SIMATIC Robot Integrator & Library

Your shortcut to Robotics

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SIMATIC Robot Integrator & Library

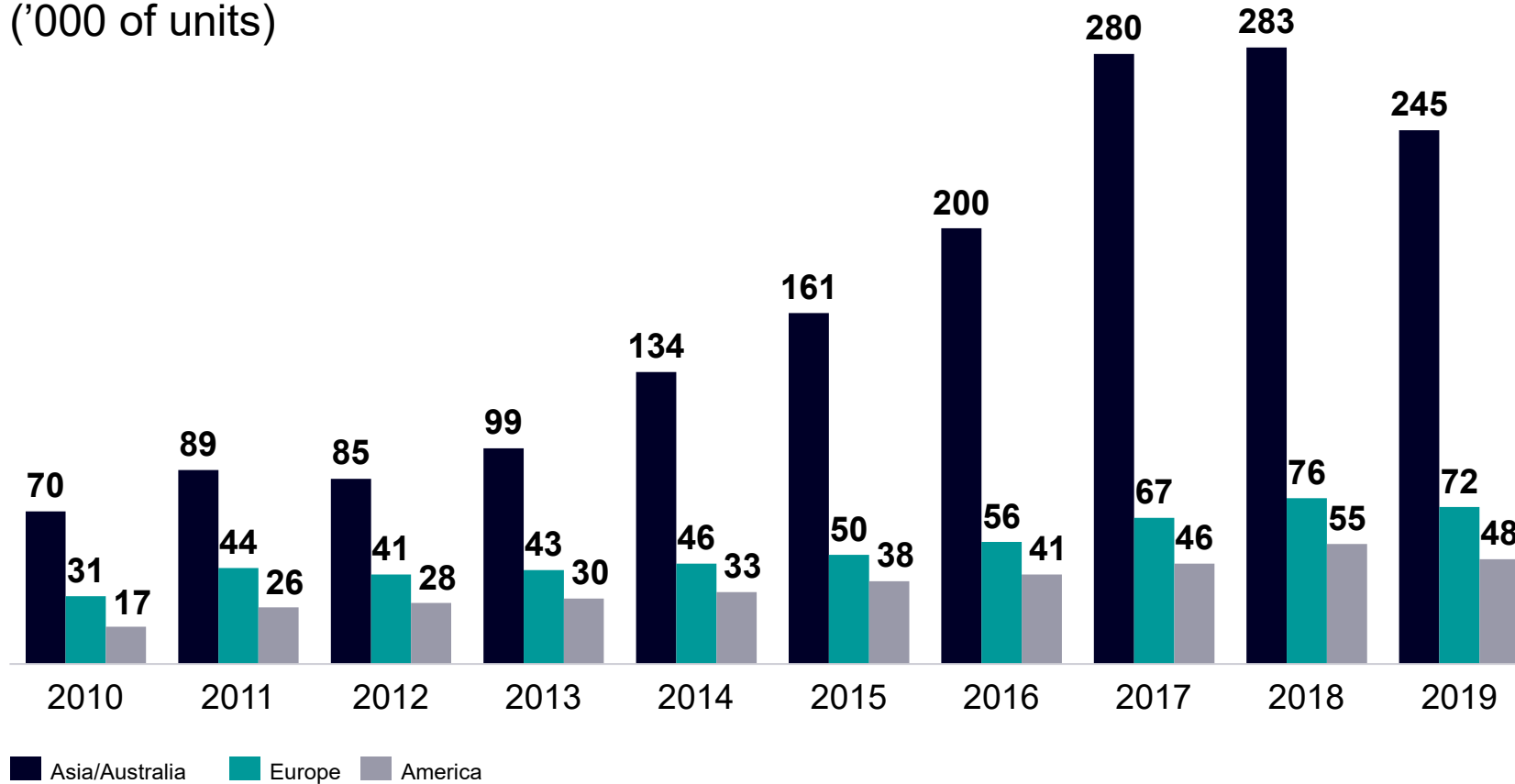Your shortcut to Robotics

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Annual installations of industrial robots
('000 of units)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Asia/Australia	70	89	85	99	134	161	200	280	283	245
Europe	31	44	41	43	46	50	56	67	76	72
America	17	26	28	30	33	38	41	46	55	48

■ Asia/Australia ■ Europe ■ America

Müller, Christopher; Kutzbach, Nina: World Robotics 2019 – Industrial Robots, IFR Statistical Department, VDMA Services GmbH, Frankfurt am Main, Germany, 2020.
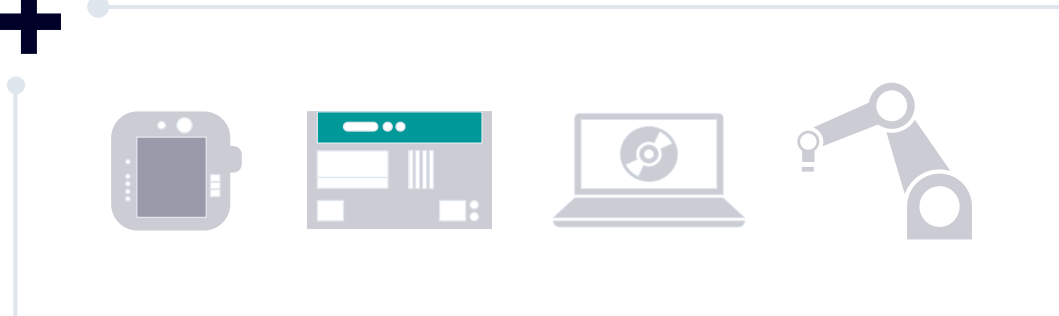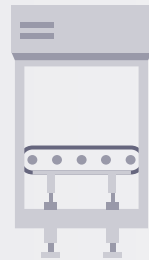
Reasons for the growing robot market

- Increasing degree of automation
- Technical innovations
- Falling prices
- More compact designs
- Use in a variety of industries
- Boost in worldwide emerging markets
- Robots as integral part of the digital factory

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The challenge
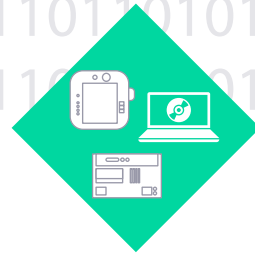## Increasing complexity in machine automation

User

Challenges

- Various controllers for machine automation and robots

- Additional engineering tools

- Additional HMI devices

- High engineering and commissioning effort

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The challenge
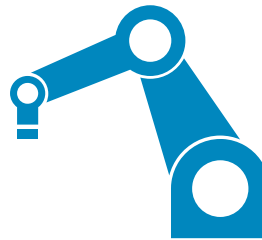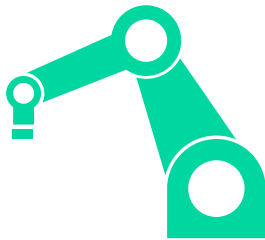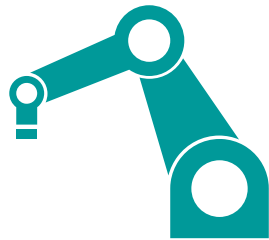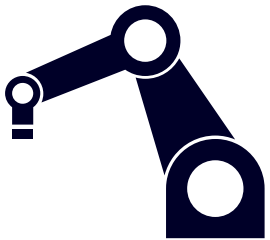## Increasing complexity due to robot manufacturer variance

User

0101010101001011010101010101011010101010101001010101010110101010101
010101010010110110101010101010010110110101010101010101001010101
0101010101101101010010100101010101010101

Manufacturer A
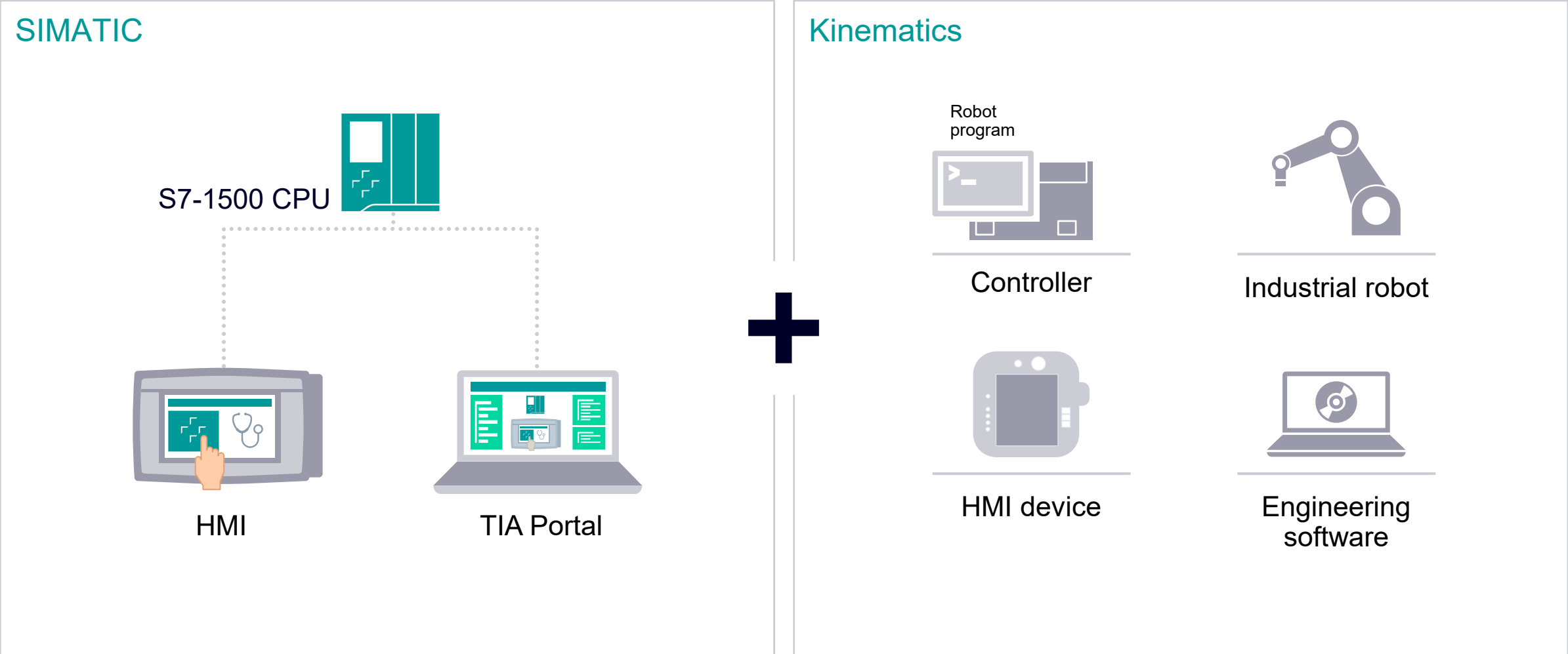
Manufacturer B

Manufacturer C

Manufacturer …

Challenges

- Handling of robot manufacturer-specific SW and HW

- Robot manufacturer-specific programming know-how required

- Program must be newly created for every robot manufacturer

- Manufacturer-specific interface definition between robot and machine
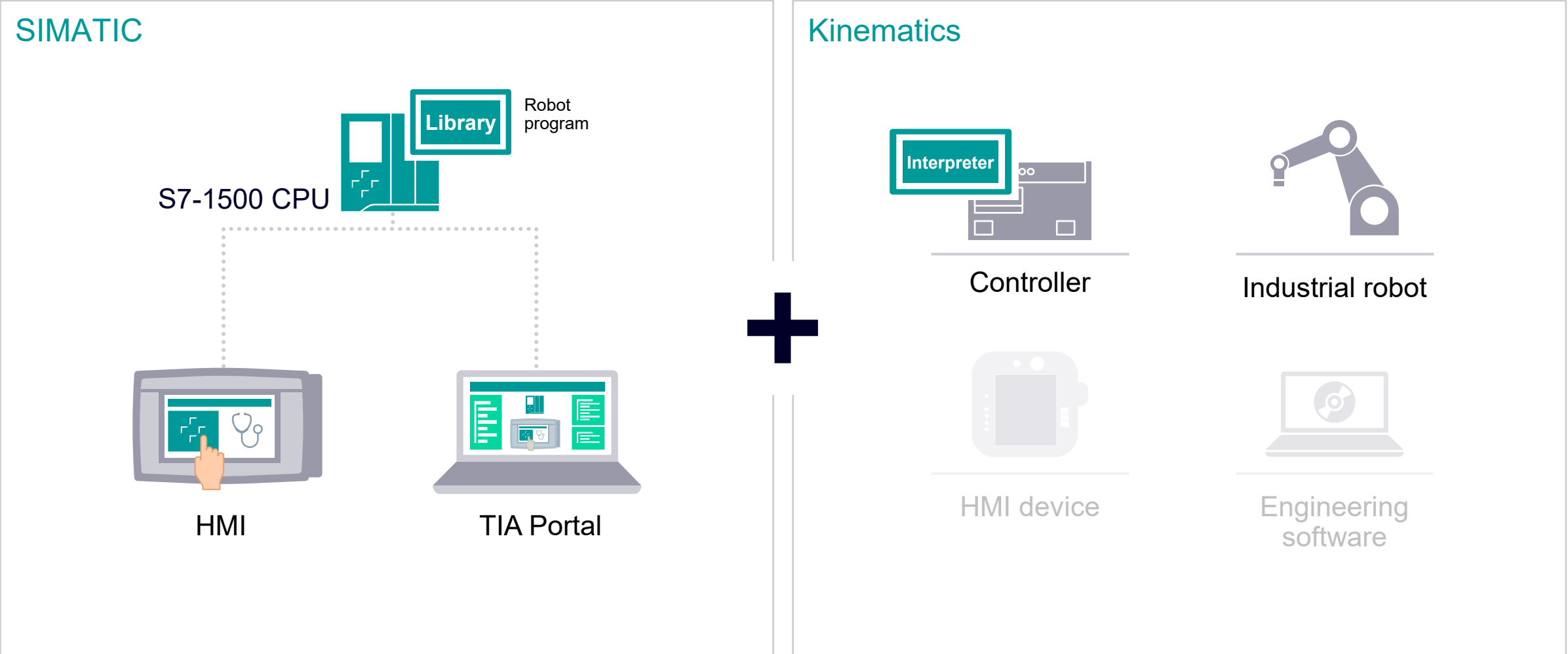
- High complexity for service and maintenance

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The situation today
Robot control via I/O commands

SIMATIC

S7-1500 CPU

HMI

TIA Portal

+

Kinematics

Robot program

Controller

Industrial robot

HMI device

Engineering software

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The innovative solution
Robot programming in TIA Portal

SIMATIC

Library · Robot program

S7-1500 CPU

HMI

TIA Portal

+

Kinematics

Interpreter

Controller

Industrial robot

HMI device

Engineering software

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Robot programming in SIMATIC in the past
Offer with robot manufacturer libraries

	YASKAWA	KUKA	DENSO Crafting the Core	STÄUBLI
FAQ		✔ Link	✔ Link	✔ Link
Programming guide + example	✔ Link	✔ Link	✔ Link	✔ Link
Commissioning support	✔	✔	✔	✔

Consulting and support for the libraries is the responsibility of the robot manufacturers

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SIMATIC Robot Library
One language for all robot manufacturers

TIA Portal & SIMATIC S7

PLCopen® motion control
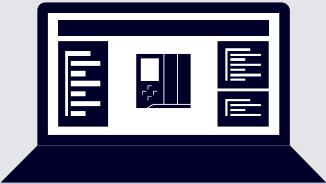
SIMATIC Robot Library

Standard Robot Command Interface

PI PROFIBUS • PROFINET

- Manufacturer A
- Manufacturer B
- Manufacturer C
- Manufacturer D
- Manufacturer E
- Manufacturer F
- Manufacturer G
- Manufacturer …

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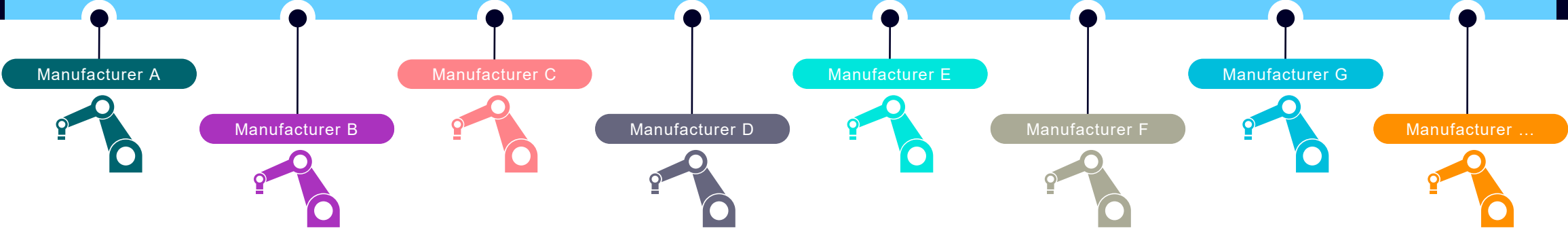
SIMATIC Robot Integrator
At a glance

SIMATIC Robot Integrator

SIMATIC HMI

TIA Portal
robot
library

S7-1500 CPU

PROFINET

Interpolation
Drive technology

Robot controller

Industrial robot
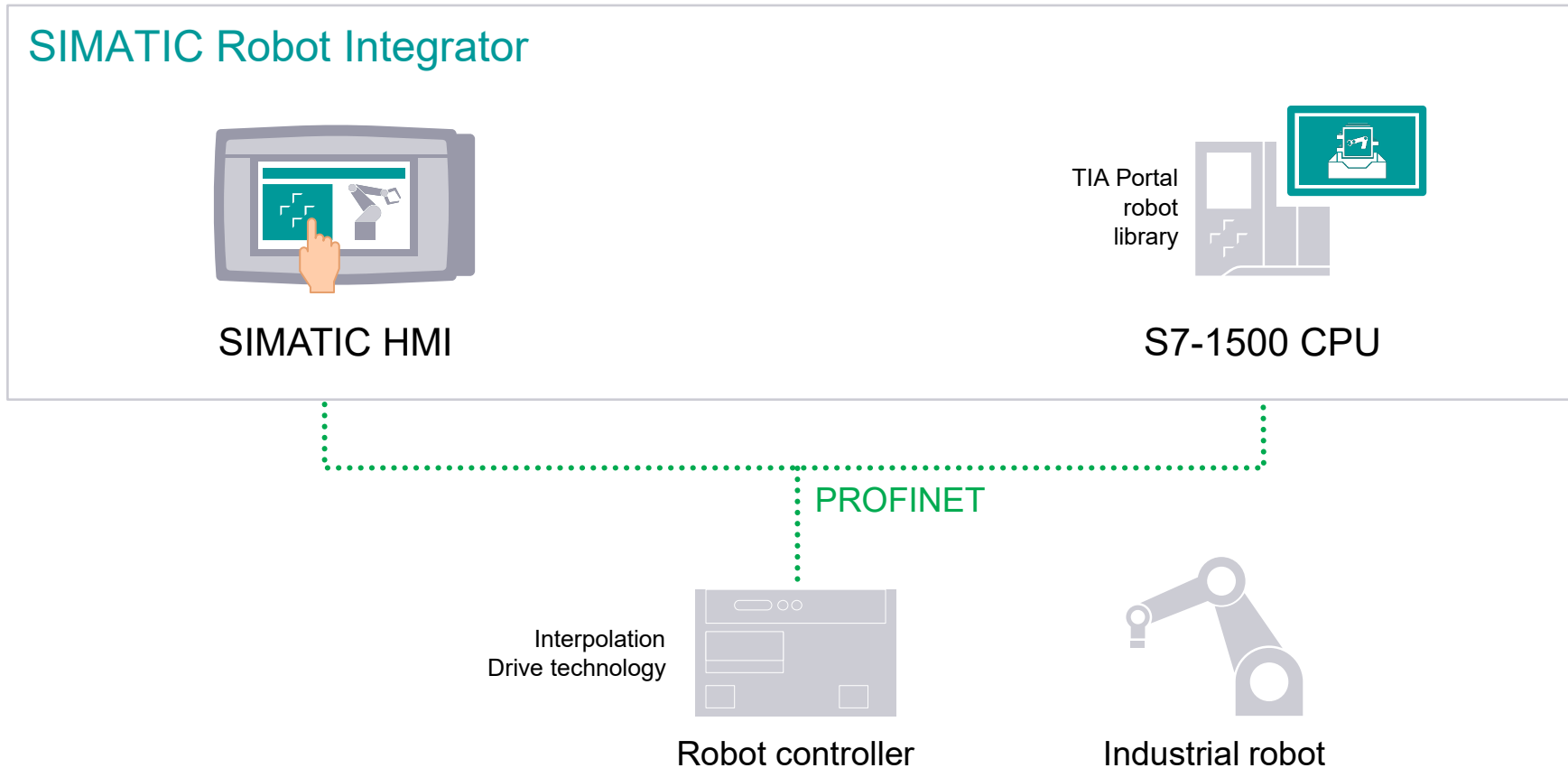
No robot-specific programming experience required!

Functions

- Jog mode
- Teach-in of path points
- Creation of path planning (online)
- Validate of path planning
- Change configuration data (online)

Benefits

- ☑ Robot programming in TIA Portal
- ☑ Uniform operating concept with SIMATIC HMI – across robot manufacturers

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SIMATIC Robot Integrator
Robot programming in the TIA Portal

Functions

- No programming
  in the engineering tool
  of the robot manufacturer
- "Ready-to-use"
  TIA Portal program example for the
  operation of robots
- HMI faceplates independent of the
  robot manufacturer
- Complete creation
  of the robot trajectory possible with
  the SIMATIC HMI

Uniform faceplates for robots from different manufacturers

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SIMATIC Robot Integrator with SIMATIC Robot Library
At a glance

SIMATIC Robot Integrator

SIMATIC HMI

S7-1500 CPU

PLCopen® motion control

SIMATIC Robot Library

PI PROFIBUS • PROFINET

Standard Robot Command Interface

Manufacturer A

Manufacturer B

Manufacturer C

Manufacturer D

Manufacturer E

Manufacturer F

Manufacturer G

Manufacturer …

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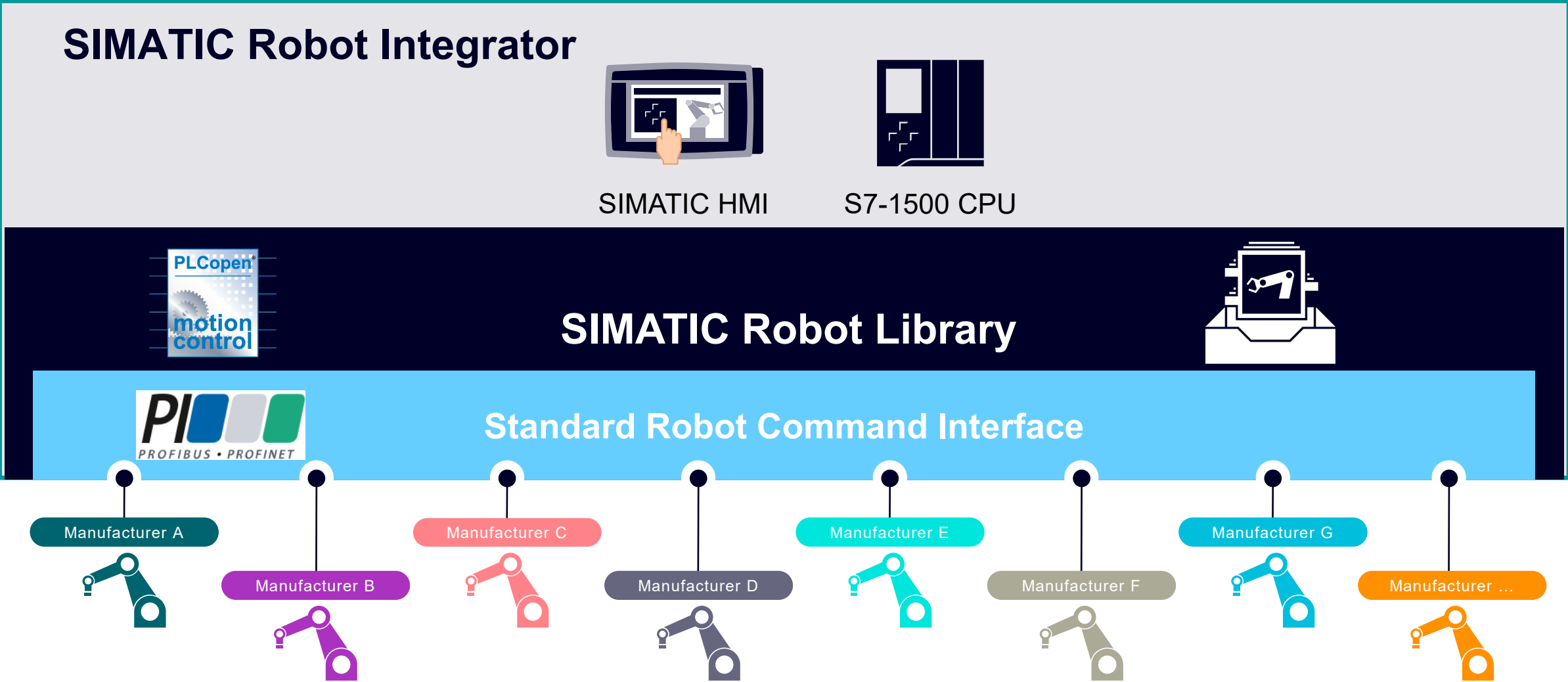
SIMATIC Robot Integrator
Offer with SIMATIC Robot Library

	Actual Partners							
Interpreter	ABB	COMAU	EPSON EXCEED YOUR VISION	FANUC	JAKA 节卡	Kawasaki Robotics	KUKA	NACHi
Interpreter available	⬤ Release 2022	✔	✖	✖	⬤ Release 2022	⬤ Release 2021	⬤ Release 2022	✖
	Panasonic INDUSTRY	STÄUBLI	TM ROBOT	UNIVERSAL ROBOTS	YAMAHA	YASKAWA		
Interpreter								
Interpreter available	✖	⬤ Release 2021	✖	⬤ Release 2021	✖	⬤ Release 2022		

The interpreter is provided by the robot manufacturers

✔ Available ⬤ In work ✖ In planning

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SIMATIC Robot Integrator
Your benefit

Reduce effort	Increase efficiency	Reduce failure costs	Reduce complexity	Optimize diagnosis
Uniform operation and engineering environment for PLC and robots	Uniform faceplates for robots from different manufacturers	Manufacturer-independent robot programming reduces errors during program transfer	Standardization in the use of robots reduces the complexity of service and maintenance	Use of all TIA diagnostic options also in the robot cell

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SIMATIC Robot Library V1.0
Requirements and licensing

TIA Portal
>= V16

- TIA Portal

SIMATIC S7 1500
>= FW V2.8

- S7 1500
- S7 1500F
- S7 1500T
- S7 1500TF

Robot interpreter

- Robot vendor specific software
- Robot vendor must support SRL

Future versions

- SIMATIC S7 1200
- Open controller

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SIMATIC Robot Library
Runtime License available in Industry Mall

MALL; LP: 490€

LICENSE (one license per robot arm)

Note: Limited sales and delivery release!!!

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SIMATIC Robot Integrator + Library
Offering and Pricing Strategy
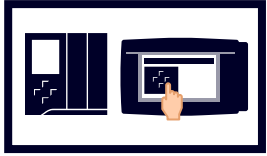
SIMATIC Robot Integrator

- Free of charge

SIMATIC Robot Library V1.0

- Trial: free of charge for 8h
- Single Runtime license: 490€ (LP)
- One license per robot arm
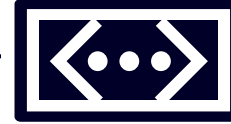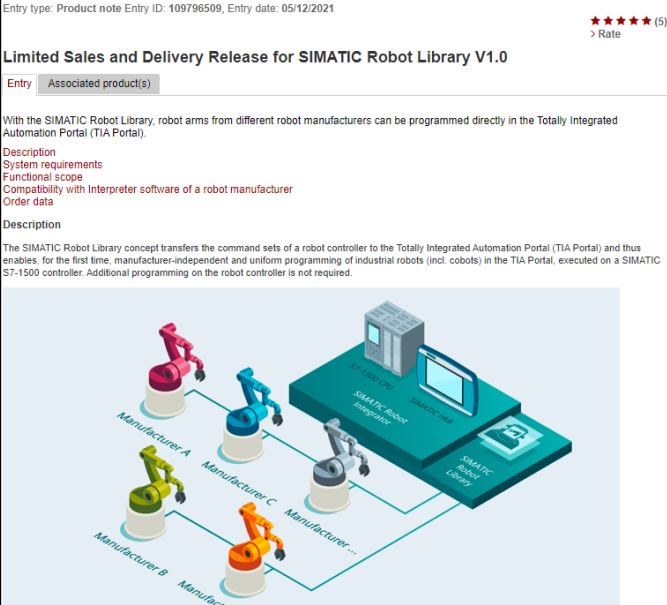
Digital twin of robot interpreter

- Free of charge

MCD Model

- Generic robot arm
- Free of charge

Testing the SIMATIC Robot Library does not require any robotics specific tools

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SIMATIC Robot Library
Library will be delivered through a Service Request

Industry Online Support (SIOS)

Industry Online Support

Service Request (Hotline)

Delivery via email

Delivery

- SIMATIC Robot Integrator
- SIMATIC Robot Library
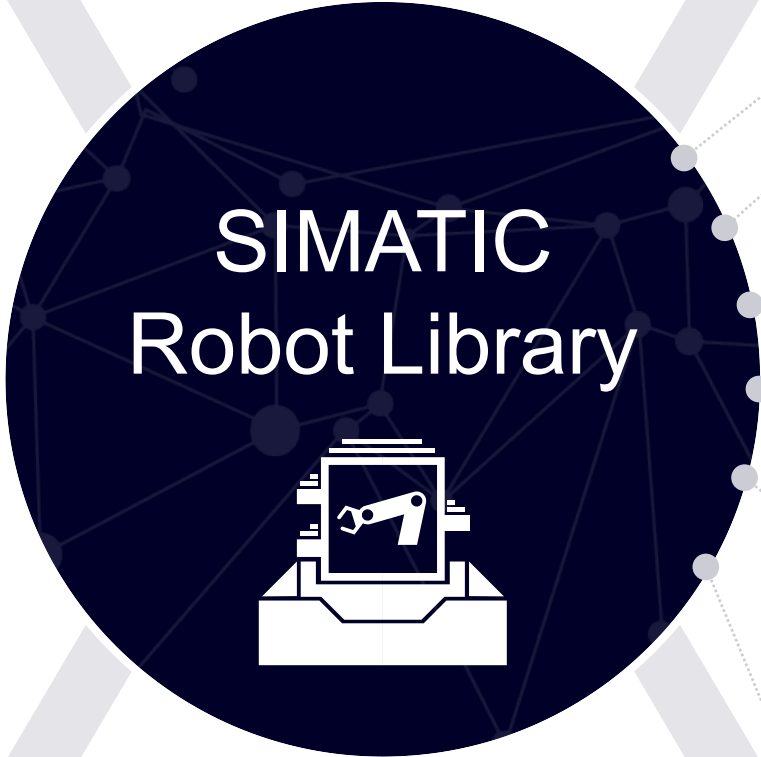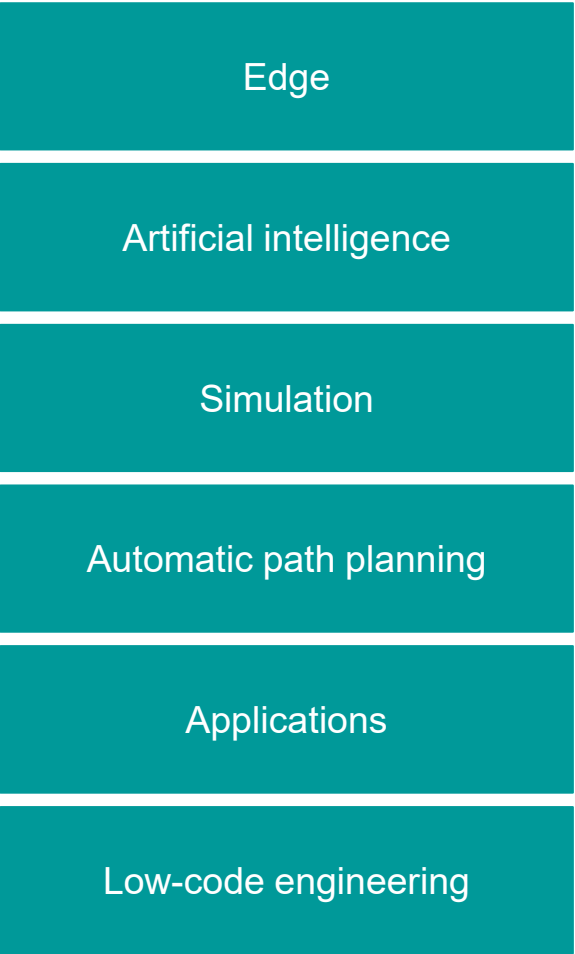- Digital Twin robot interpreter
- Manuals
- MCD model (robot arm)

SIOS Link

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SIMATIC Robot Library
Bridge to the world of robotics

Edge

Artificial intelligence

Simulation

Automatic path planning

Applications

Low-code engineering

SIMATIC Robot Library

Manufacturer A

Manufacturer B

Manufacturer C

Manufacturer D

Manufacturer E

Manufacturer F

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Thank you for your attention!

For further information and support, please contact:

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