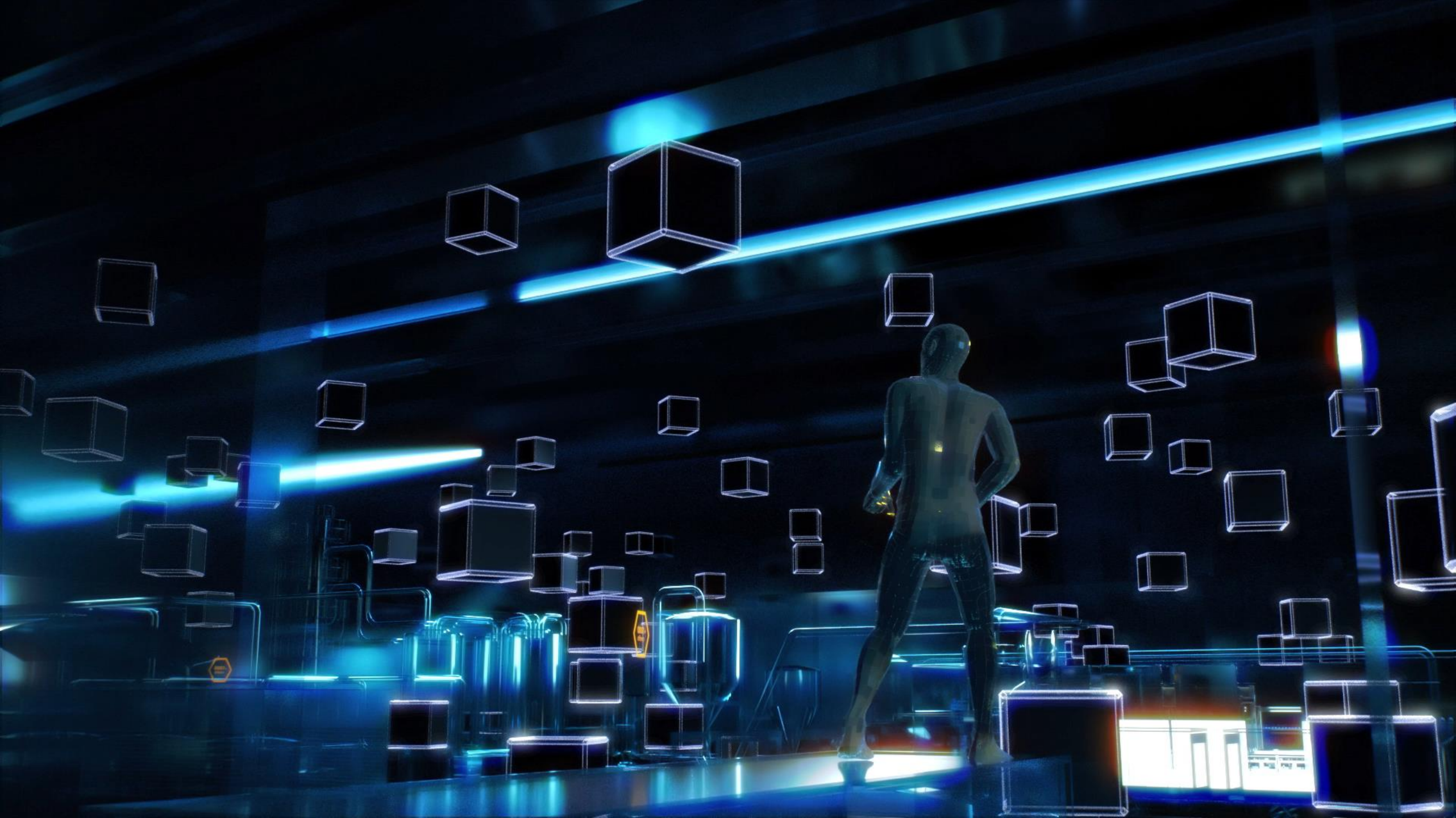




+1000
credits

CHECKING SCORE
LEVEL UP!





Power up with standards

Automation Days 2019

Faster engineering is a must

We have to reduce the amount of **redundant work**

We need to be able to **link more and more systems**

Standardization lowers costs for customers

Power-up with standards



Challenge 1

Create HW configuration once (e.g. ECAD) and reuse it in other tools

Challenge 2

Automatically generate individual customer projects from standardized elements

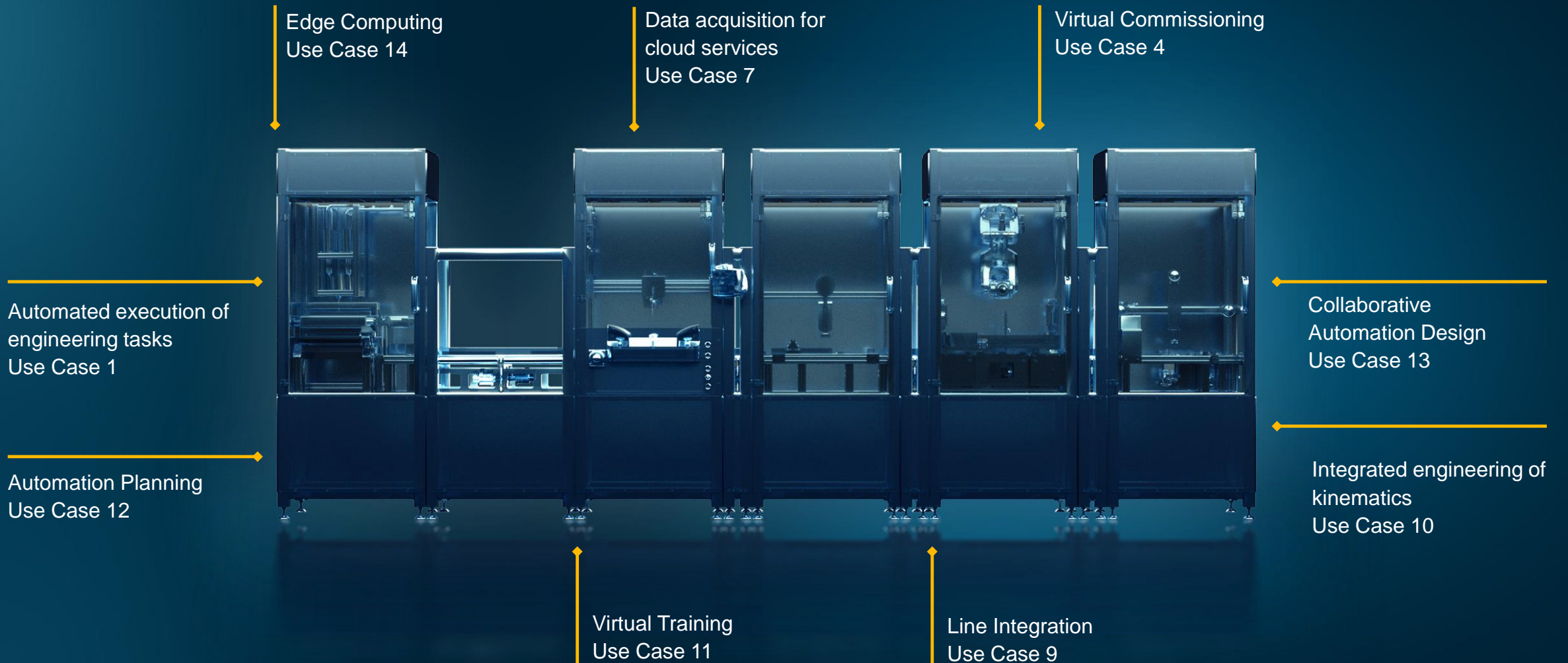
Challenge 3

Standardized data interfaces based on standardized protocols

Challenge 4

Uniform machine behavior simplifies coordination of the overall line

Digitalization Line – TIA Use Cases



Challenge 1

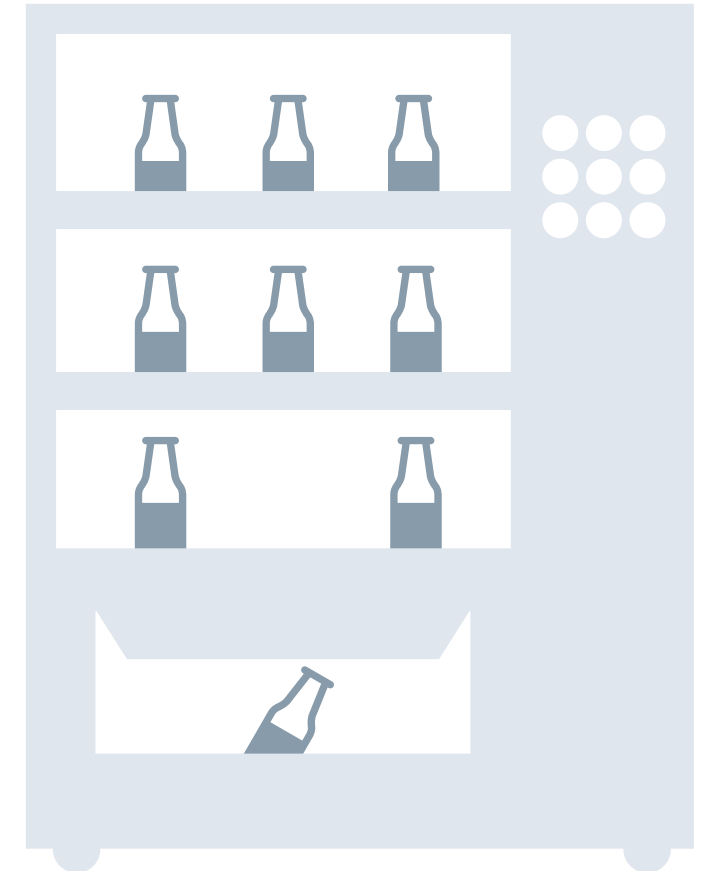
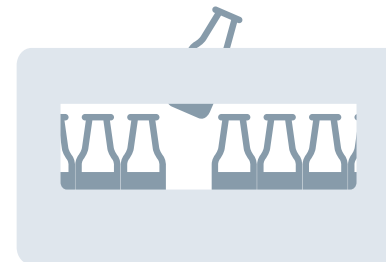
Create and reuse HW data

Introduction to challenge

Quality → A good basis leads to success

SIEMENS
Ingenuity for life

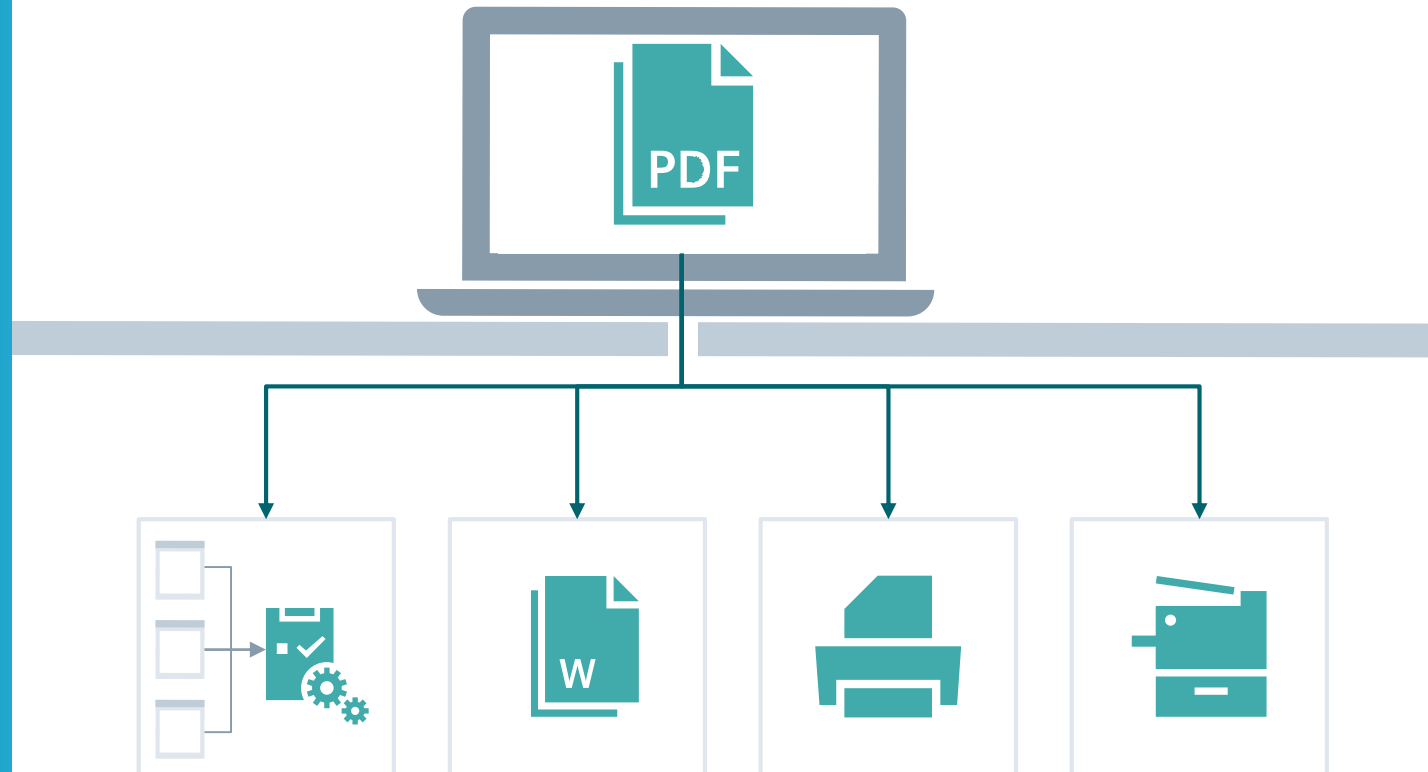
One standard, many
uses



Introduction to challenge

Quality → A good basis leads to success

A single format for a variety of applications



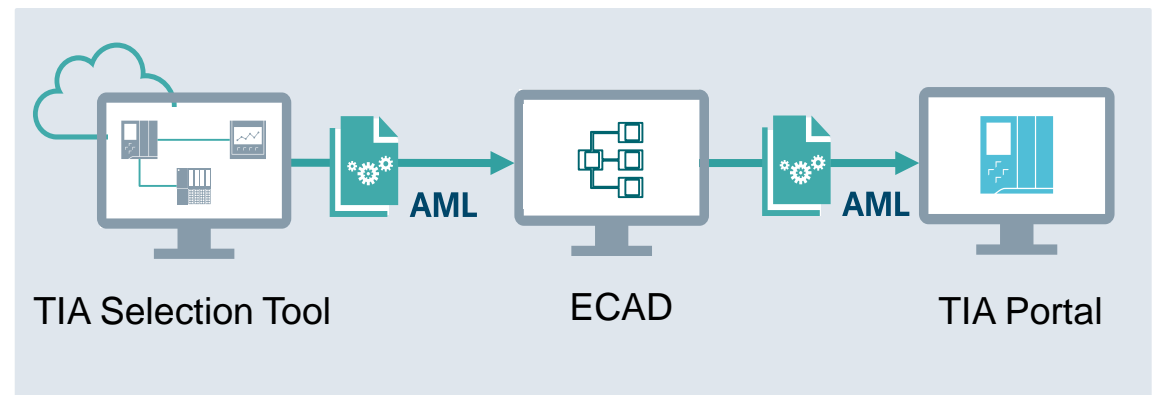
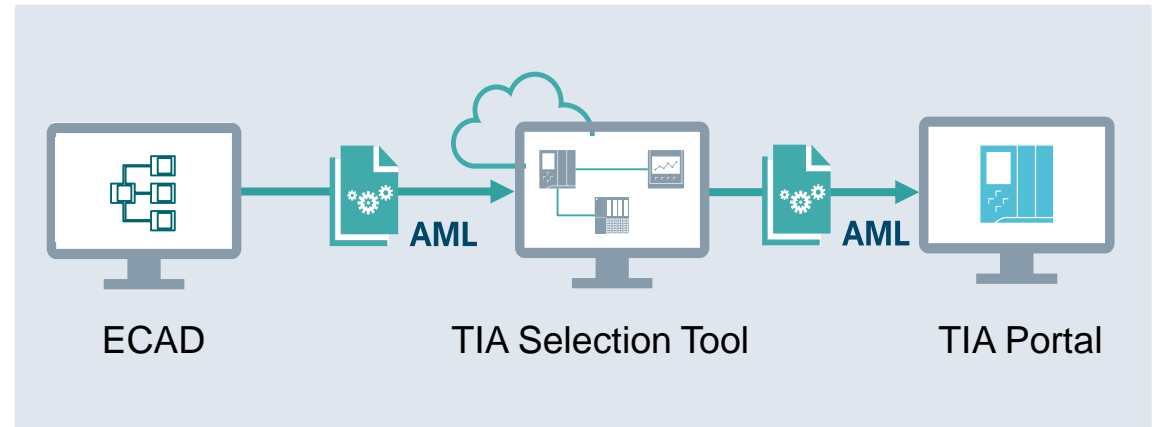
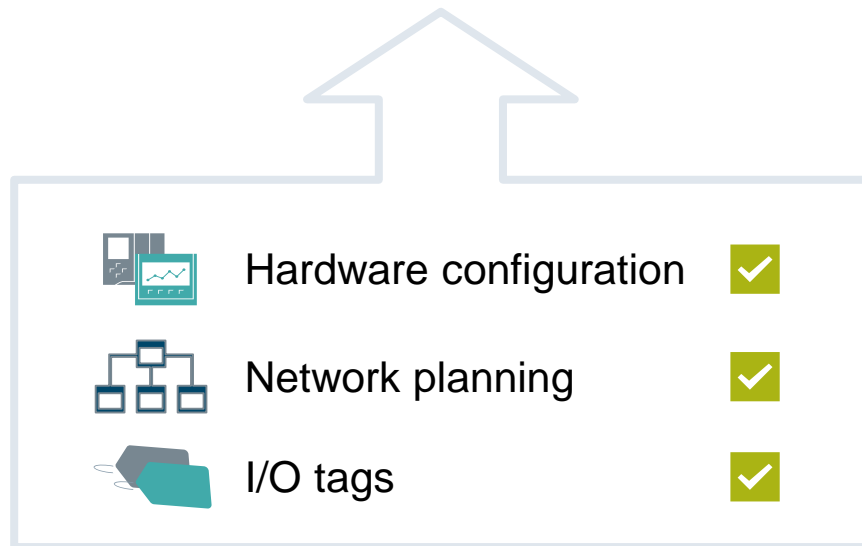
Exchange of hardware data with AML

Standardized data format



AML

Automation Markup Language



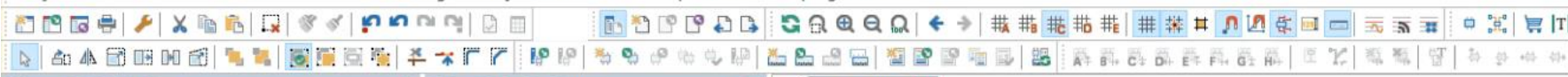
Contents

Exchange of hardware data with AML

- Exporting of the hardware configuration from EPLAN
- Importing of the data in the TIA Portal

Challenge 1

Demo



Seiten - AD19-DigiDemo SPS - AD19-DigiDemo /DigiDemo

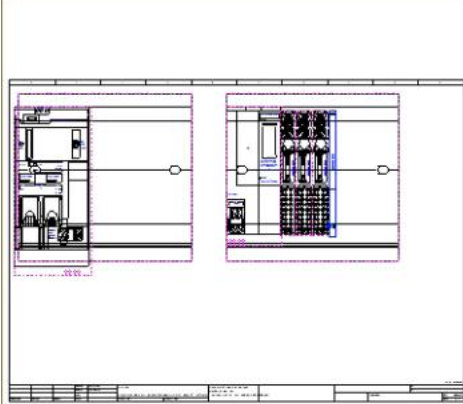
Filter: - Nicht aktiviert -

Wert:

- AD19-DigiDemo
 - DigiDemo**
 - DigiDemo2

Baum Liste

Grafische Vorschau

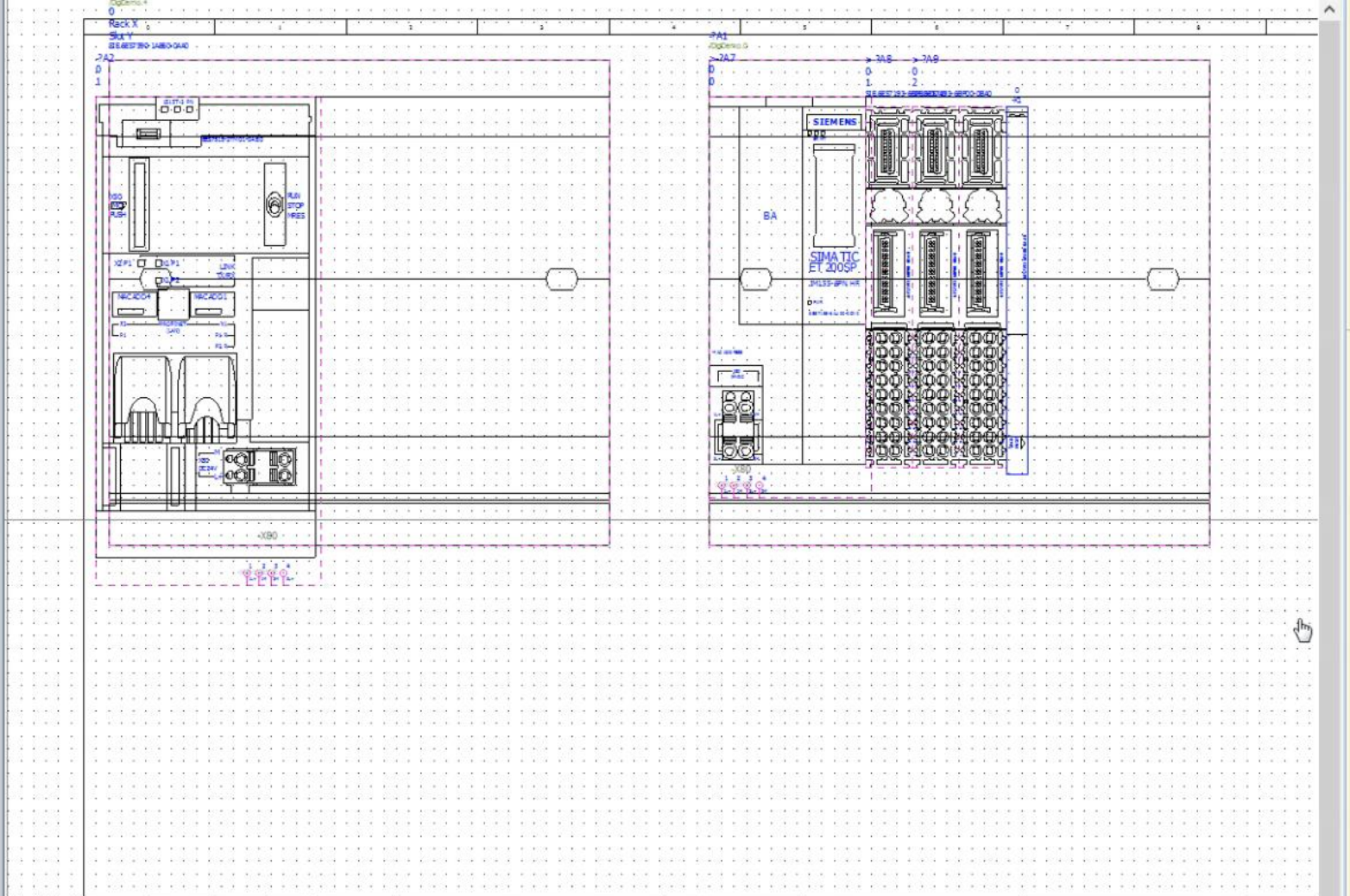


Filter: - Nicht aktiviert -

Wert:

- Ohne Strukturkennzeichen
 - ?A1 SPS-Kasten ohne Anschluss
 - ?A2 SPS-Kasten ohne Anschluss
 - ?A3 SPS-Kasten ohne Anschluss
 - ?A4 SPS-Kasten ohne Anschluss
 - ?A5 SPS-Kasten ohne Anschluss
 - ?A6 SPS-Kasten ohne Anschluss
 - ?A7 SPS-Kasten ohne Anschluss
 - ?A8 SPS-Kasten ohne Anschluss
 - ?A9 SPS-Kasten ohne Anschluss
 - ?A10 SPS-Kasten ohne Anschluss
 - (SPS-Kasten)
 - SIE.6ES7193-6PA00-0AA0 (E

Baum Liste



			Datum	02.12.2018	ERLAN	ERLAN Software & Service GmbH & Co. KG	
			Erstg.	TLA Rofel	Projektleitung mit Kennzeichnungsstruktur gemäß IEC-Norm	Seitenstruktur mit Anlage und Einbauort	
Änderung	Datum	Name	Urspr				ETC_p001

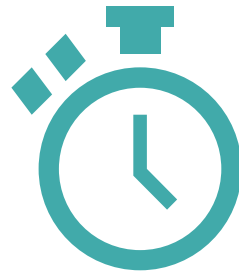
Advantages for your customers

Improve quality



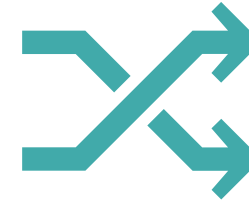
Data consistency throughout the plant planning process

Increase speed



Faster planning means that the basic data does not have to be collected repeatedly

Increase flexibility



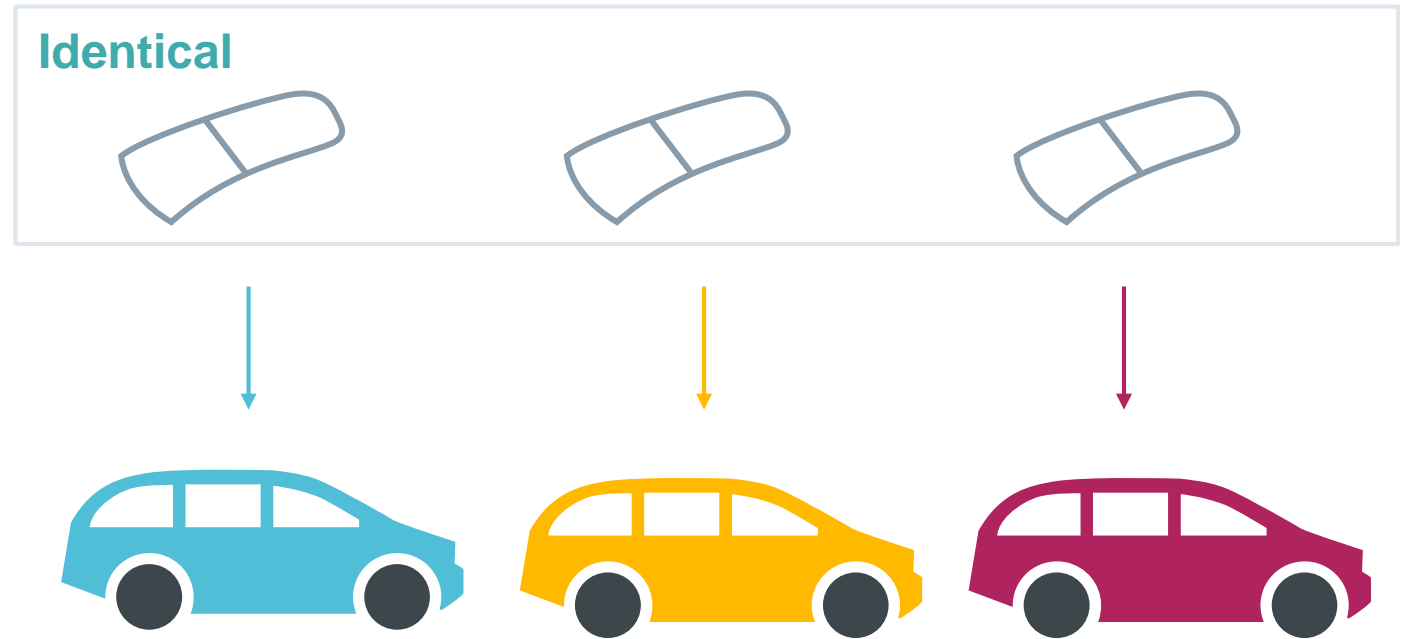
One exchange format for all systems

Challenge 2

Automatically generate individual projects

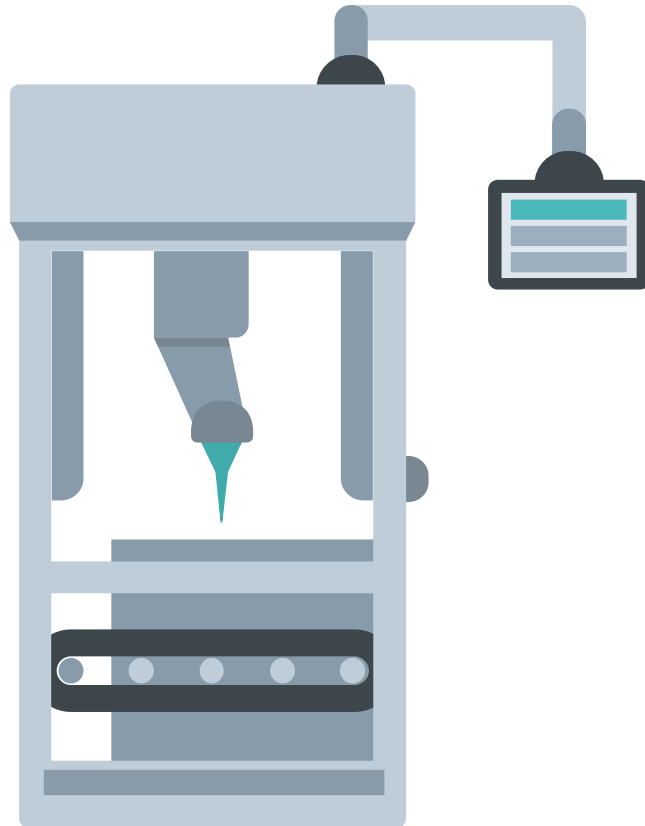
Introduction to challenge

Standardization from the application perspective



Basis for an efficient workflow

Standardization of the application



Standard components of the application

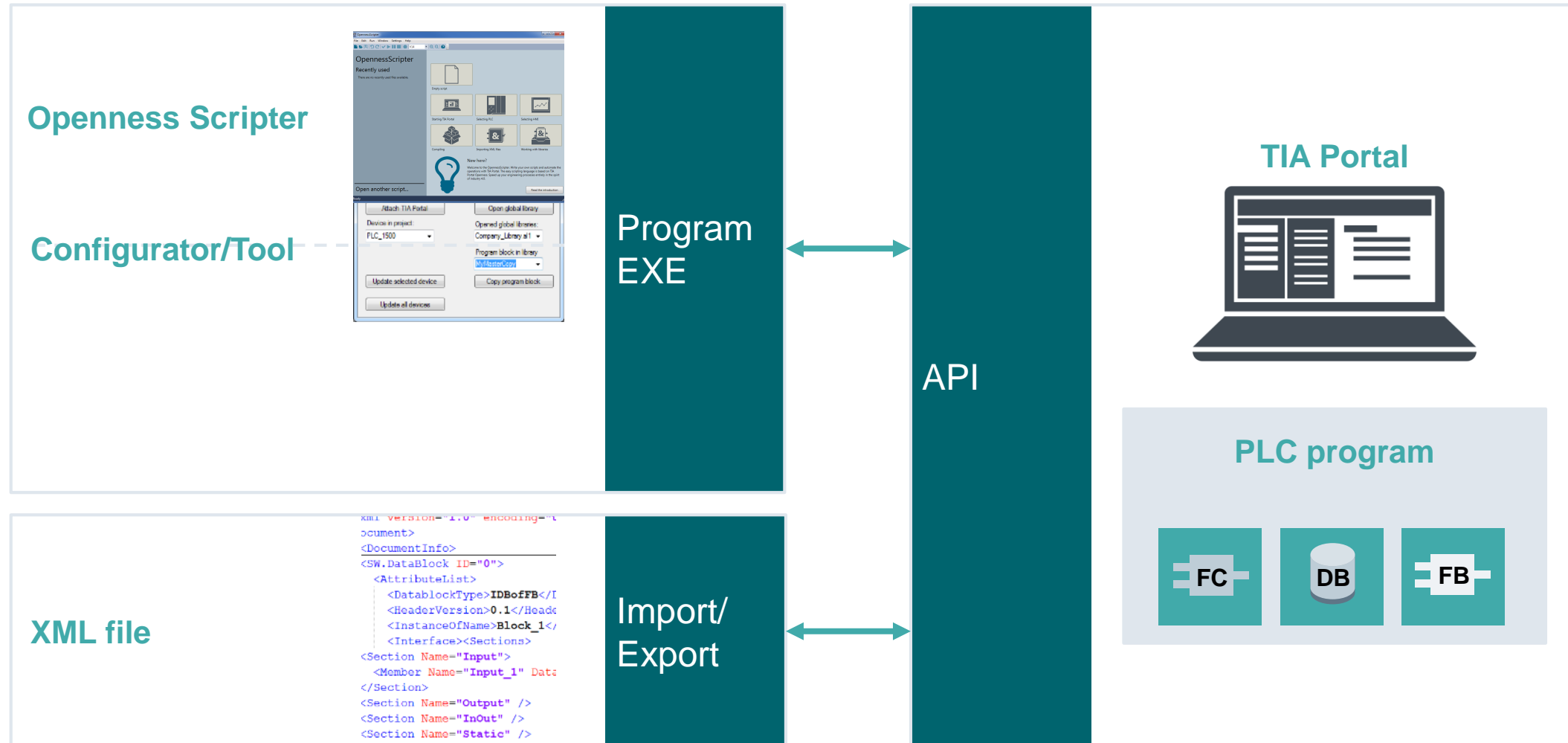
- 3 + Conveyor belt

- 2 + Support bracket

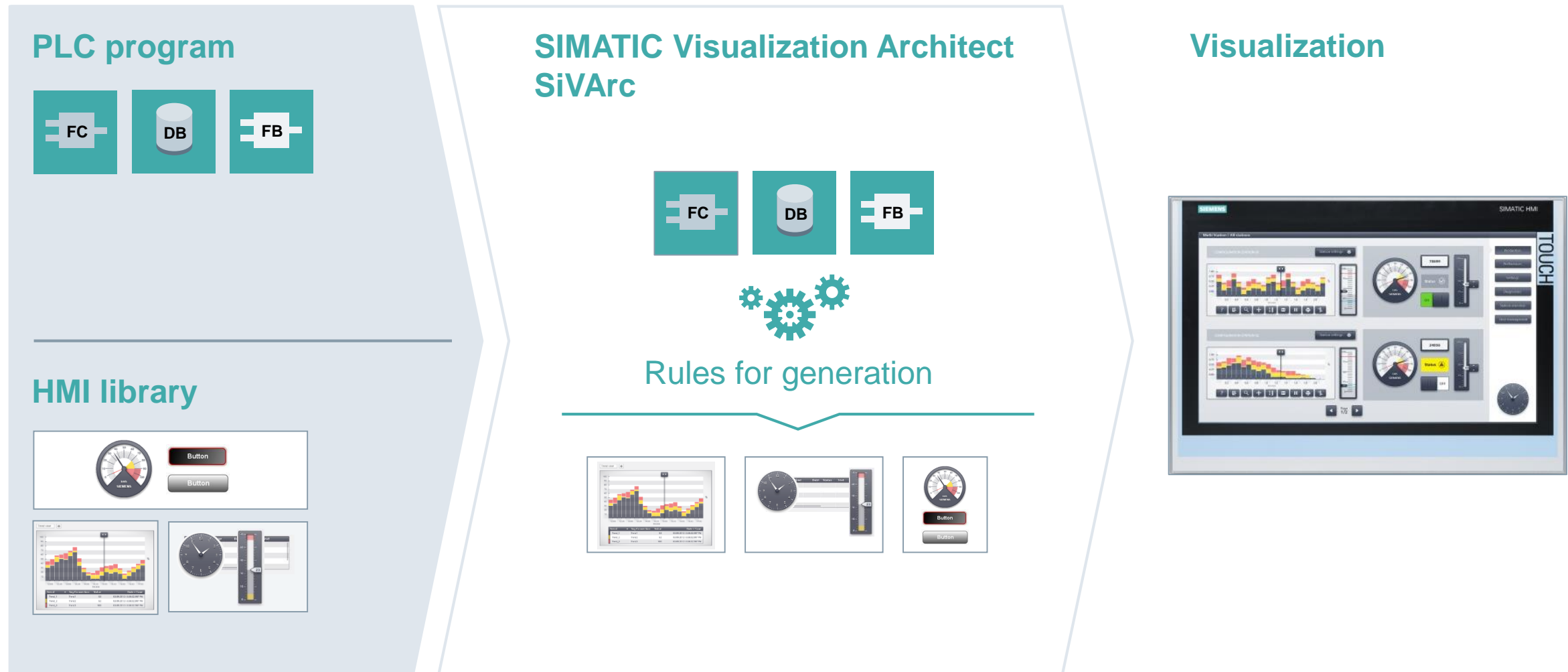
- 2 + Material box

- 1 + Robot

Automatic generation of the control program With and without high-level language expertise



Automatic generation of the visualization



Contents

Automatic execution of engineering tasks

- Automatic generation of the PLC program with the Openness Scripter
- Automatic generation of the HMI based on the control program with SiVArc

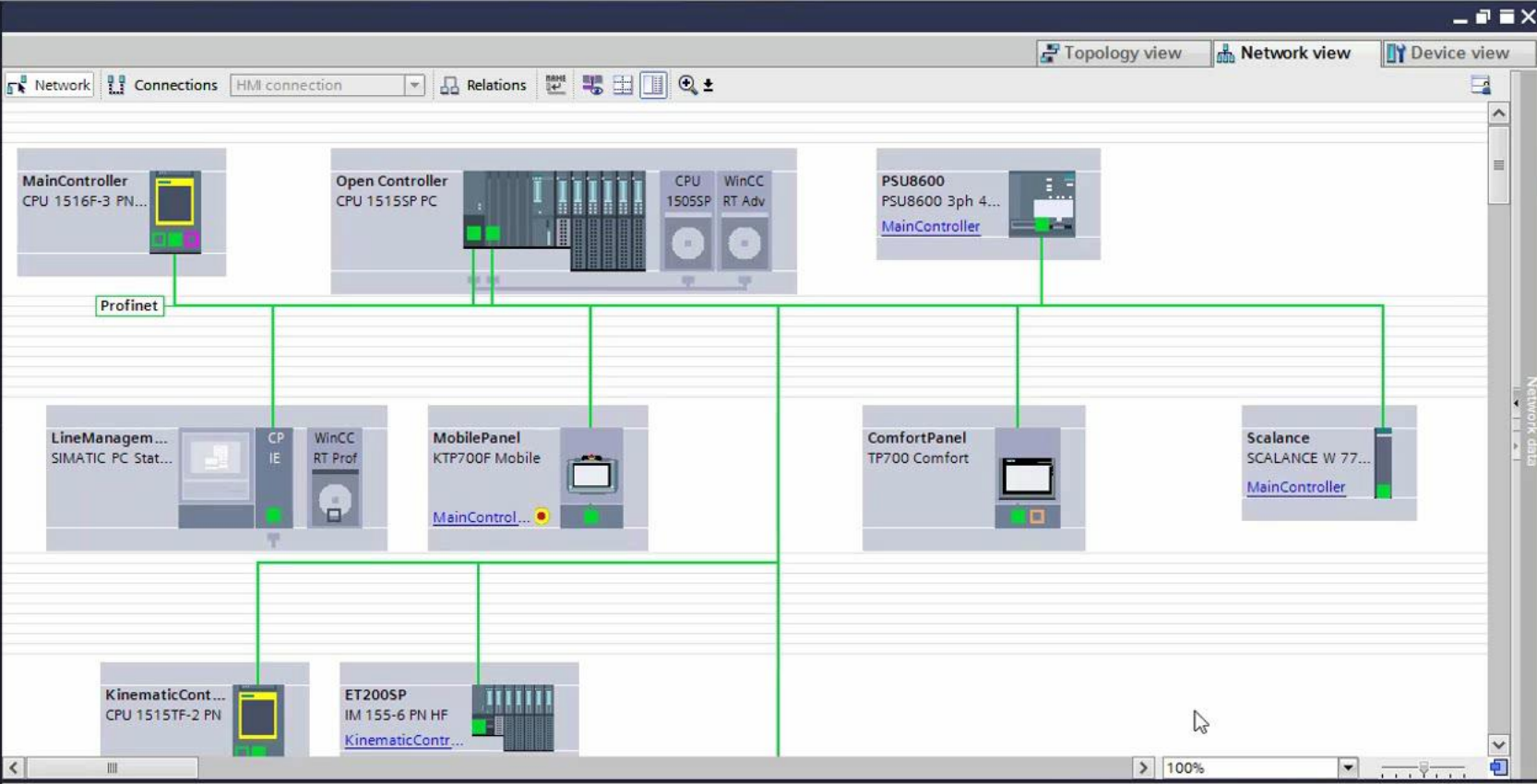
Challenge 2

Demo

Project tree

Devices

- InnovationTourV15
 - Add new device
 - Devices & networks
 - MainController [CPU 1516F-3 PN/DP]
 - Device configuration
 - Online & diagnostics
 - Safety Administration
 - Program blocks
 - Add new block
 - 01_Template
 - 02_Application
 - 01_Blocks
 - 02_General
 - 03_Tanks
 - 04_Lift
 - 05_MindSphere
 - 06_ProDiag
 - 07_EnergyData
 - 08_Safety
 - Energy Suite - program
 - System blocks
 - Technology objects
 - Energy objects
 - External source files
 - PLC tags
 - PLC data types
 - Watch and force tables
 - Online backups
 - Traces
 - OPC UA communication
 - Device proxy data



Hardware catalog

Options

Catalog

- Filter Profile: <All>
- Controllers
- HMI
- PC systems
- Drives & starters
- Network components
- Detecting & Monitoring
- Distributed I/O
- Power supply & distribution
- Field devices
- Other field devices

Information

Device:

Properties Info Diagnostics

General Cross-references **Compile** Energy Suite Generate

Show all messages

Compiling finished (errors: 0; warnings: 11)

Path	Description	Go to	Errors	Warnings	Time
MobilePanel	Time stamp: 2/23/2018 10:53 AM - 2089836 bytes used of 12...	→	0	11	10:53:42 AM
	Software compilation started.	→			10:53:42 AM
	Number of tags: 106	→			10:53:55 AM
	Number of PowerTags used: 54	→			10:53:55 AM
	Software compilation completed (device version: 14.0.1.0).	→			10:53:55 AM

Article no.:






Version:

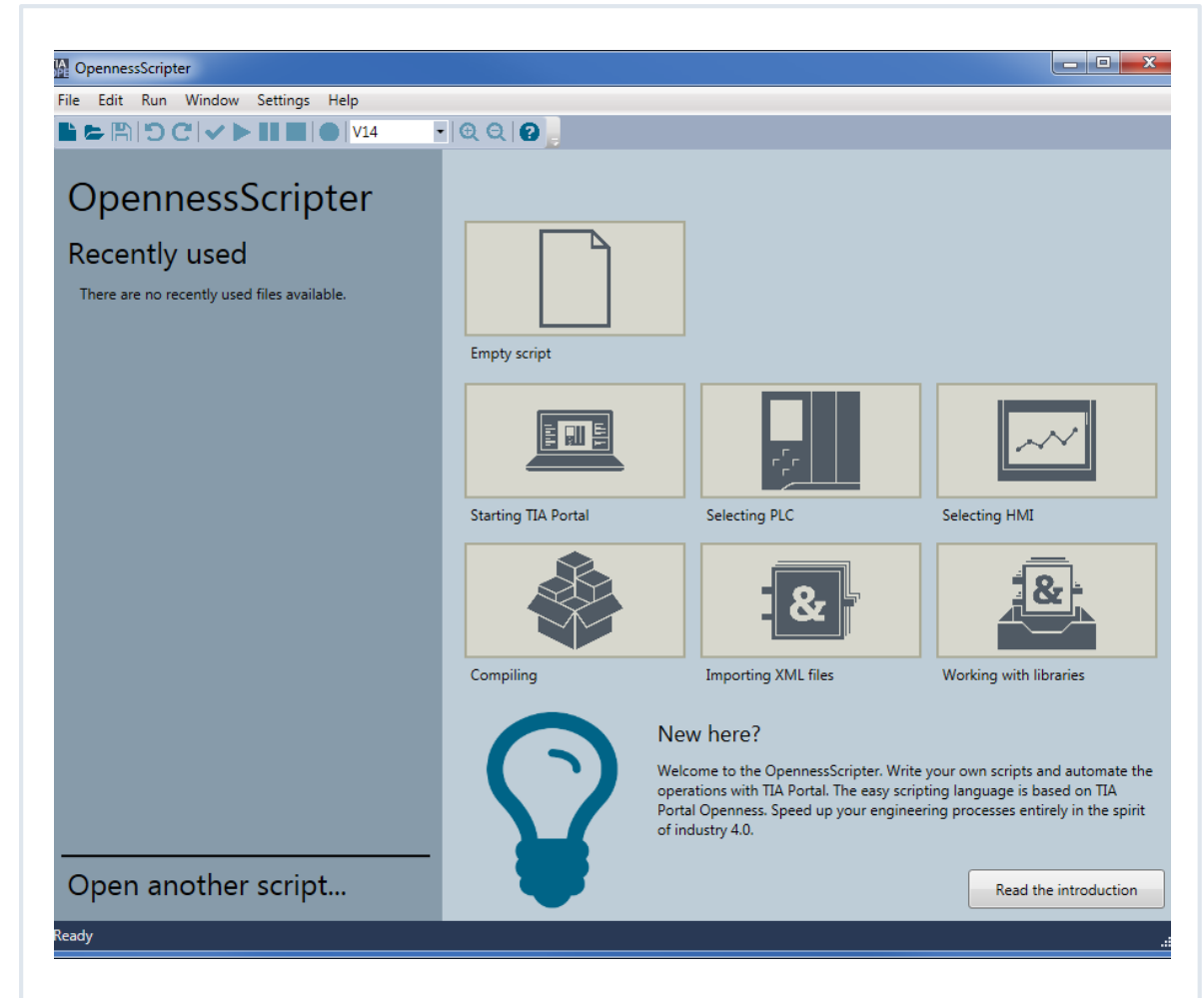
Type identifier:

Description:

Openness Scripter Advantages at a glance

What are the advantages of the Scripter?

-  No high-level language needed
-  Reduces the complexity of the full TIA Portal Openness API
-  Intuitive operation with easy-to-understand script commands
-  Pre-defined script templates for basic tasks
-  Free download



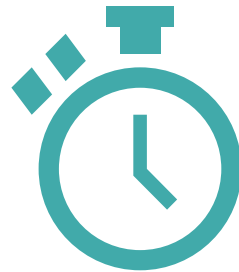
Advantages for your customers

Improve quality



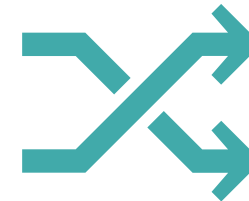
Reduction of errors through standardized and versioned blocks of libraries

Increase speed



Shorter time to market due to fast and error-free automatic generation of program code and visualization solutions

Increase flexibility



Increased variant diversity with reduced effort thanks to modular structure of projects

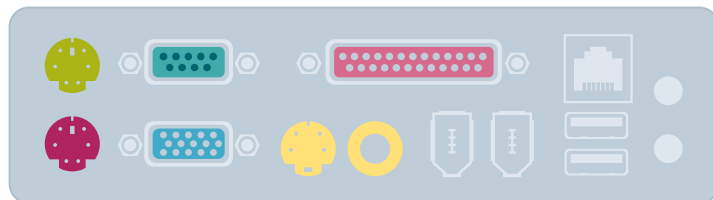
Challenge 3

Open interfaces and integration

Introduction to challenge – Standardization from the connectivity perspective

Earlier

- PS/2 mouse
- PS/2 keyboard
- Serial
- Parallel
- Firewire
- etc.



Today One standard for many devices
OPC UA (companion specifications)



USB 1 – 3



USB C



OPC UA – The open I4.0/IIoT standard interface for easy and secure communication

Easy integration

... through standardized interfaces

Universal application

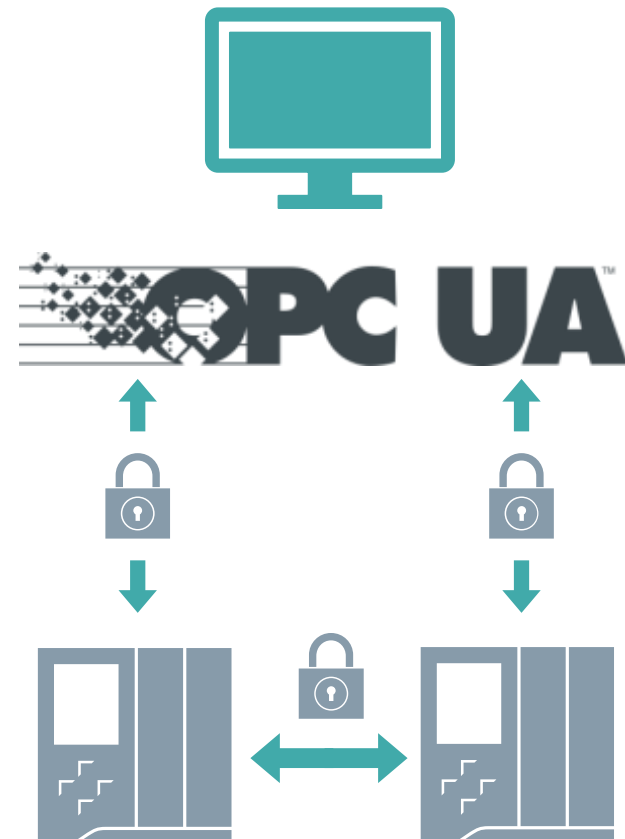
... regardless of platform, operating system and manufacturer

Easy to handle

... with online browsing, offline engineering and semantics

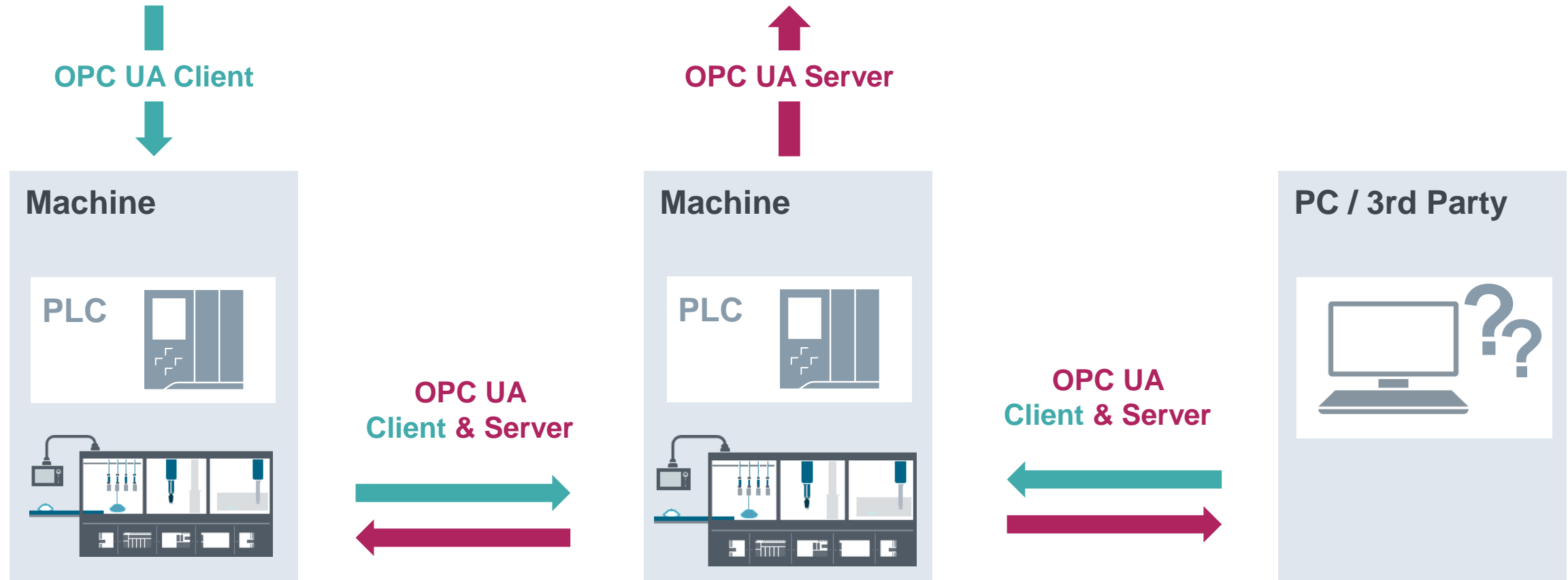
Integrated security

... with authentication, signed and encrypted communication



OPC UA Use cases

e.g. MES, SCADA, 3rd party...



OPC UA companion specifications

OPC UA companion specifications enable standardized and structured provision of data

OPC UA Server

Standard Server Interface

User-defined interface

Companion specification



Methods



Objects



Tags



Tags – Properties

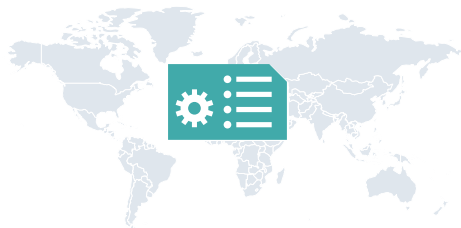
OPC UA companion specifications

Possible sources

Based on the company's own standards



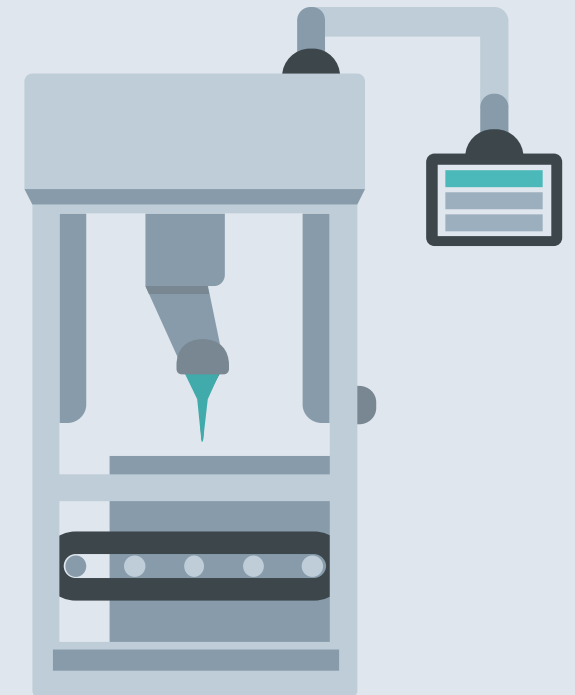
Based on international industrial standards



Companion specifications

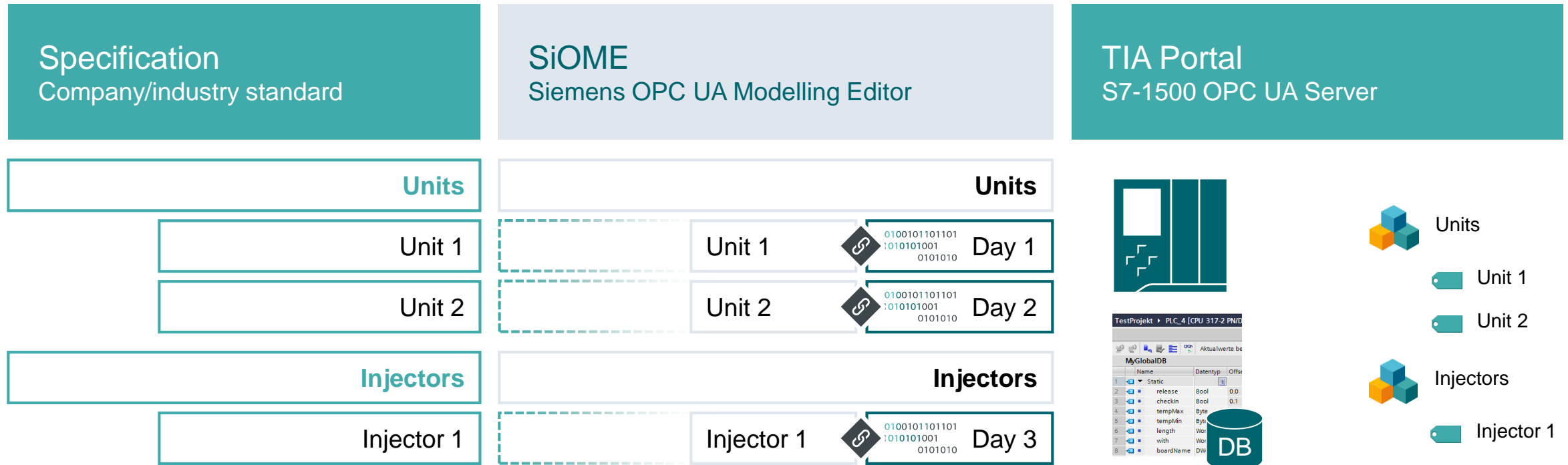


XML file



OPC UA companion specifications

How they work



Contents

Efficient creation of a standardized machine interface and linking with controller tags.

Easy export and integration into the machine with the TIA Portal.

Challenge 3

Demo

Information model


 Mapping

Show all ▾

▶ OPC Root

TIA Portal


 Details

Attributes

▶ NodeId	ns=0;i=84
NodeClass	Object ▾
▶ BrowseName	Root
▶ DisplayName	Root
▶ Description	The root of the server address space.
WriteMask	0
UserWriteMask	0
EventNotifier	0

References

 Type Defined References ^

ReferenceType	NodeClass	Name	TypeDefinition	ModellingRule	DataType
---------------	-----------	------	----------------	---------------	----------

 + Hierarchical References ▾

 + Nonhierarchical References ▾

Project

▼ 🏠 New OPC Mapping Editor Project

▼ 📁 Models

 🔒 0: <http://opcfoundation.org/UA/>

 📎 1: <http://yourorganisation.org/siome>

 🔒 2: <http://opcfoundation.org/UA/DI/>

 🔒 3: <http://www.euromap.org/euromap83/>

Siemens OPC UA Modelling Editor Benefits at a glance

What are the benefits of SiOME?



Easy import of companion specifications



Direct access variables and data blocks in the TIA Portal



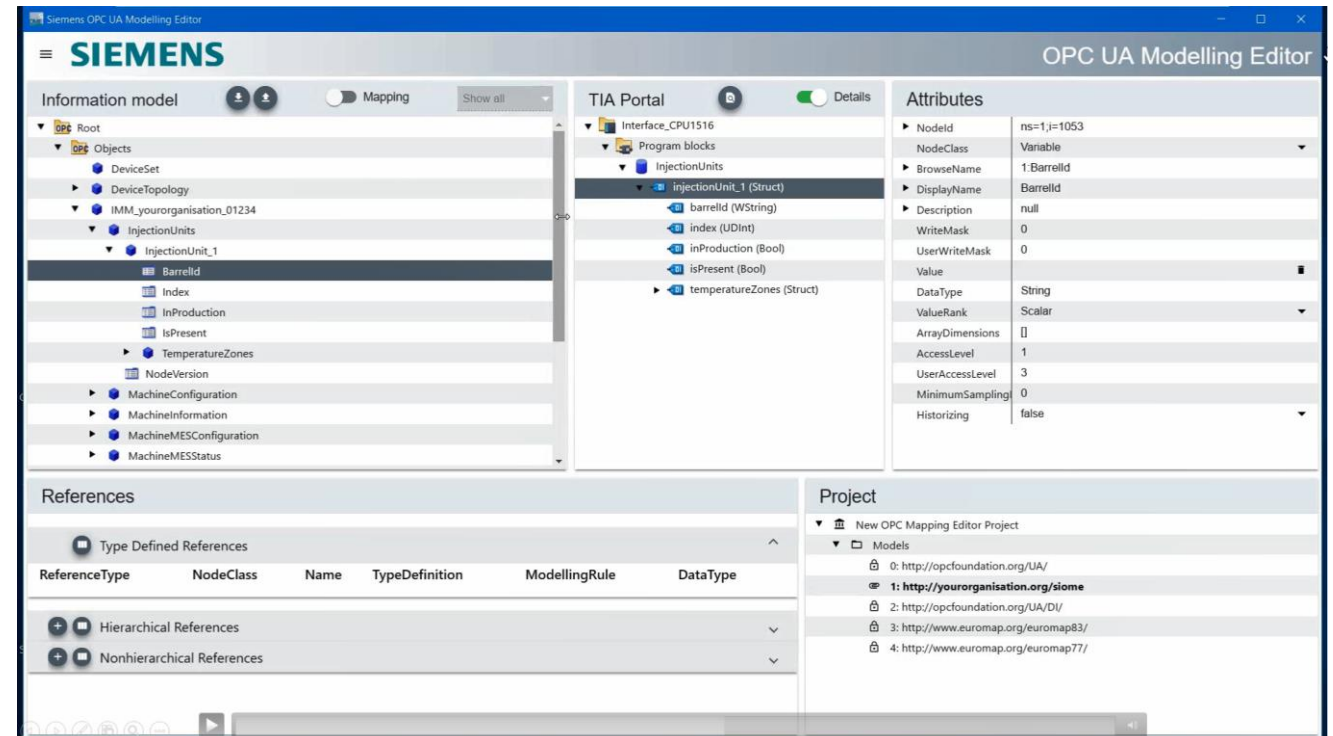
Easy linking of variables with the interface by means of drag-and-drop



Export of pre-connected interface as .xml file for import into the TIA Portal



Free download



Advantages at a glance

What are the benefits of OPC UA?



Uniform, cross-vendor protocol (language)



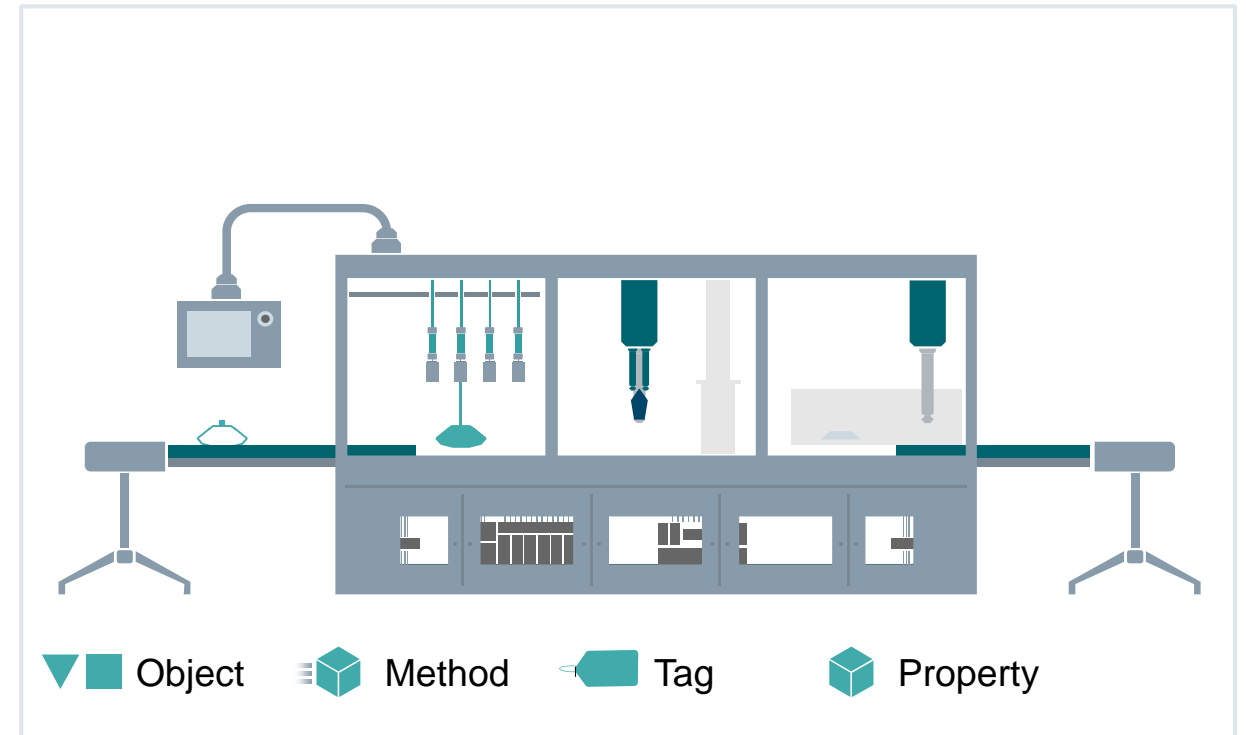
Time savings when integrating different systems with the help of standardized interfaces



Fewer errors due to online validation



Integrated security
Authentication, signed and encrypted communication



Advantages for your customers



Increase speed



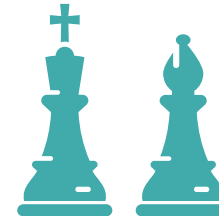
Faster time-to-market through use of existing industry standards

Lower costs



Less configuring effort through reuse of existing interfaces

Reduce risk



Reduced complexity through use of already validated interfaces

Increase flexibility

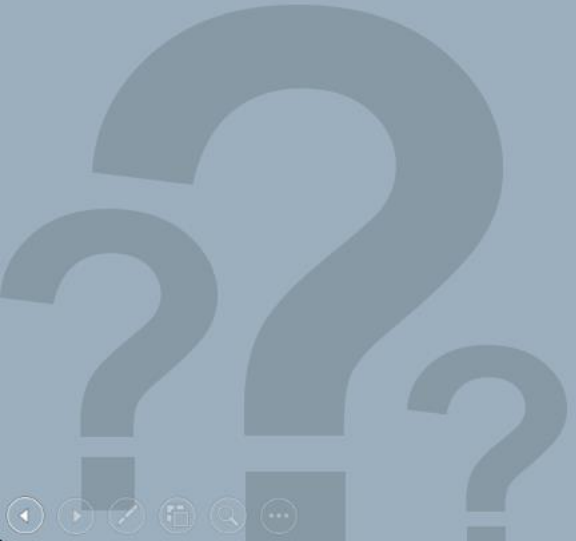


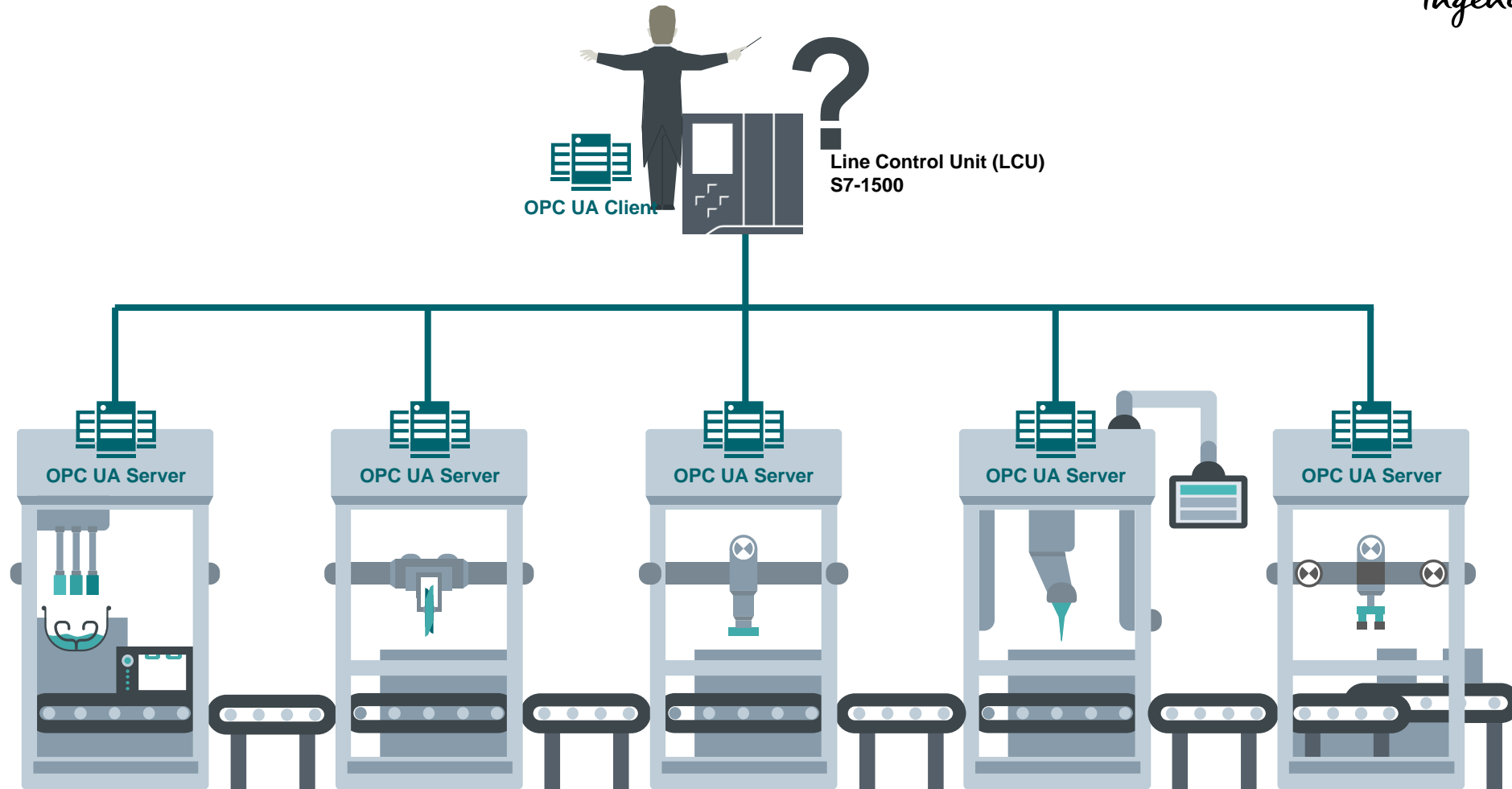
Increased openness and simplified integration

Challenge 4

Line coordination

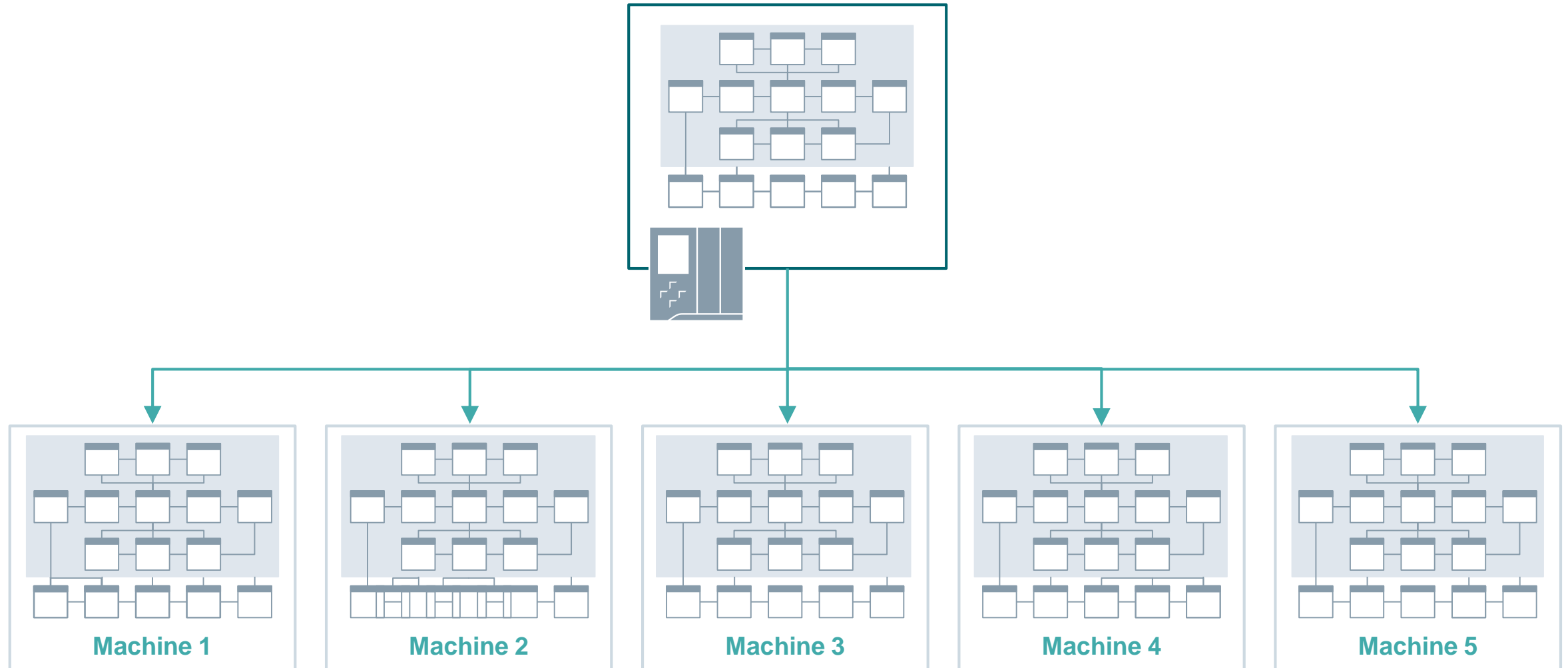
What does this have to do with
standards?



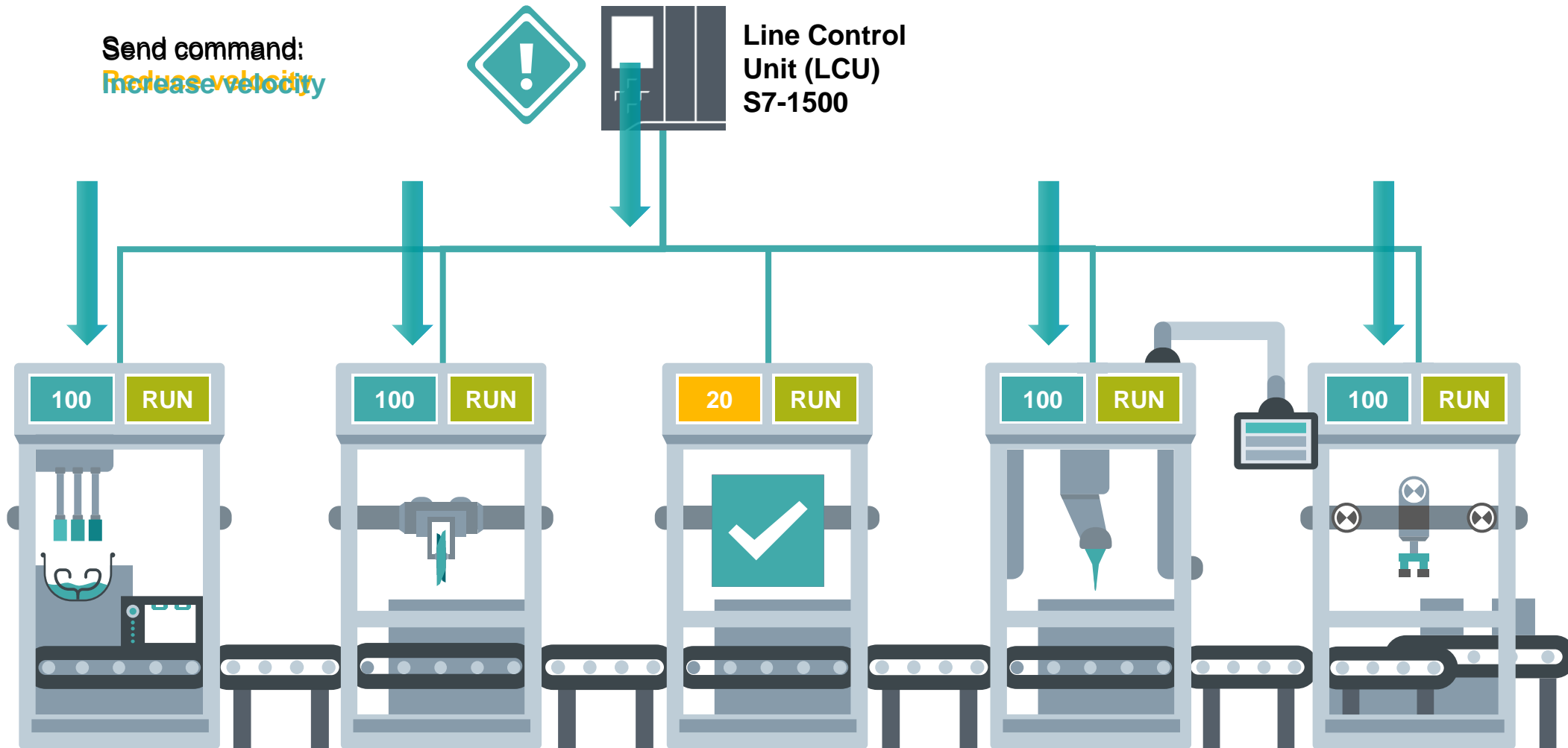


Line coordination

A standardized state model as basis



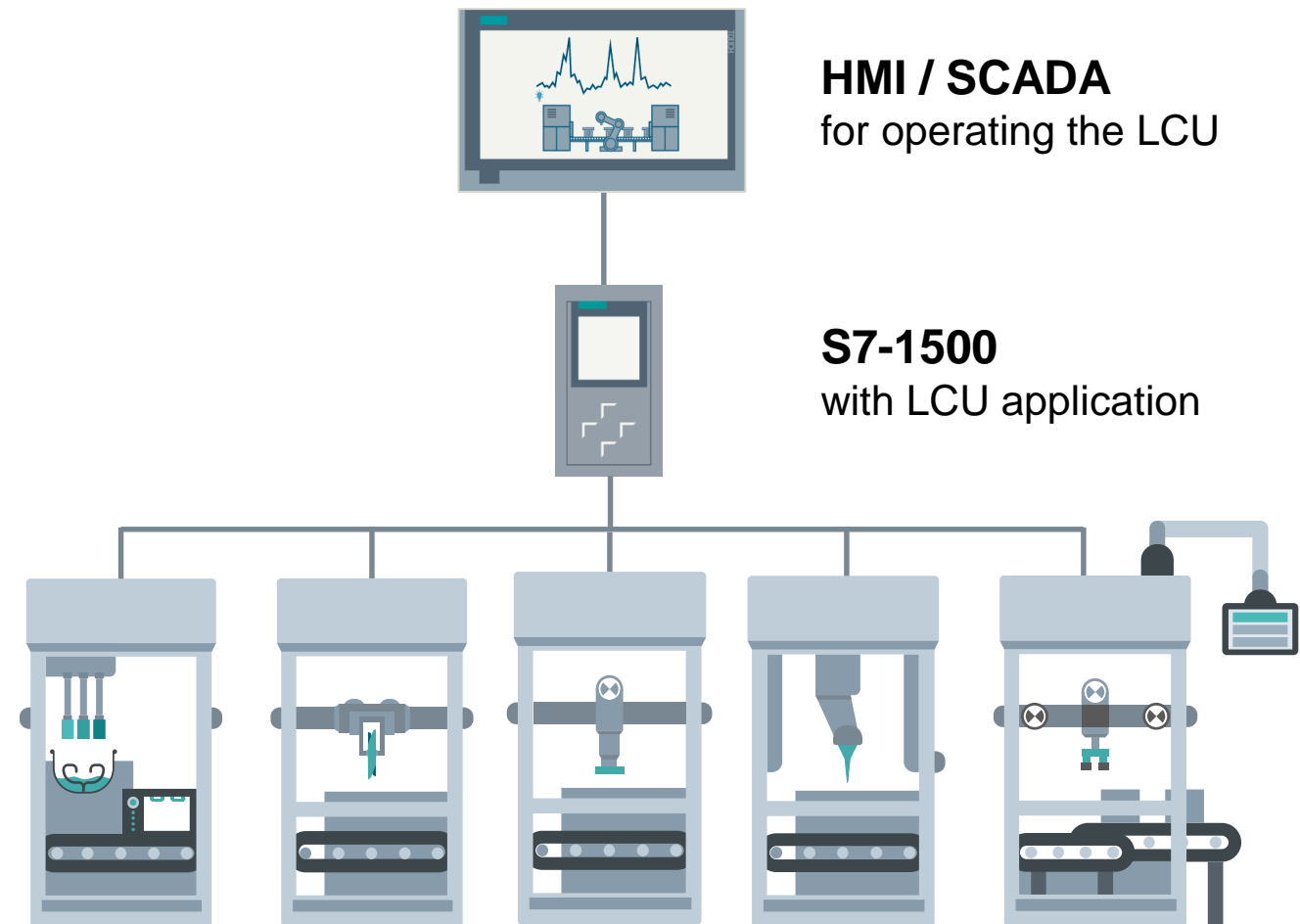
Line Control Unit Mode of operation



Line coordination with the LCU Advantages at a glance

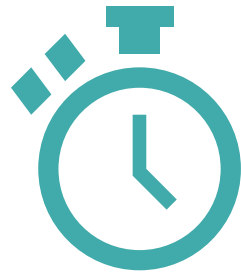
SIEMENS
Ingenuity for life

- 1 Remote monitoring and control of the entire line
- 2 Central recipe and job management
- 3 Optimized reaction to individual errors of a machine in the line
- 4 Increased independence of higher-level IT systems
- 5 Free TIA Portal library with S7-1500 blocks and HMI components



Customer benefits

Increase speed



Fast integration
into line through
reusable standards

Increase productivity



Optimization of
production line
through harmonized
processes

Increase efficiency



Reduced
communication
between the
systems

Standardization lowers costs for customers

Q&A