

Driving the Digital Enterprise for the beverage industry

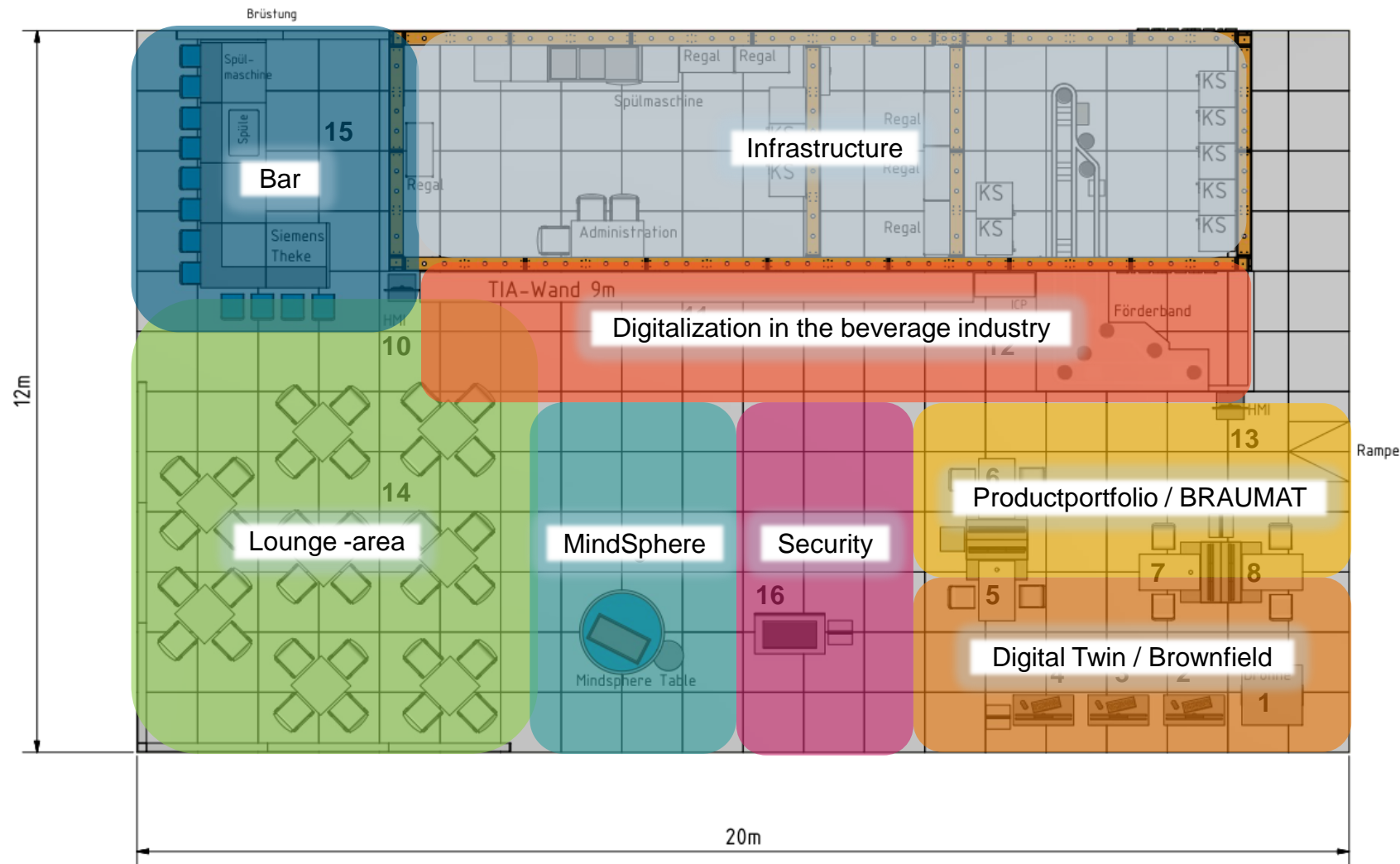
VSS F&B, Siemens AG

Overview

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Ingenuity for life



Overview



Digitalization changes everything

The next trillion dollars will be earned with data – for our customers and for our industries.

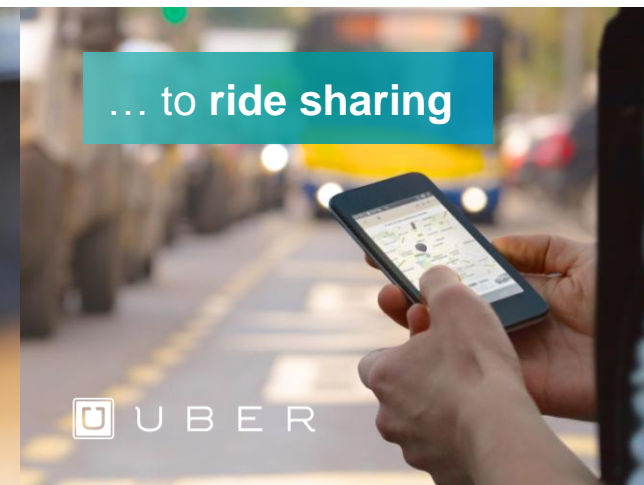
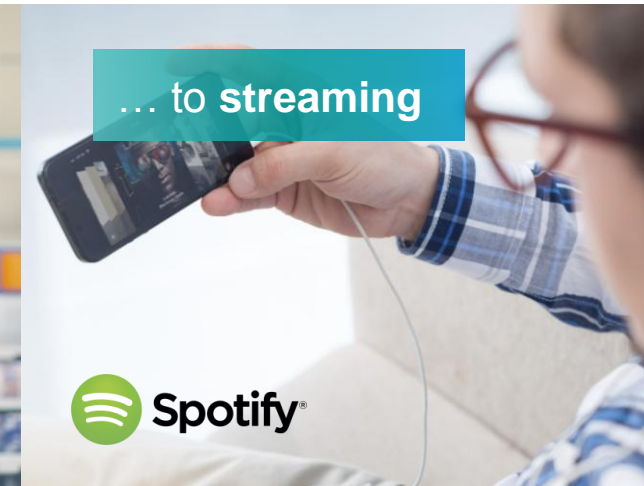
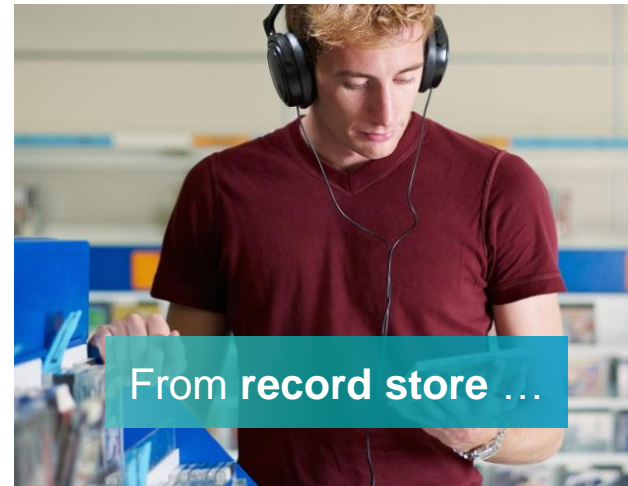
Michael Dell, founder of Dell Inc.

Digital is the major reason why just over half of the companies on the Fortune 500 have disappeared since the year 2000.

Pierre Nanterme, CEO Accenture

New business models in the Internet age are disrupting complete markets

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Today's challenges in the beverage market



High quality demand



High cost pressure



Fast changing consumer demands



Global and regional regulatory compliancy



Increasing variety of products and recipes



Global setup – Distributed plants

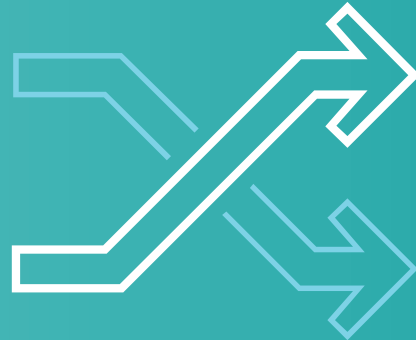
Our customers have essential requirements –
throughout the Food & Beverage industry

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Speed



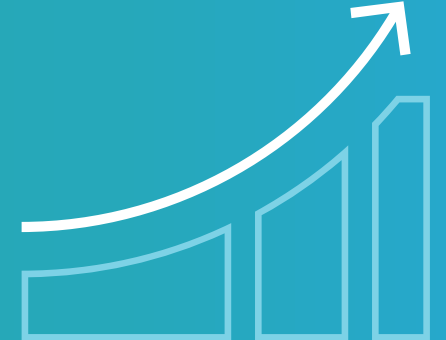
Flexibility



Quality



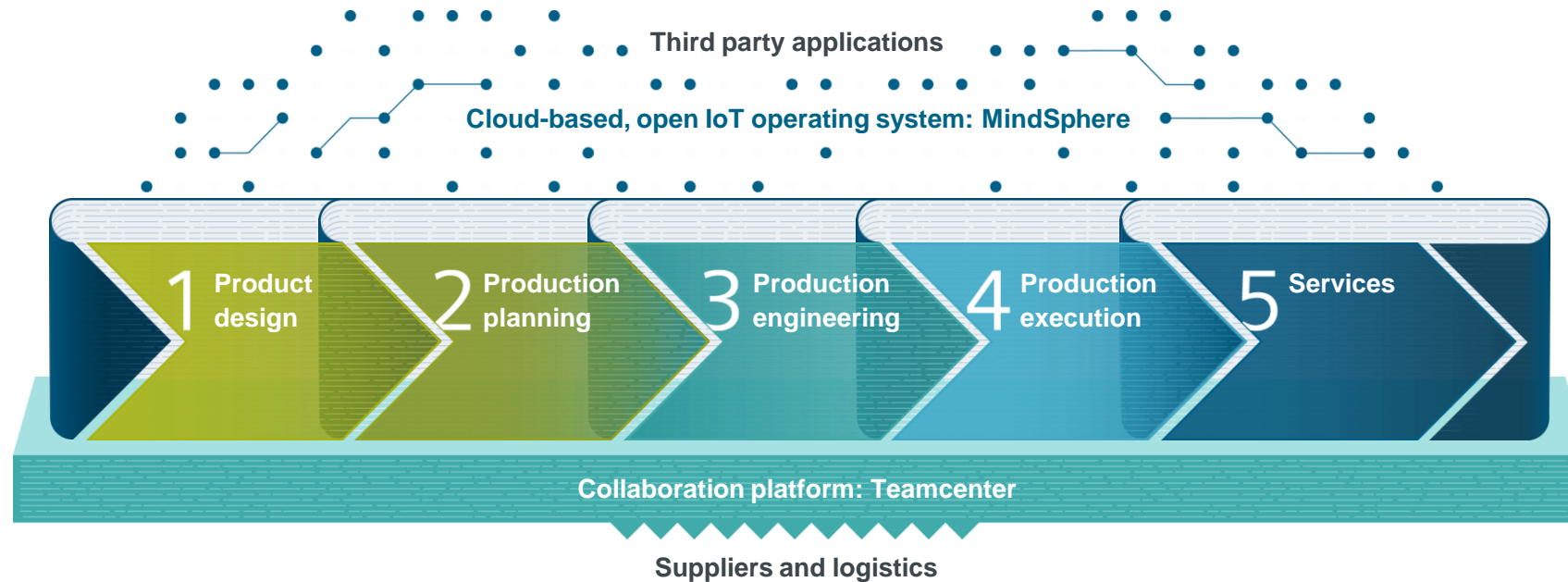
Efficiency



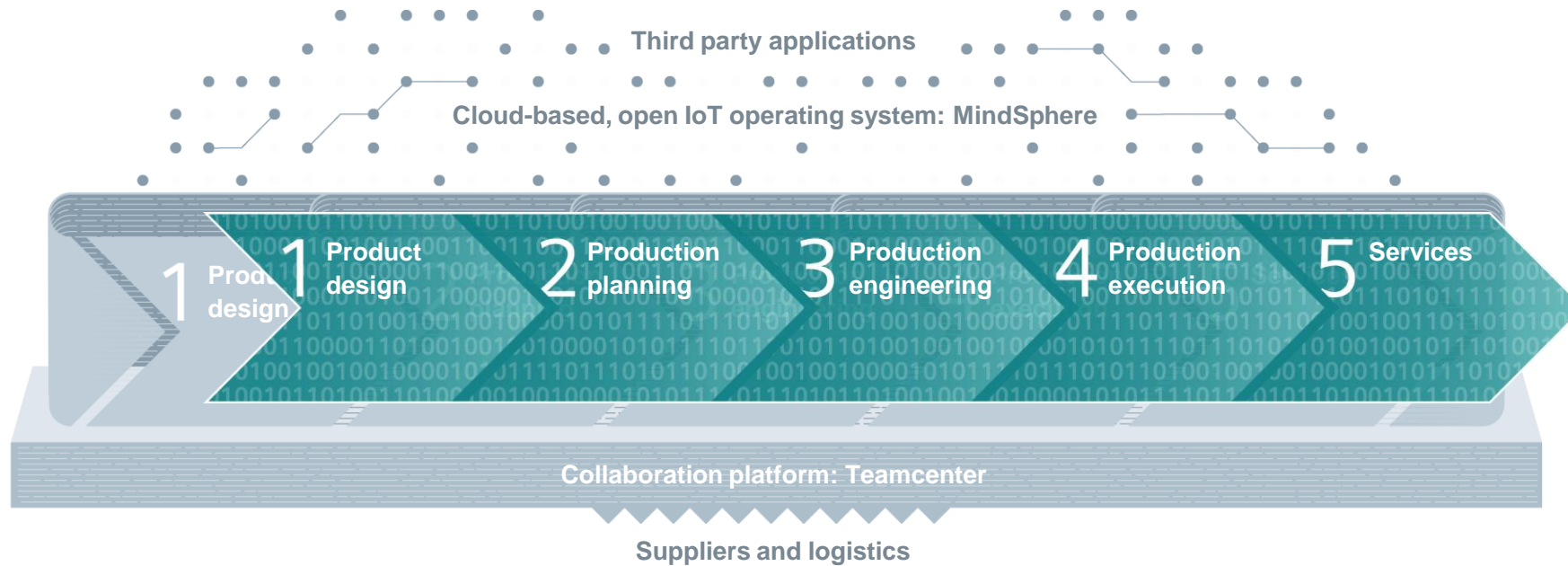
Security



Integrating and digitalizing the entire value chain is key to staying competitive in future



The Digital Twin of the entire value chain





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PROTEIN DRINK

Chocolate

330 ml

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PROTEIN SMOOTHIE

330 ml

Orange
Mango

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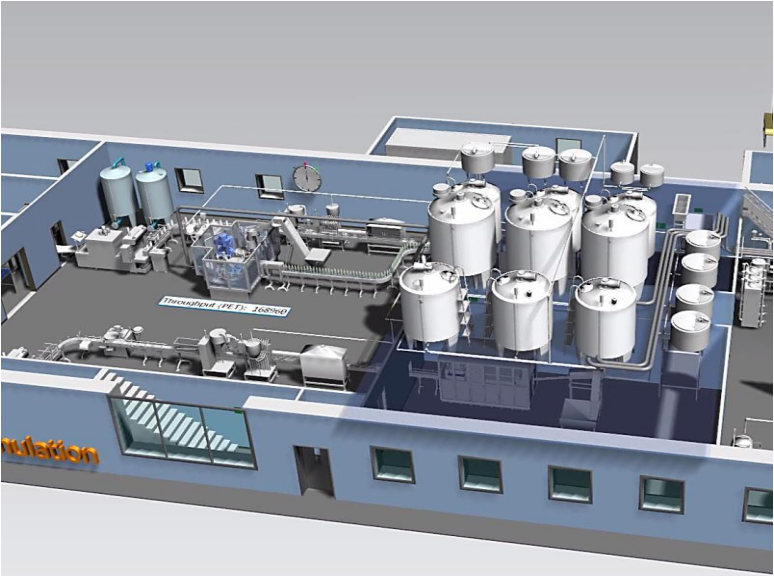
PROTEIN SMOOTHIE

Raspberry
Blueberry

330 ml



Digital Twin of the product



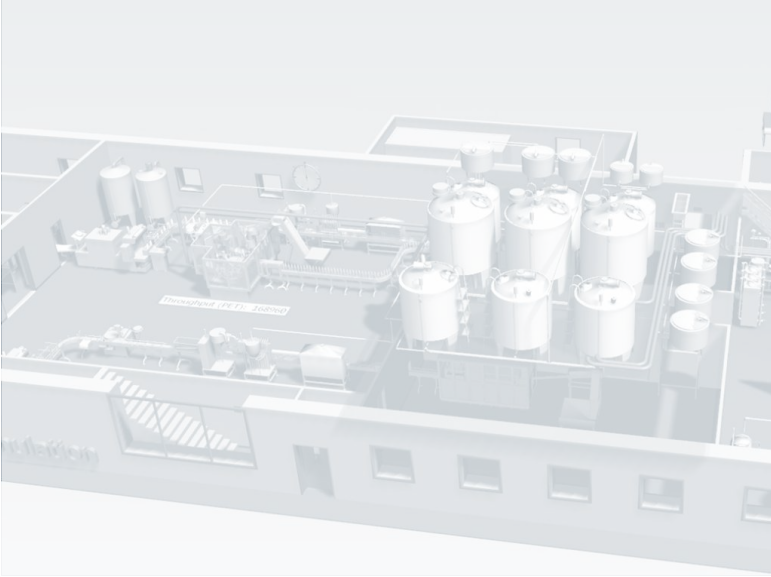
Digital Twin of the production



Digital Twin of the performance



Digital Twin of the product



Digital Twin of the production



Digital Twin of the performance

Product design

Design and
simulate
the product



Formulate the product

SIMATIC IT R&D Suite



SIMATIC IT RnD Libraries, Database <XE>

Application Request Sheet Document View Tools Help

Protein Project (20170405-003) Smoothie Project (20170405-003-01)

Project Information Formula Development

Continue Development

Formula Workbench

Original Smoothie

(ID)	Description	Rescaled Quantity	Single Level Quantity	Relative Quantity	UoM	Calculated Price	Protein (-)
700908	Smoothie Orange-Mango	0.850		100.00	kg	3.33	0.00
700006	Fruit Preparation Orange	0.327	0.327	38.47	kg	2.22	0.00
700008	Fruit Preparation Mango	0.123	0.123	14.47	kg	1.11	0.00
700000	Water	0.400	0.400	47.06	kg	0.00	
		0.850	0.850	100.00	kg	3.33	0.00
						Min:	Min:
						Max:	Max:

FWB Rolledup Details [700908 - Smoothie Orange-Mango]

Value 100.00 g

Drag and drop a column to group by that column.

(ID)	Description	Quantity	UoM
700106 0	Fat (-)	0.688058...	g
700000	Protein (-)	5.394117...	g
700232 700064	Energy (kJ)	198.5576...	kJ
700232 700065	Energy (kcal)	46.68	kcal
700234 0	Carbohydrates (...)	5.202	g
700240 0	Cholesterol (- ...)	0	mg
700241 0	Fibre (-)	1.588235...	g
700904 700505	Carbohydrates...	4.441764...	g
700905 700256	Fat of which (SA...	0.005294...	g
700905 700259	Fat of which (Tr...	0	g
700092 0	Ca (-)		g
700171 0	Vitamin E (-)		mg
700864 0	Vitamin A (-)		µg

Properties Ingredients Nutrients

FWB Details [700006 - Fruit Preparation Orange]

Drag and drop a column to group by that column.

(ID)	Description	Quantity	UoM
700414	Orange juice	61	%
700315	Sucrose	7	%
700565	Passion fruit juice	9	%
700148	Invert sugar	6	%
700357	Water	2.1	%
700960	Apple juice	8	%
700089	Citric acid	0.6	%
700167	Locust bean gum	1	%
700000	Ascorbic acid	0.1	%

Properties Ingredients Nutrients

NPD

Programs 11:52 AM 4/5/2017

Digital Twin of the product – Danone Belgie N.V.

Uniform reporting and monitoring with Simatic IT Unilab

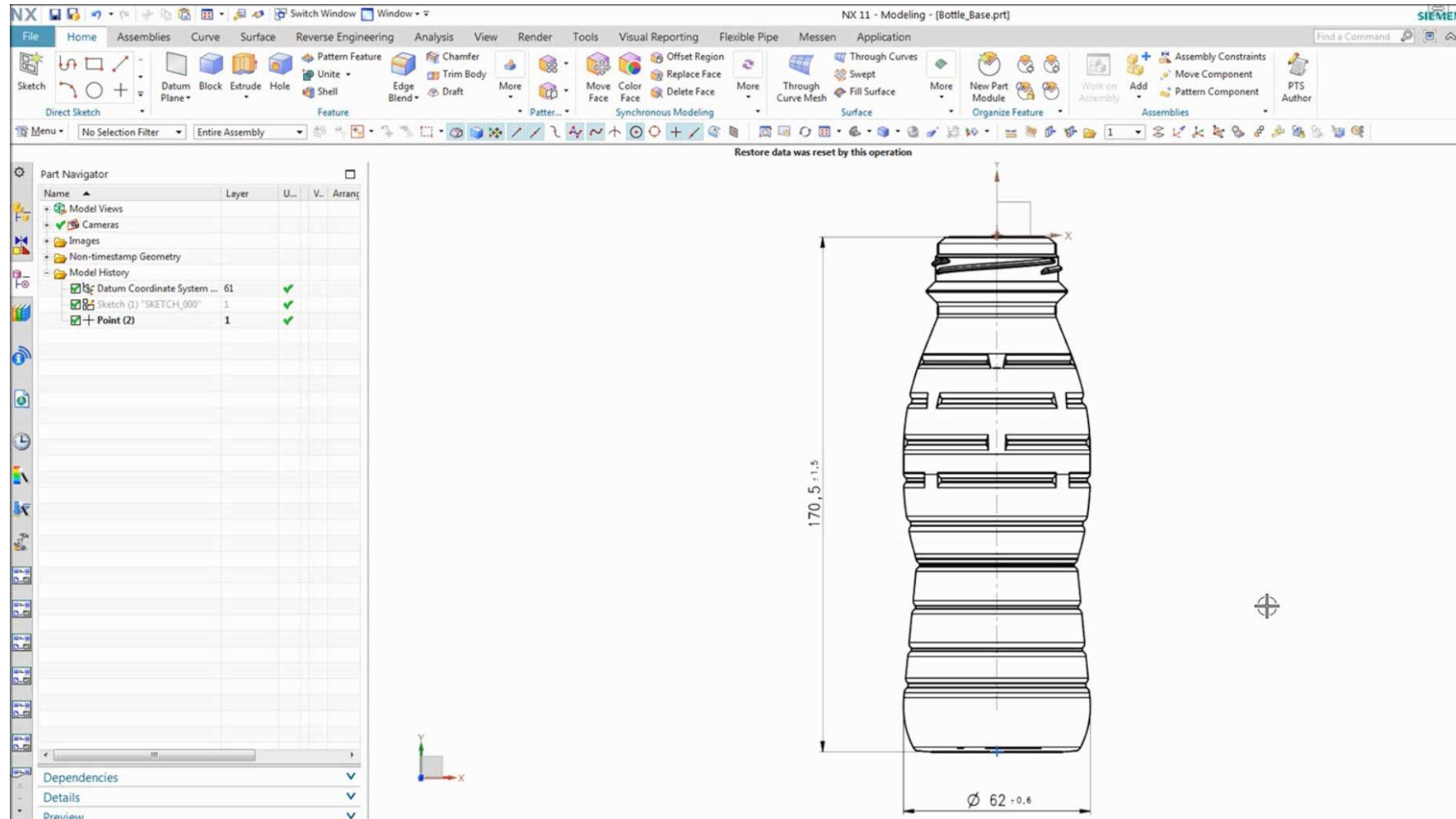
- Continuous monitoring of quality and ingredients
- Rapid response to variations
- Automated progress monitoring
- Fast, efficient reporting

Product design



Build the
packaging in
the virtual
world

NX CAD/CAE/CAM



Digital Twin of the product – Krones AG

Faster and easier product development – from the design to the product with NX

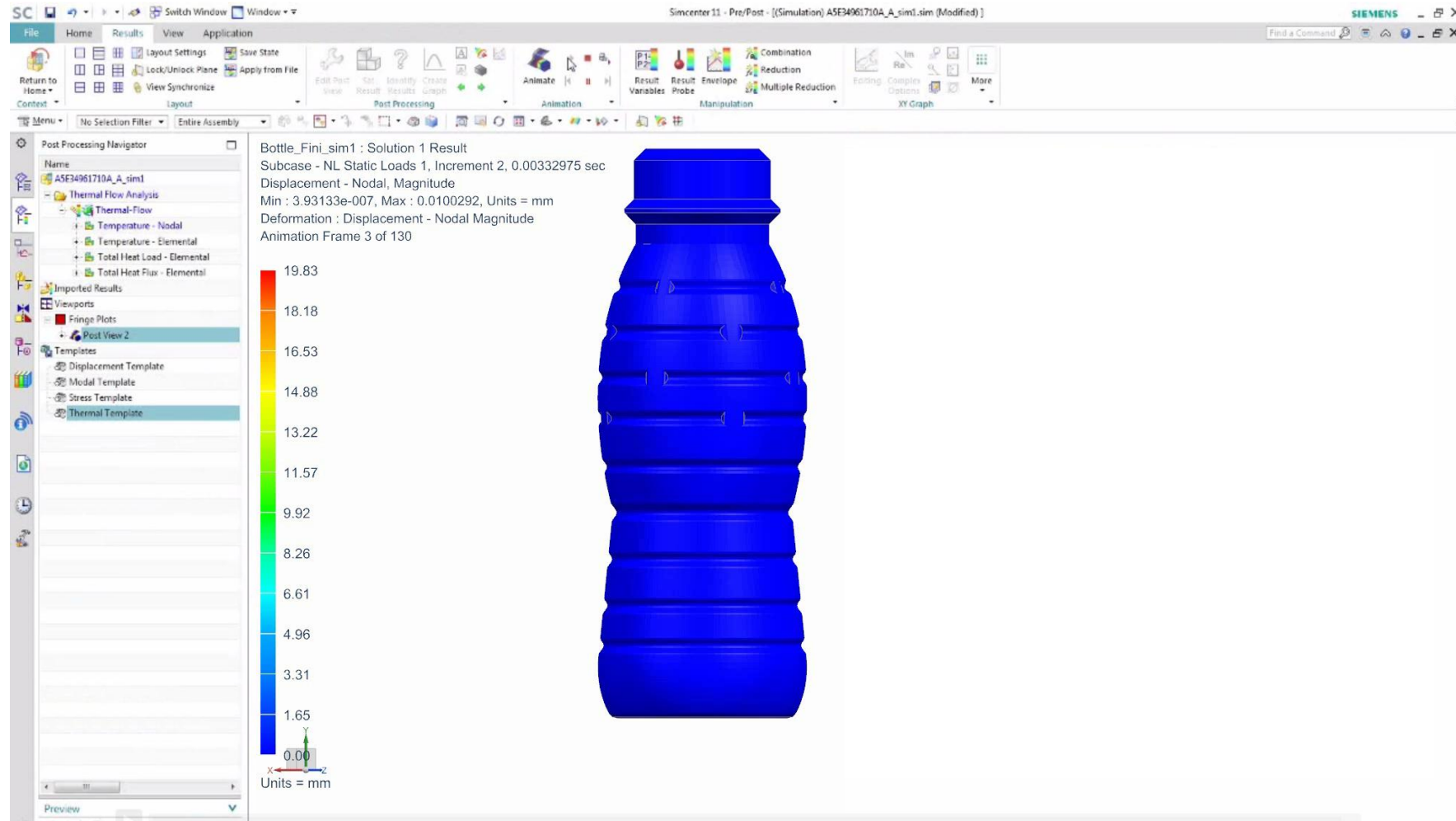
- Time savings thanks to integrated CAD and CAE processes
- NX reduces the time for simulating the stacking load by 75%
- A uniform data basis makes it easy to update and modify the design

Product design

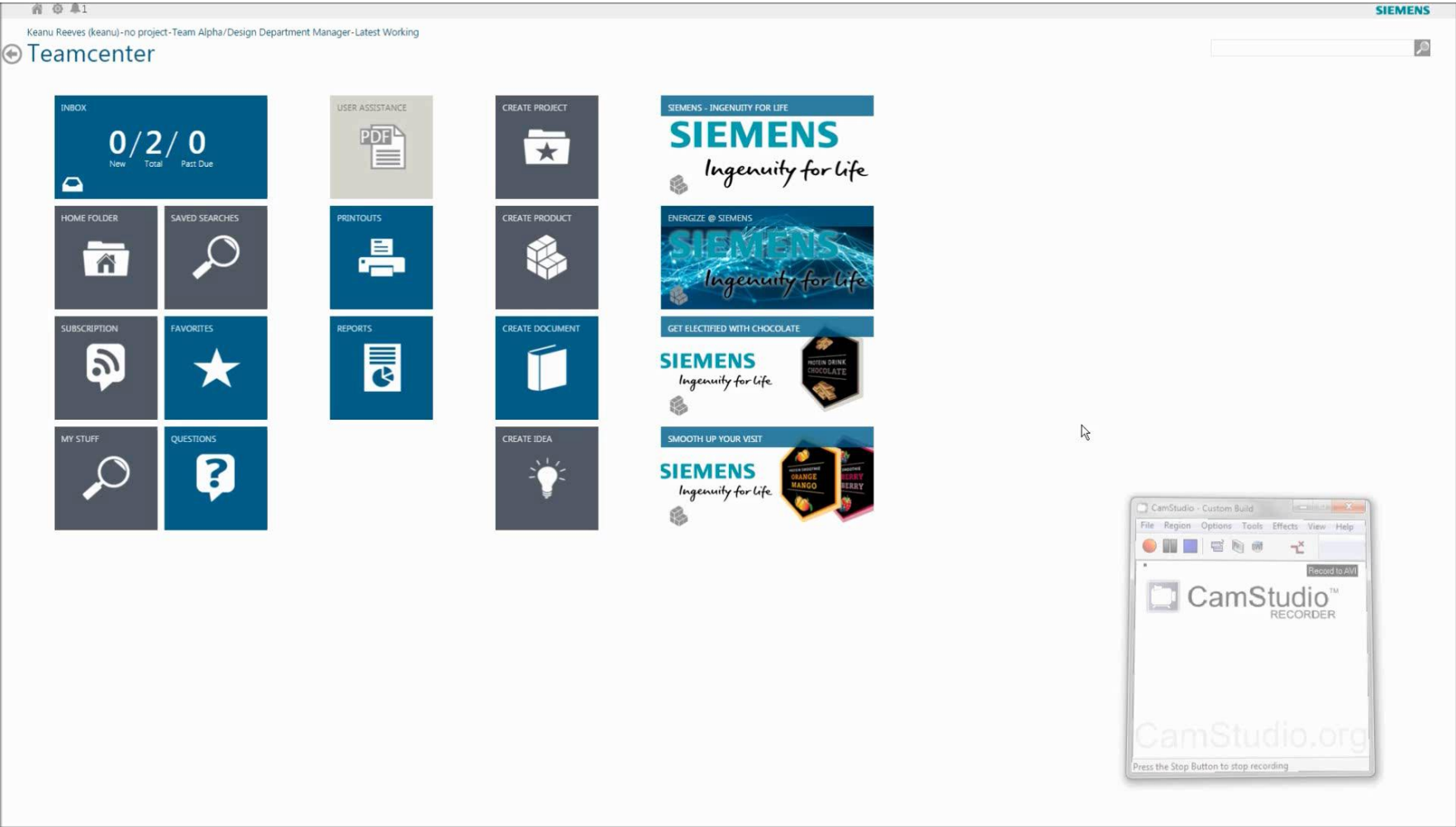


Simulate the physical behavior

Simcenter

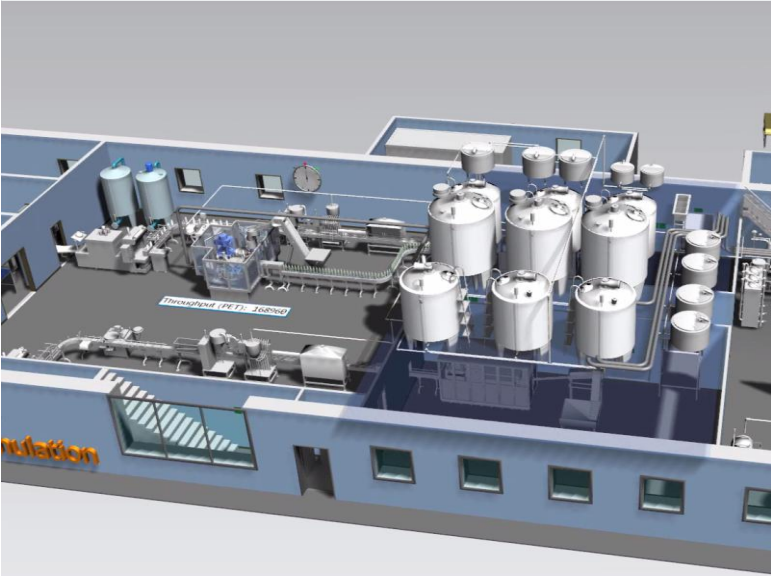


Link the
formulation
with the
packaging





Digital Twin of the product



Digital Twin of the production

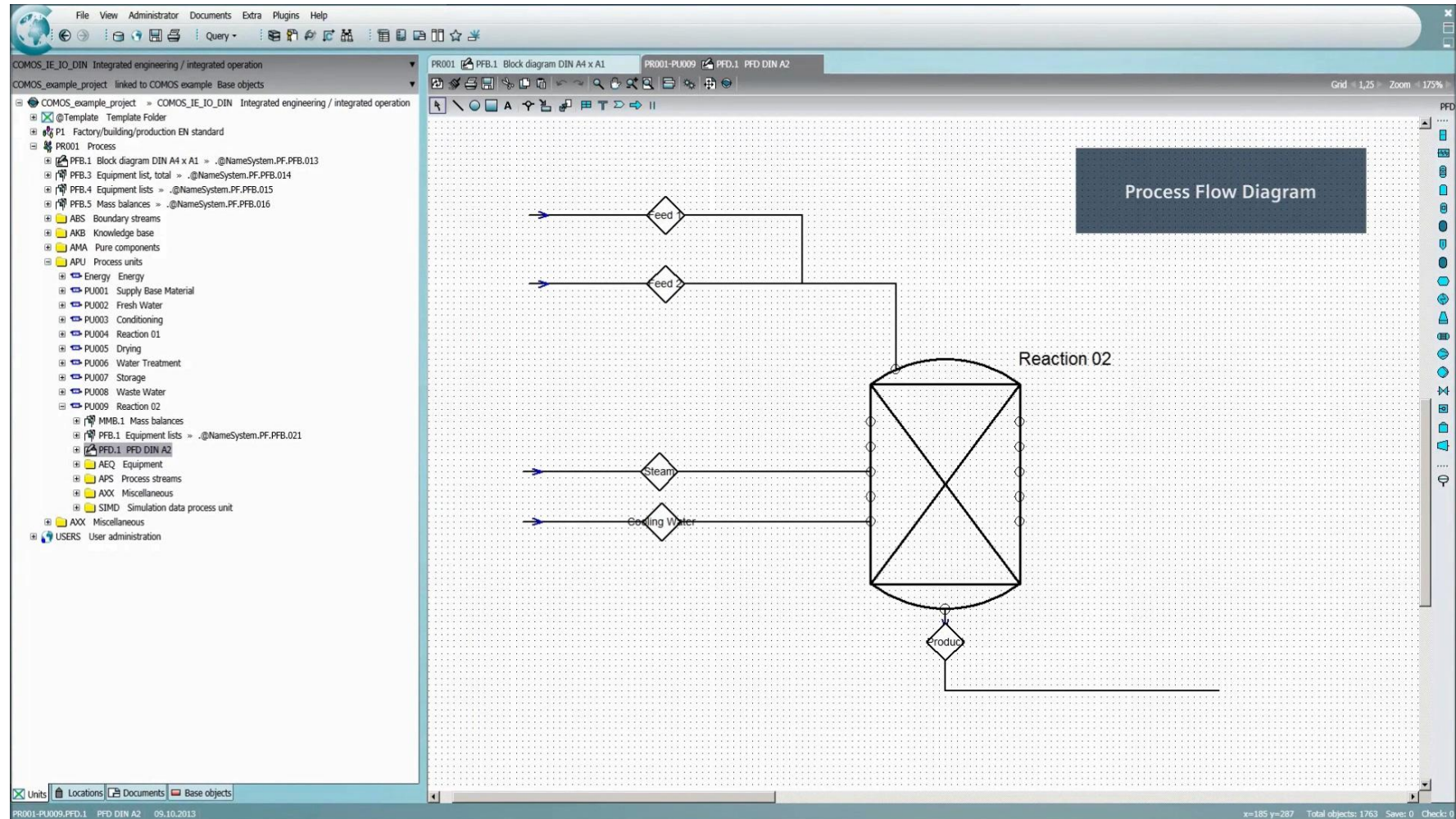


Digital Twin of the performance

Production planning

Plan and
validate your
production
process

COMOS

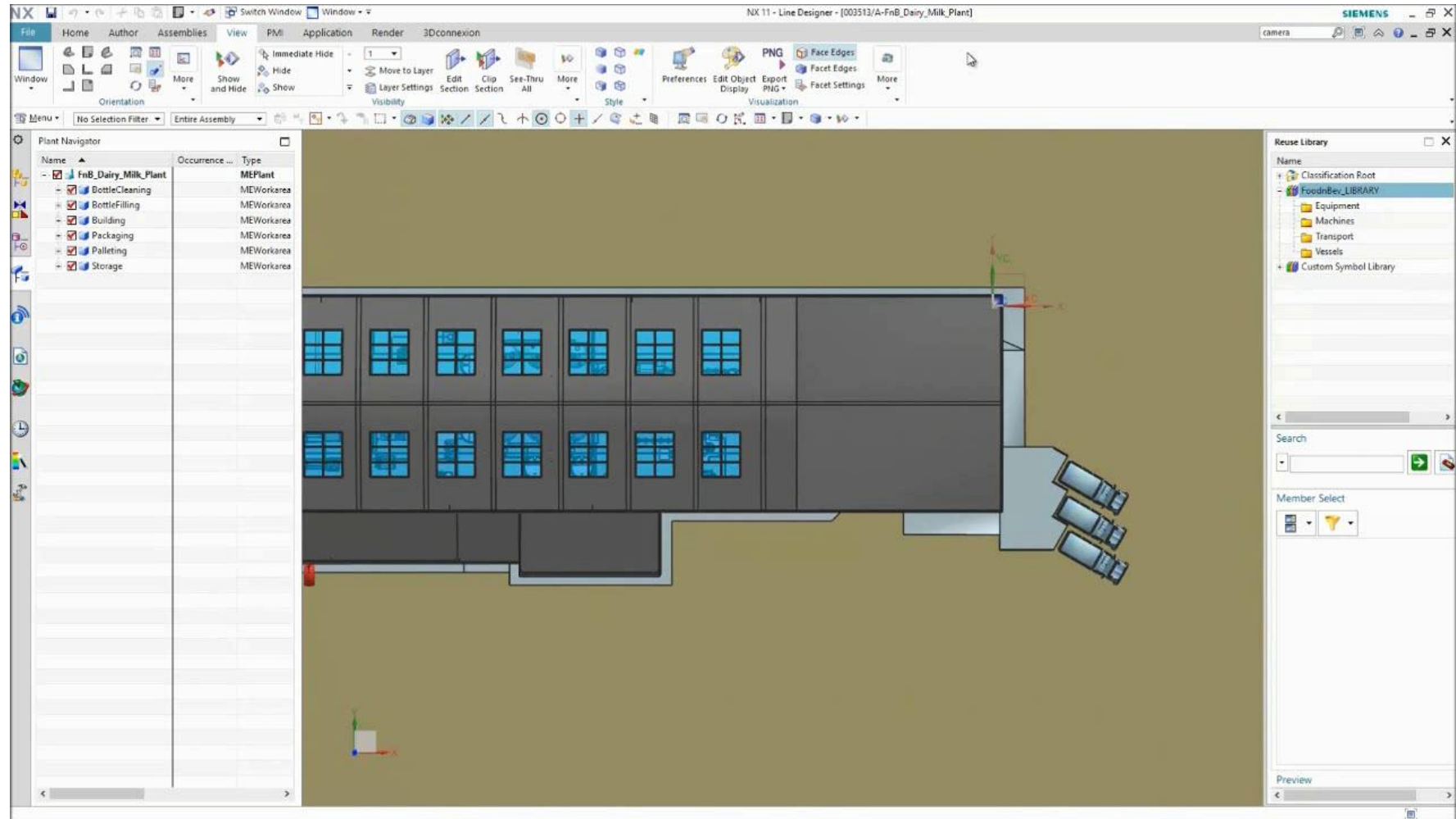


Production planning



Build your production lines

Tecnomatix
Line Designer

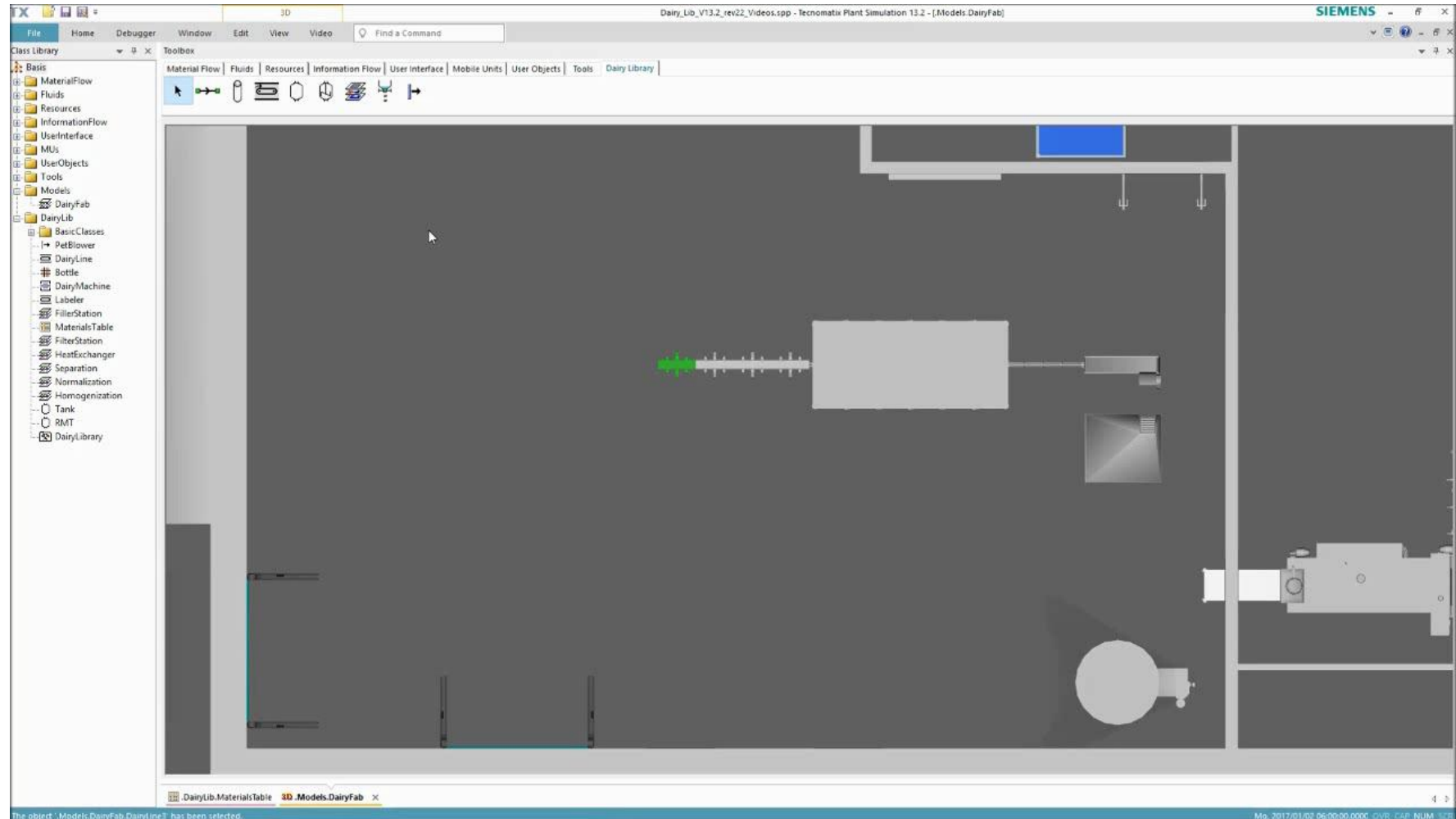


Production planning



Simulate and
optimize your
production
processes

Tecnomatix
Plant Simulation



Digital Twin of production – Paulaner Brauerei
**Art of brewing since 1634 –
state-of-the-art technology**

- A Digital Twin of a new brewery makes it possible to simulate and test a stable, fully coordinated production process before plant construction even starts
- Comparison of alternative maintenance strategies
- Identification and elimination of bottlenecks

Train your operators in the virtual world

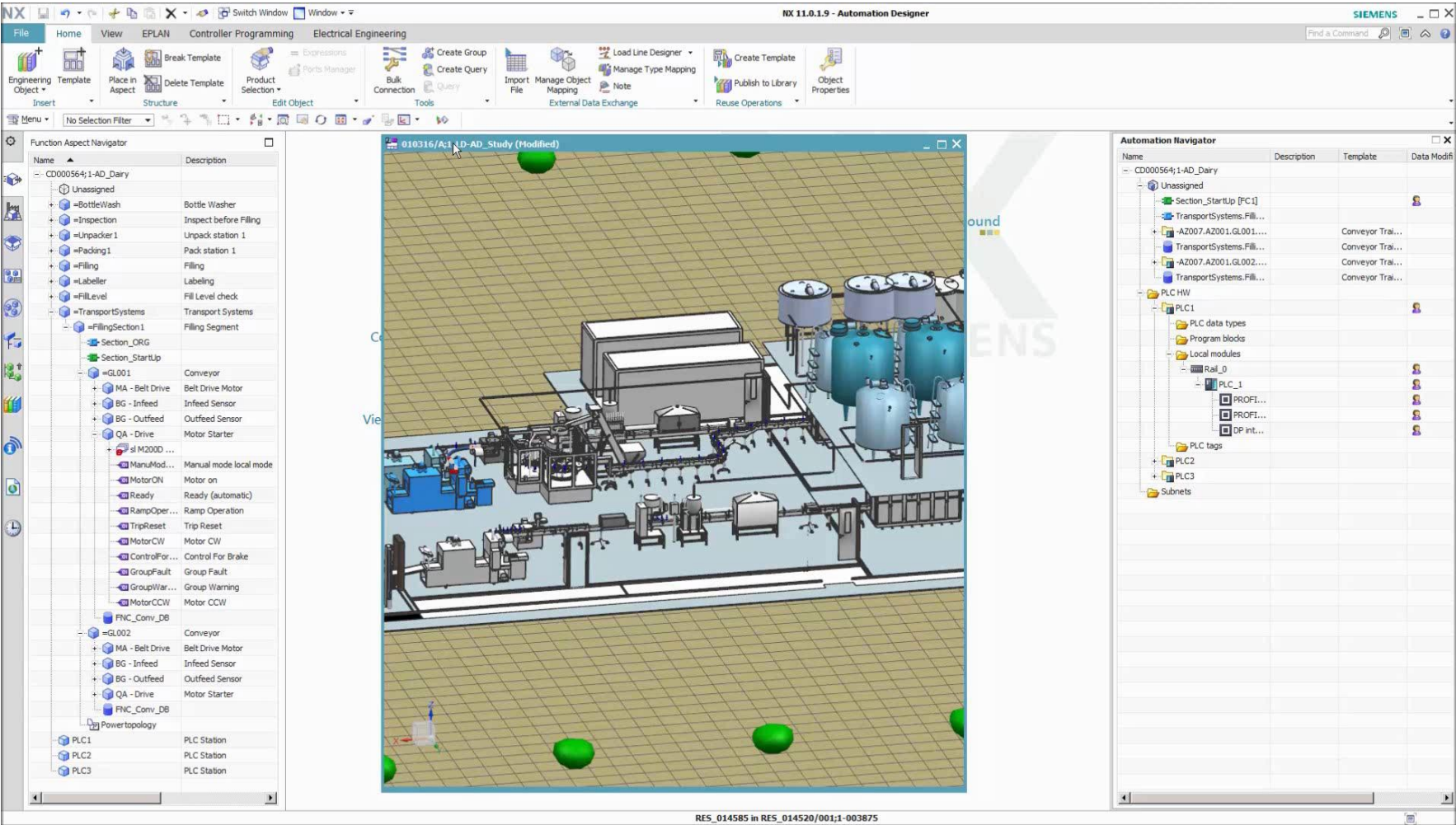
COMOS Walkinside



Production engineering



Automatically generate the PLC code for the TIA Portal

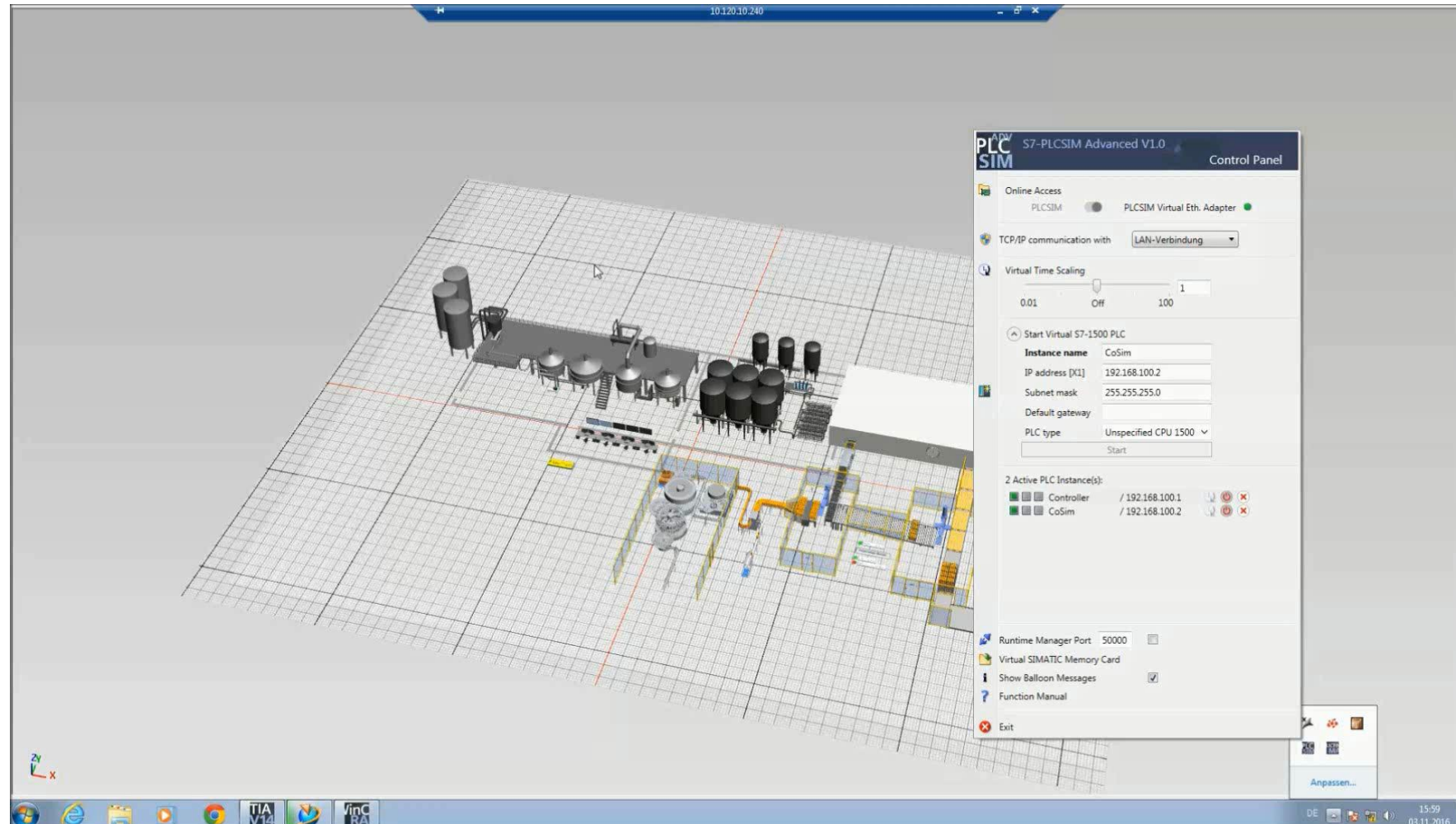


Production engineering



Validate the
PLC code
in the virtual
world

Tecnomatix,
PLCSIM Advanced,
TIA Portal

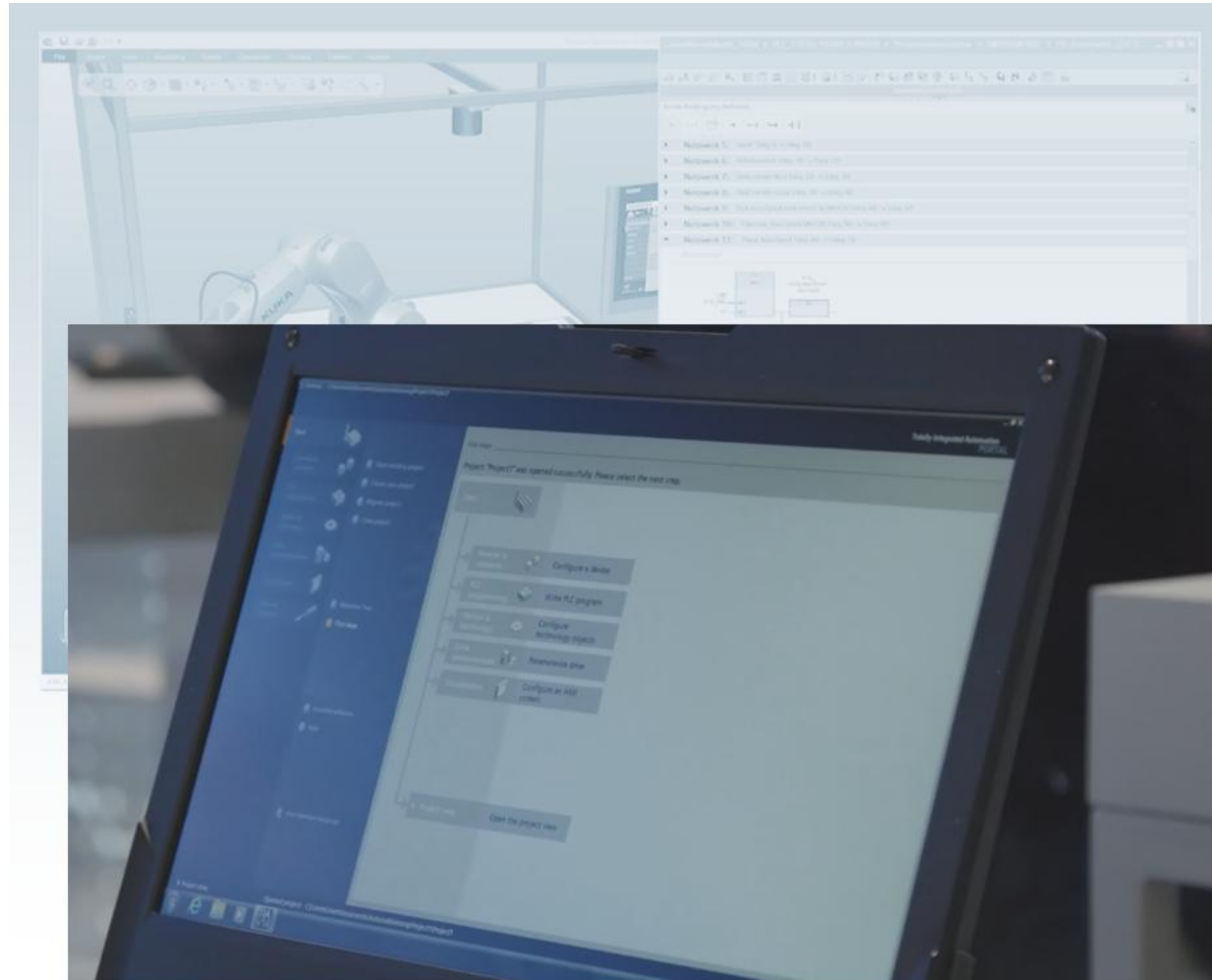


Production engineering

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Fast and
efficient
engineering
and
commissioning

TIA Portal



**SIMATIC
S7-1500**

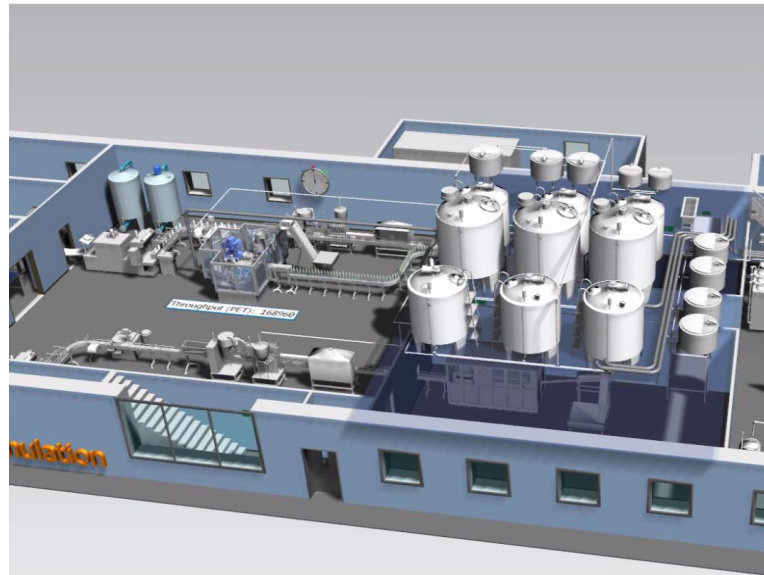


Digital Twin

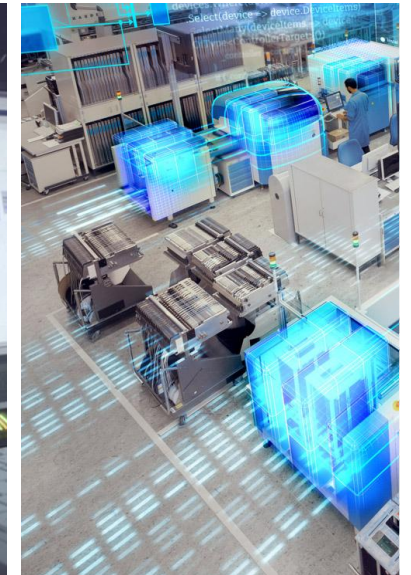
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Digital Twin of
the product



Digital Twin of
the production



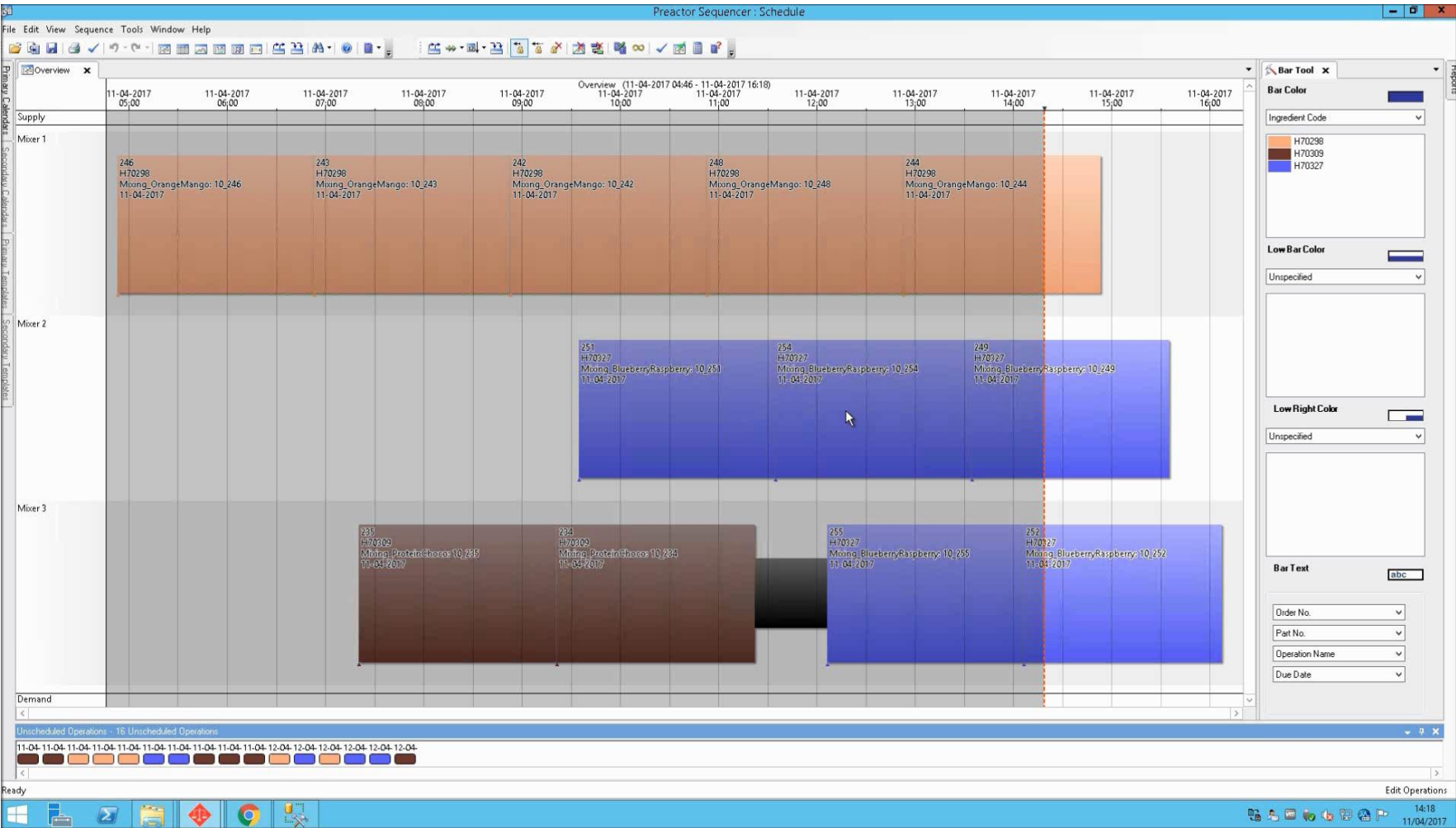
Digital Twin of
the performance

Production execution



Schedule
your work
operations

SIMATIC IT Preactor



Production execution



Run quality inspection operations

SIMATIC IT Unified Architecture



Open Sample - R&D Suite | SampleReport - Report | Configuration Module

Not secure | https://siemensdc/RnDSuite/Wizards/OpenSampleWizard?page=2&filter=[{"field":"SC@RndvSc","operator":"eq","value":"3023"}]&taskType=sclist&taskId=10

Home | Workspaces | New Search | Refresh | Print | Status to Cancelled | Create sample with same sample type | Open Cam | Sample report

Open Sample Wizard <Basic Task>

Info Cards of Sample SC20170406-5

Batch 5421

Production Date 4/5/2017

Tank T02

Filling line 5

Remarks

Filter InfoCards here...

Sample Information

Filter Results

ShortDe...	Descrip...	Creation...	StatusD...	Brand	Start Date	End Date	Due Date	Non-Co...
SC20170406-5	Protein Drink ...	4/6/2017 1:18...	Available				20170412	

100 Items per page | 1 - 1 of 1 items

Results of Sample SC20170406-5

chemical

Parameter	Low Limit	Low Spec	Value	Target	Unit	High Spec	High Limit	#R	Status
pH	6.55	6.60		6.75		6.90	6.95	0	Available
Fat	0.30	0.35		0.40	g/100ml	0.45	0.50	0	Available
Protein	7.90	7.93		8.00	g/100ml	8.07	8.10	0	Available
Sugar	4.60	4.64		4.70	g/100ml	4.76	4.80	0	Available
Salt	0.17			0.18	g/100ml		0.19	0	Available

microbiology

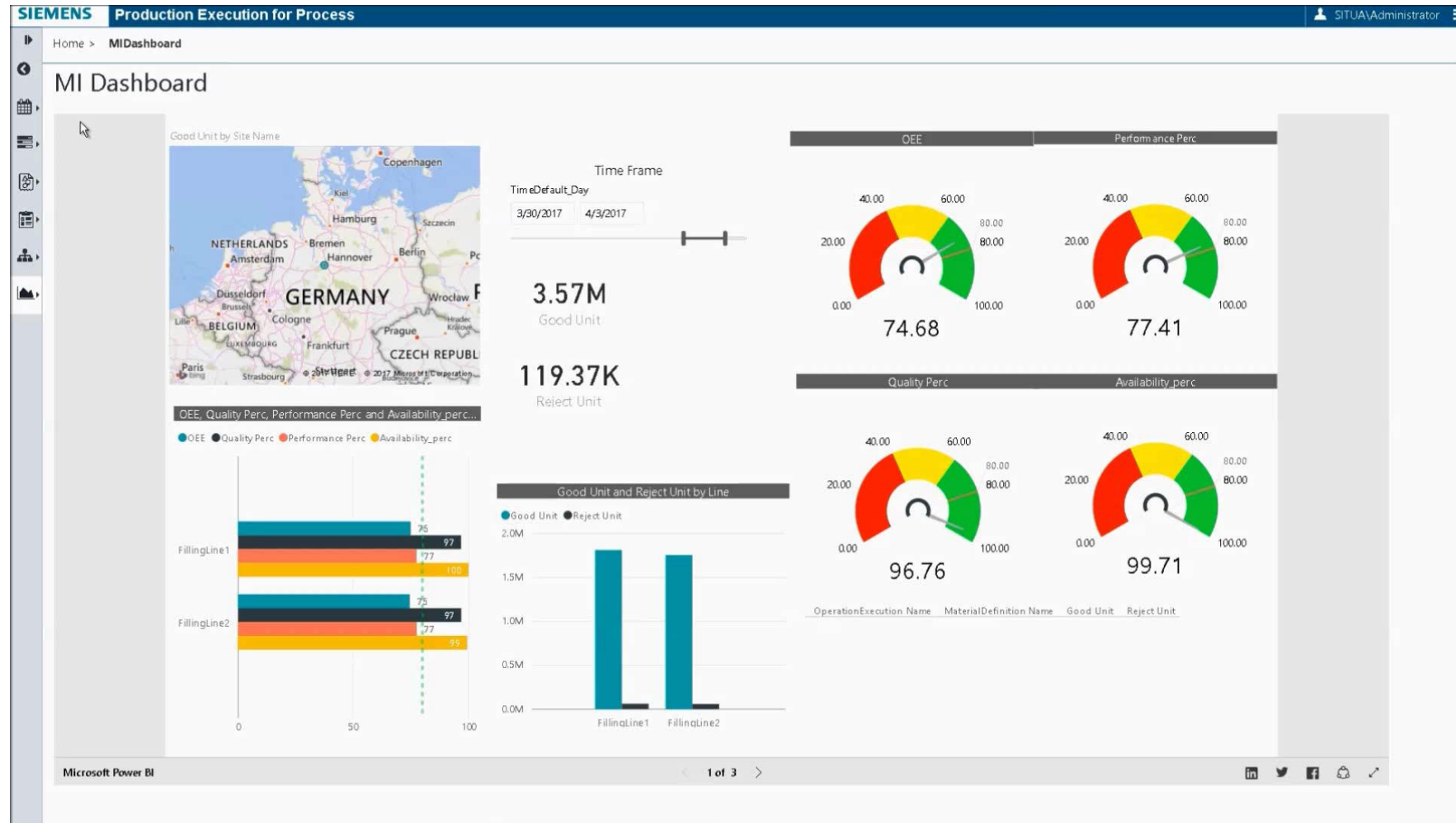
Parameter	Low Limit	Low Spec	Value	Target	Unit	High Spec	High Limit	#R	Status
Total Plate Count					cfu/g	2	3	0	Available

User: SIEMENSDC\Administrator | Database: RnDSuiteDemo | 18:21 5/04/2017

Production execution

Get
transparency
about the
performance of
your plant

SIMATIC IT
Manufacturing
Intelligence



Production execution

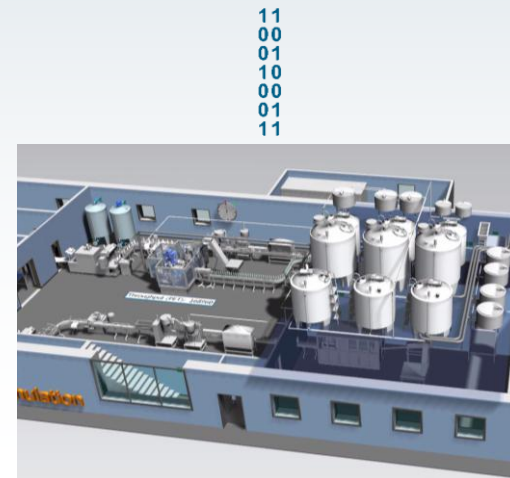
Efficient
and secure
production
with TIA

SIMATIC, SIMOTION,
SIMOTICS, SINAMICS and
SIRIUS



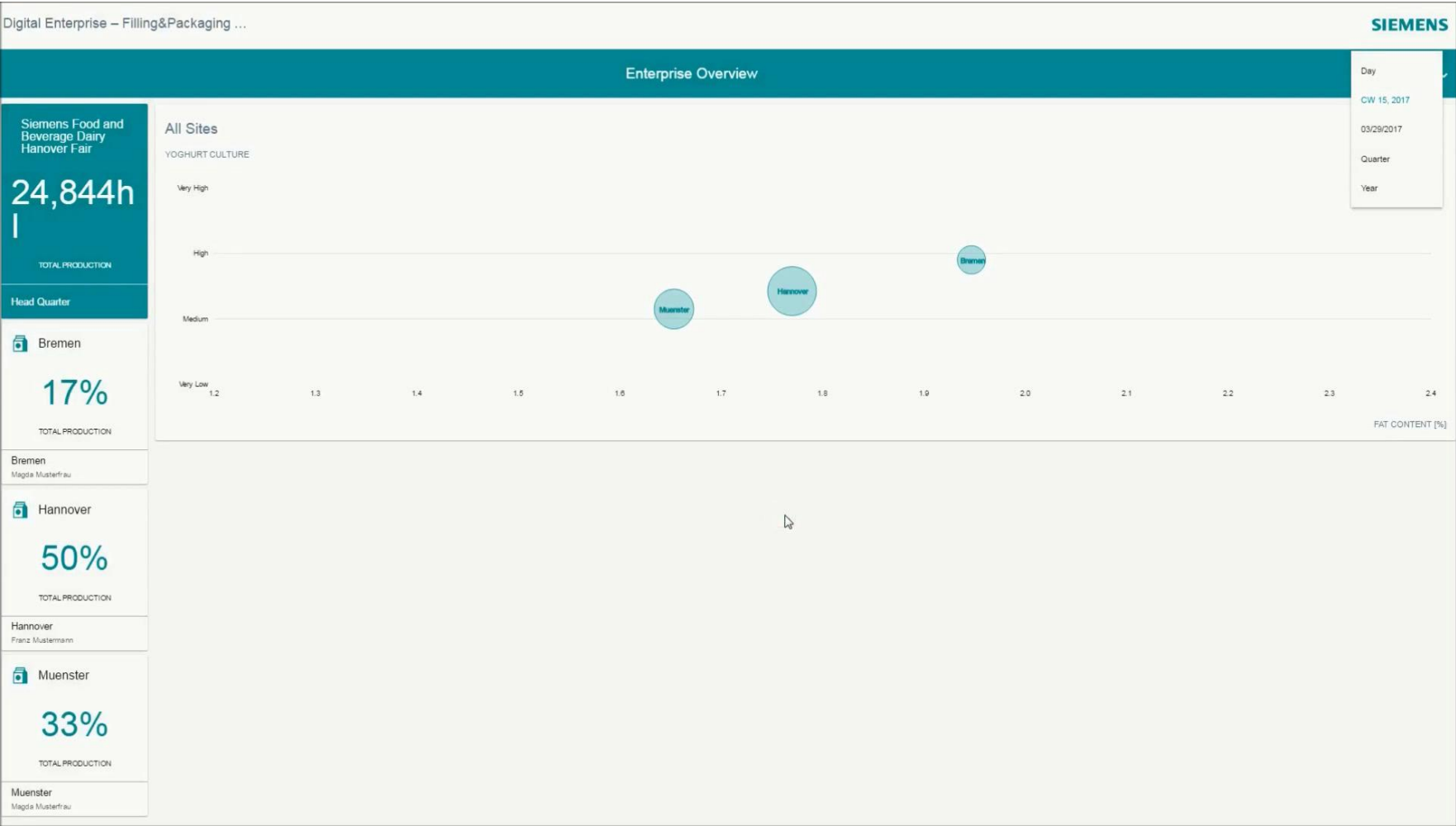
Let your
products and
your production
speak to you...

**MindSphere –
the cloud-based, open
IoT operating system**



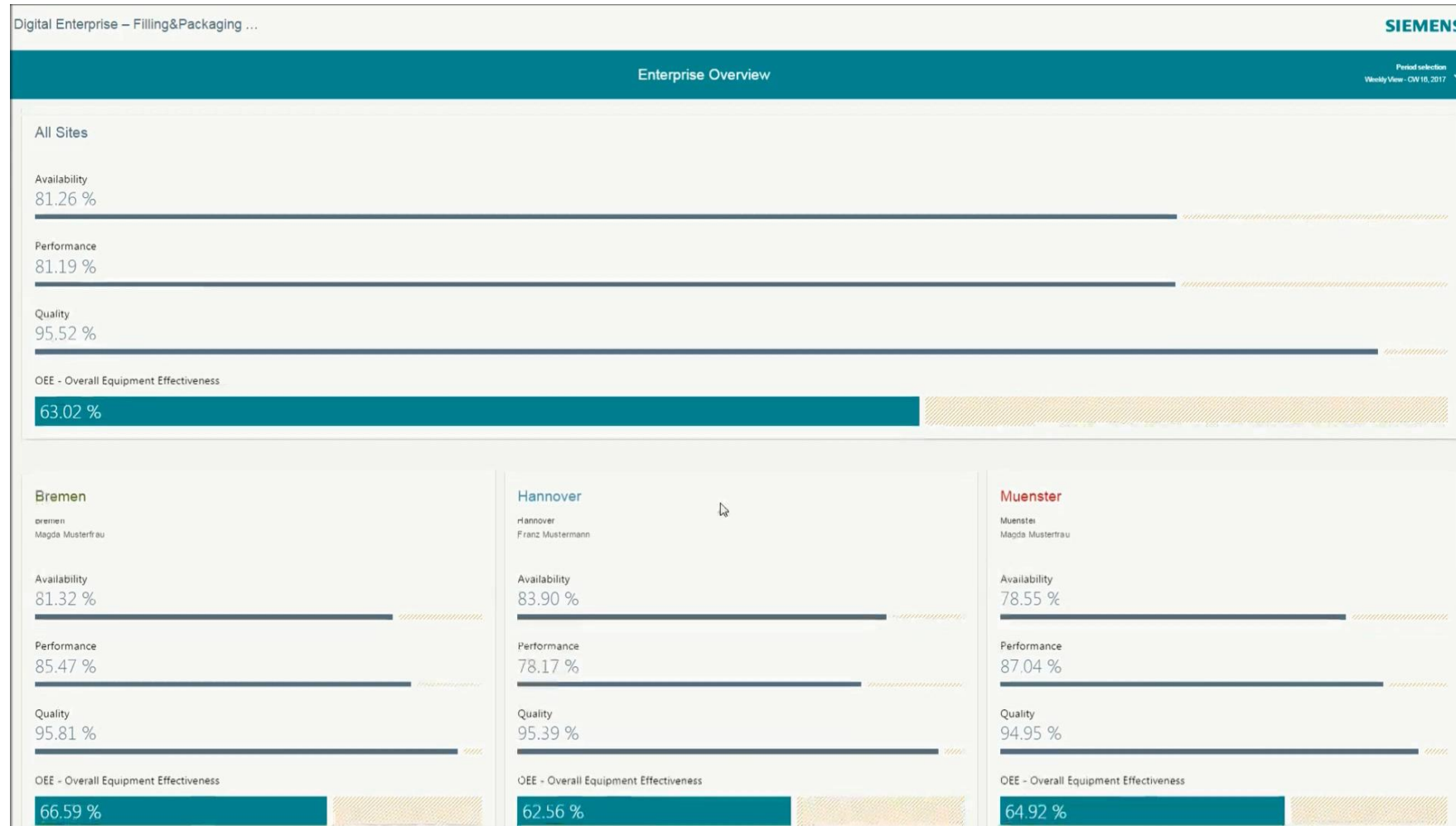
...about their
quality...

MindSphere –
the cloud-based, open
IoT operating system



...or their
performance

MindSphere –
the cloud-based, open
IoT operating system



Digital Twin of performance – KHS GmbH Future cloud services for end customers – preventive maintenance

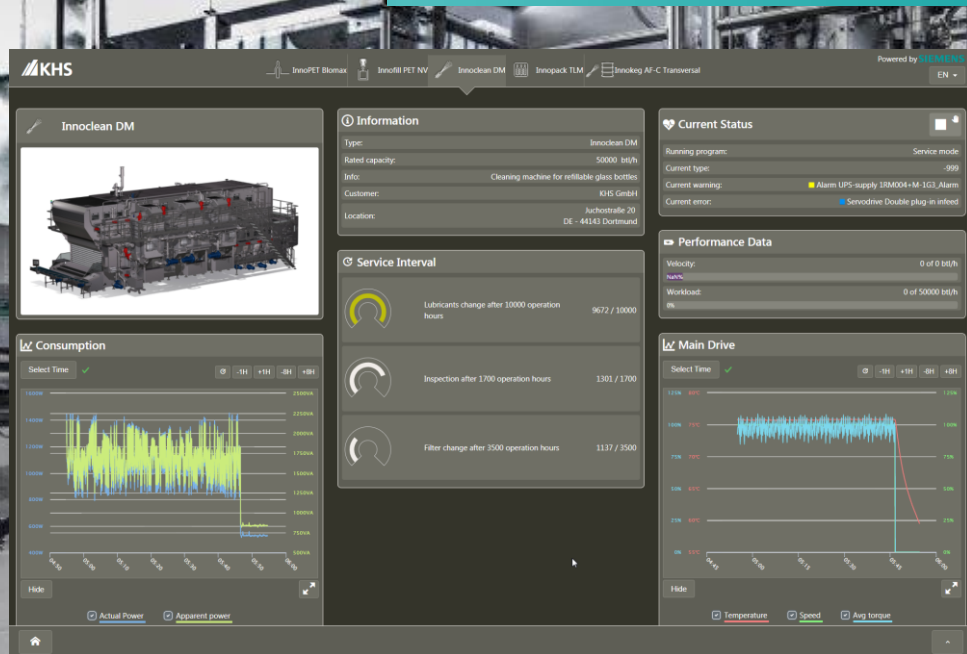


Foto: KHS GmbH

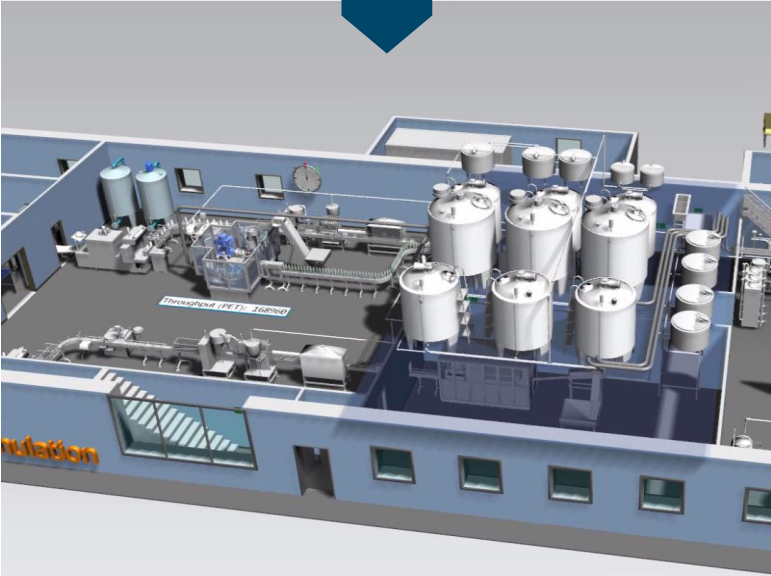
- Worldwide access to machine information via MindSphere
- Energy data management
Analysis and evaluation of consumption
- Optimize service and resources
- Digital Service platform
- Demonstration of a cloud-based service app for customers

MindSphere

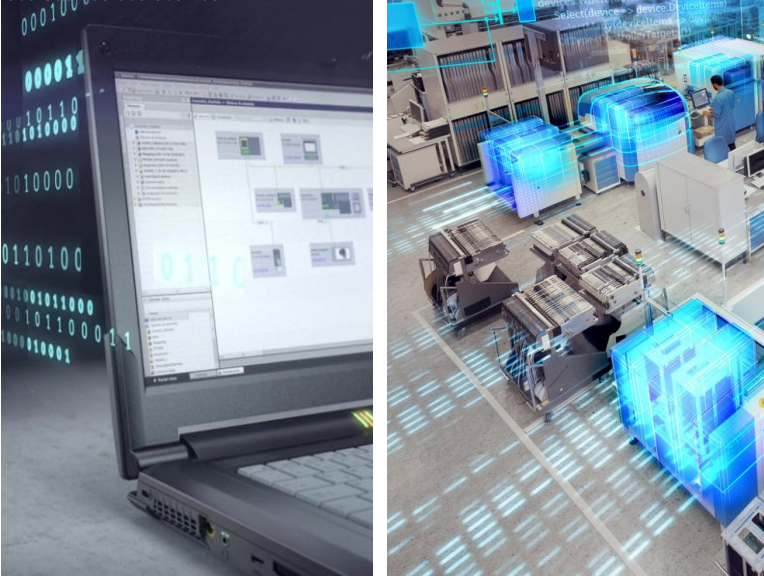
Feed back insights to continuously optimize product and production



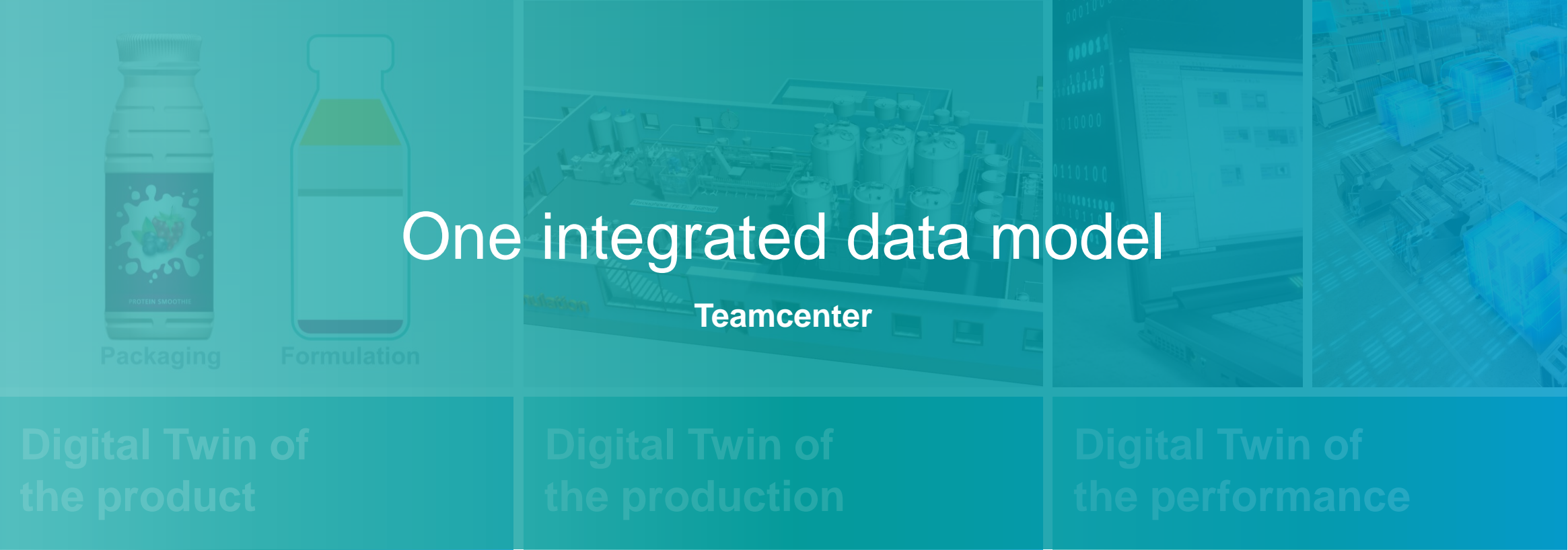
Digital Twin of the product



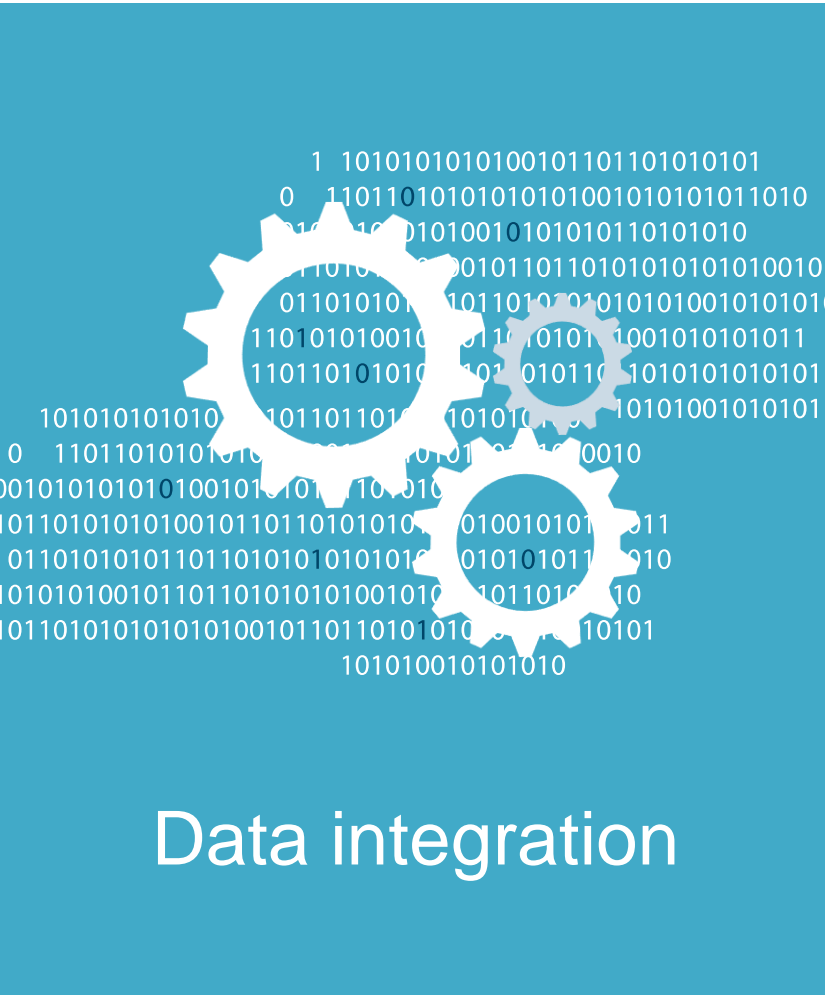
Digital Twin of the production



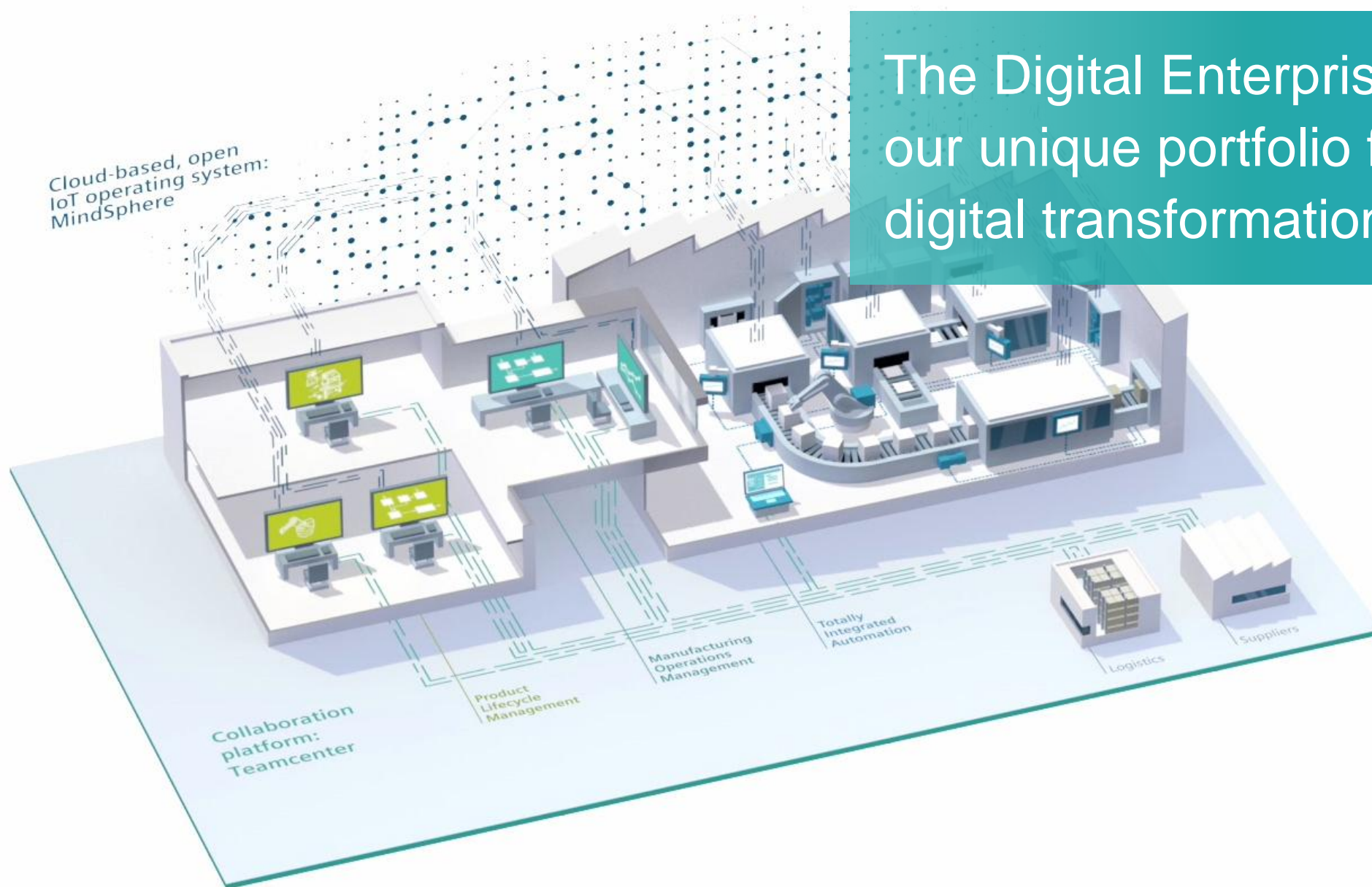
Digital Twin of the performance



The three main advantages of digitalization



The Digital Enterprise Suite – our unique portfolio for the digital transformation



Realize your digital transformation with the Digital Enterprise Suite

Make the
future yours.

