	RawMilk	Tank Low Level
C01C01_Maint_CMD	I/O Integer	PLC1_STAT	RawMilk	
C01C01_Maint_Evl...	I/O Integer	PLC1_STAT	RawMilk	
C01C01_Maint_HMI	I/O Integer	PLC1_STAT	RawMilk	



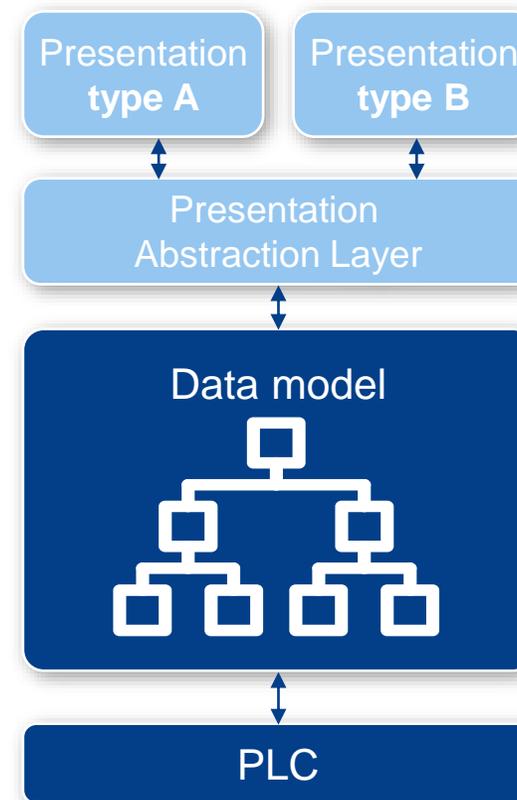
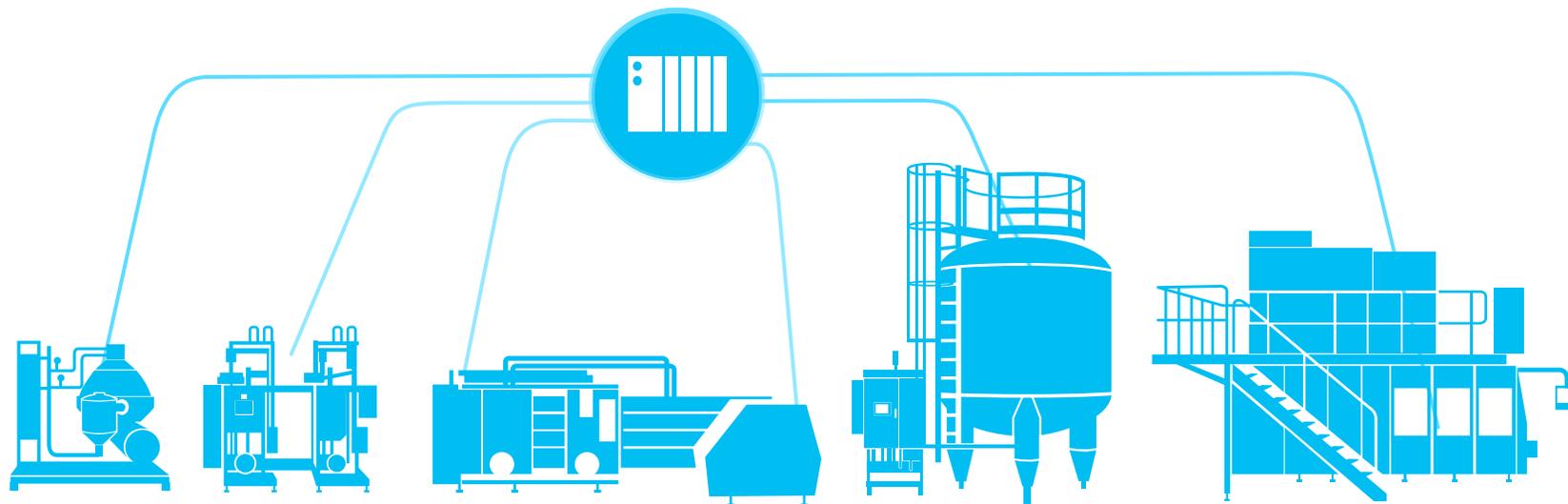


HMI DATA BACKEND EXPANSION

“Give me all the parameters for all milk buffer tanks!”

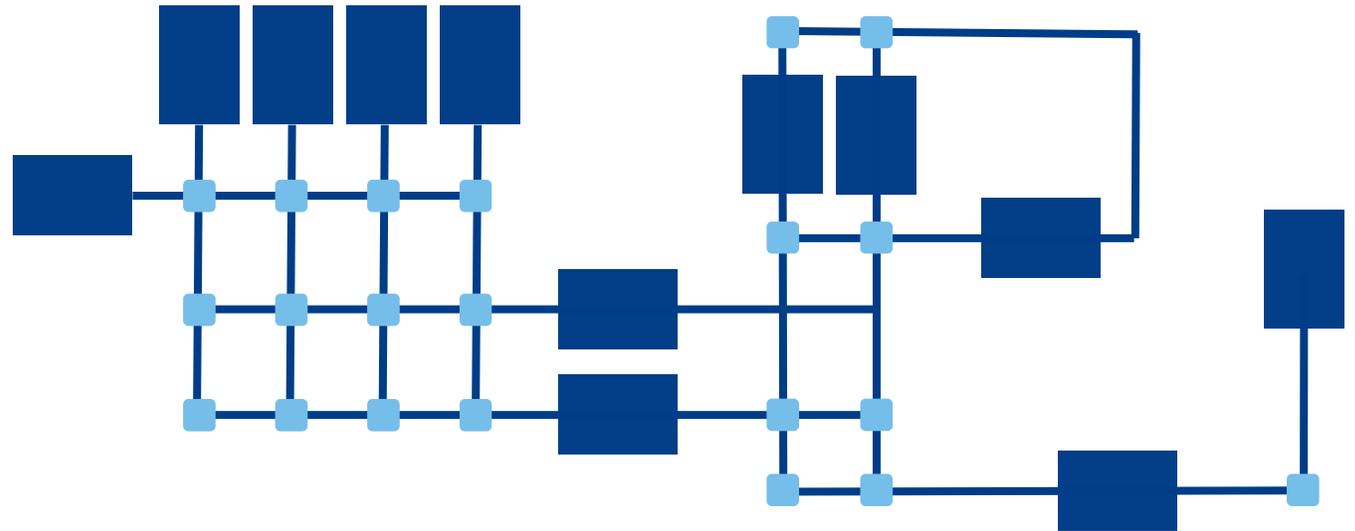
“Give me a reference list of all phase objects that has a status variable of value Running!”

“What equipment is there that can produce chocolate milk?”





PROCESS FLOW AND CONCEPTUAL MODEL





PLANT MODEL EXAMPLES

Model

- Areas
 - Cleaning
 - Alarms
 - Cleaning Circuits
 - Control Modules
 - PID Loops
 - Units
 - MixBatch
 - MixCirc
 - MixMiteco
 - Past
 - Alarms
 - Control Modules
 - Units
 - PastMilk
 - Alarms
 - Connections
 - Control Modules
 - Analog Inputs
 - Analog Outputs
 - Digital Inputs
 - Flow Counters
 - Motors
 - Push Buttons
 - Valves
 - PID Loops
 - Units
 - C02C01
 - C02C02
 - C02C03
 - C02C04
 - C02W01
 - C02W02
 - C03C01
 - C03C02
 - C03C03
 - C03C04
 - C03W21
 - RawCream
 - RawMilk
 - Reception

MixMiteco

H21H02

Jump to graphical overview

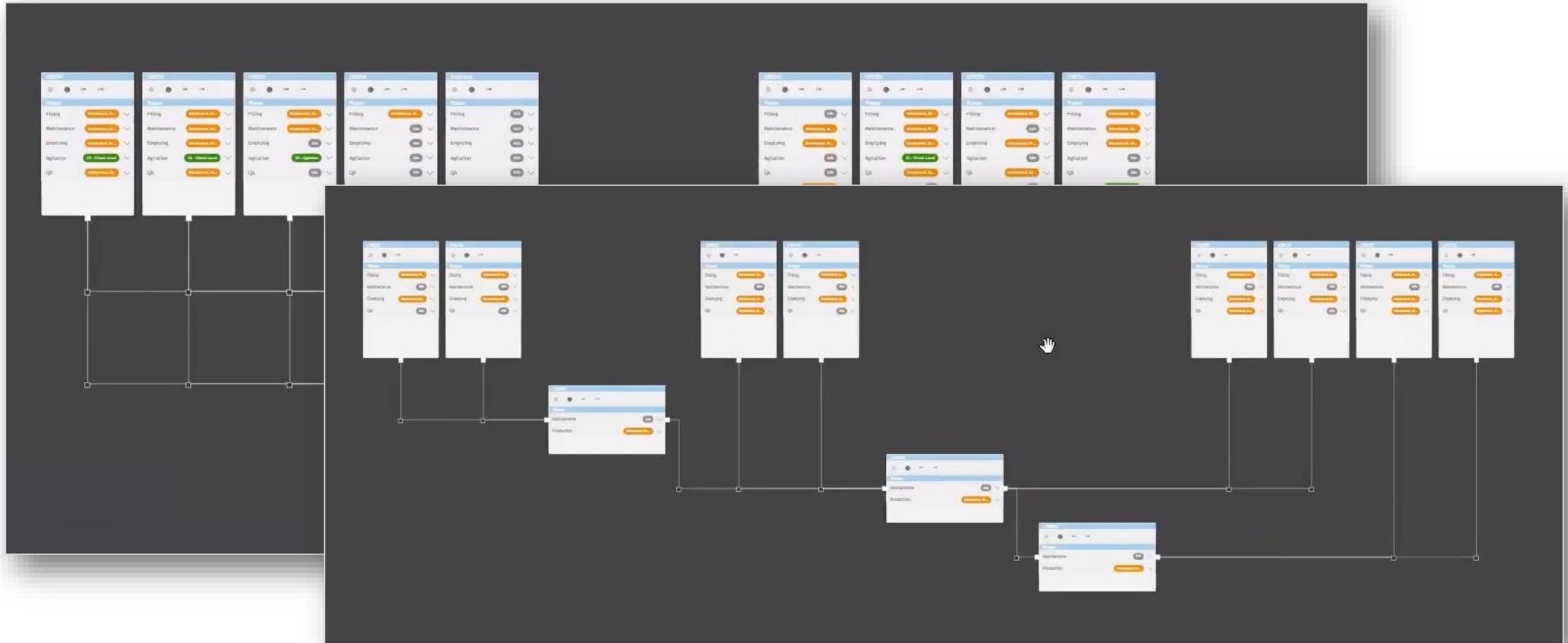
Properties **IO Properties** Phases Equipment Modules Alarms Notes Materials Recipes

Show/Hide details Add new

Name	Description	Data Type	IO Pattern	Topic	Backup Value	Read Write	Type		
Allocation	Allocation status	DoubleInteger	UN_Unit_Coord_Alloc	Stat	0	Read	Variable	×	Edit
AllocationRequest	Request allocation batch control	DoubleInteger	UN_Unit_Coord_BatchReq	Stat	0	ReadAndWrite	Variable	×	Edit
AnyCIPHeld	Any cip circuit in held	Boolean	UN_CIPStatusHMI_HeId	Stat		Read	Variable	×	Edit
AnyCIPQueued	Any cip circuit queued	Boolean	UN_CIPStatusHMI_Queued	Stat		Read	Variable	×	Edit
AnyCIPRunning	Any cip circuit in running	Boolean	UN_CIPStatusHMI_Running	Stat		Read	Variable	×	Edit
AnyFault	Any alarm active	Boolean	UN_Unit_Coord_SumAlarm	Stat		Read	Variable	×	Edit
AnyPhaseHeld	Any phase in held	Boolean	UN_Unit_Coord_	Stat		Read	Variable	×	Edit
AnyPhaseRunning	Any phase in running	Boolean	UN_Unit_Coord_	Stat		Read	Variable	×	Edit
BatchID	BatchID	DoubleInteger	UN_Unit_Par_	Stat	0	Read	Variable	×	Edit
CStat	Cleaning status	CStat	UN_Unit_Coord_Value	Stat		ReadAndWrite	Variable	×	Edit
CStatPipe	Cleaning status tank line	Integer	UN_Unit_Coord_Value	Stat	0	Read	Variable	×	Edit
DeliveryID	Delivery ID to be received	Integer	Parameters	Stat	0	ReadAndWrite	OperationParameter	×	Edit
Empty	Tank Empty	Boolean	Standard	Stat		ReadAndWrite	Variable	×	Edit



MODEL DRIVEN HMI





SYSTEM NEEDS

- **Plant model that is central to the HMI and SCADA**
- **Model as part of the SCADA backend with resilience**
- **Light weight scaling down powerful in scaling up.**
- **Accessible for other systems over API**



USER EXPERIENCE



- The plant model will contextualize the data also for visualization
- Associating data with graphics enabled model driven HMI
- Light system footprint needed to scaled down a deployment
- Security integration
- Support for contemporary deign patterns



Our purpose:

We commit to making food **safe** and **available**, **everywhere** and we promise to protect what's good: **food**, **people** and the **planet**.





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