



3S-Smart Software Solutions GmbH and CODESYS

CODESYS Users' Conference 2014 , Dieter Hess

1

Company portrait

2

CODESYS – product families (overview)

3

Fields of application and references

Founded in July 1994
Headquarters in Kempten, Germany



CODESYS
the leading manufacturer-independent
IEC 61131-3 automation software.

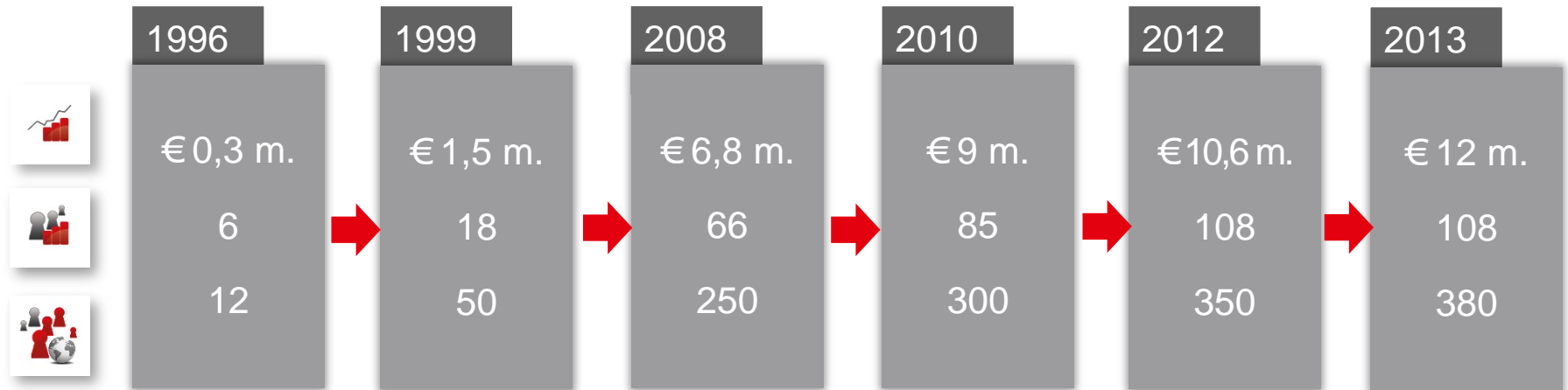


»100 Employees



Turnover 2013: EUR 12 Mio.

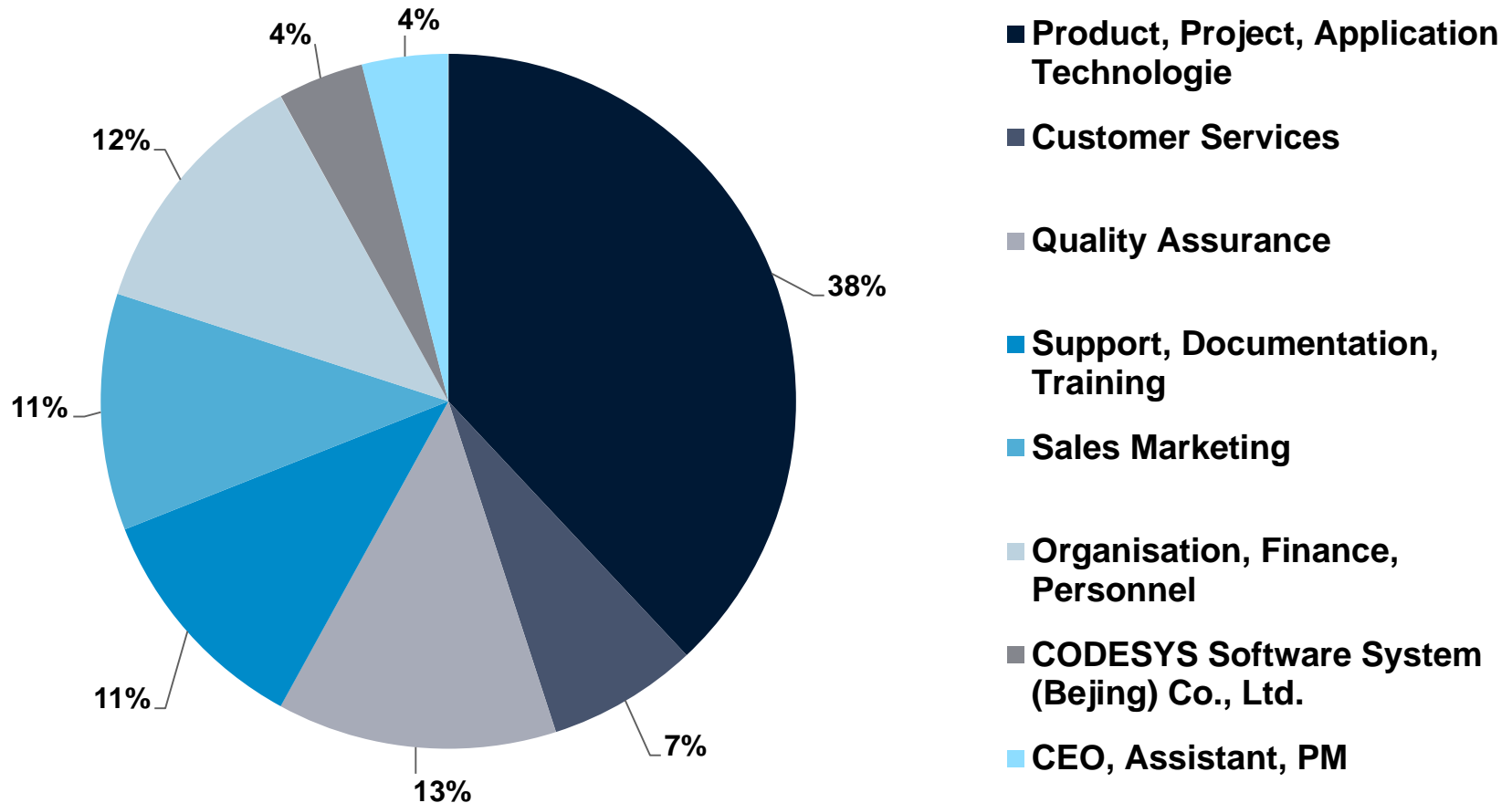
Business Development

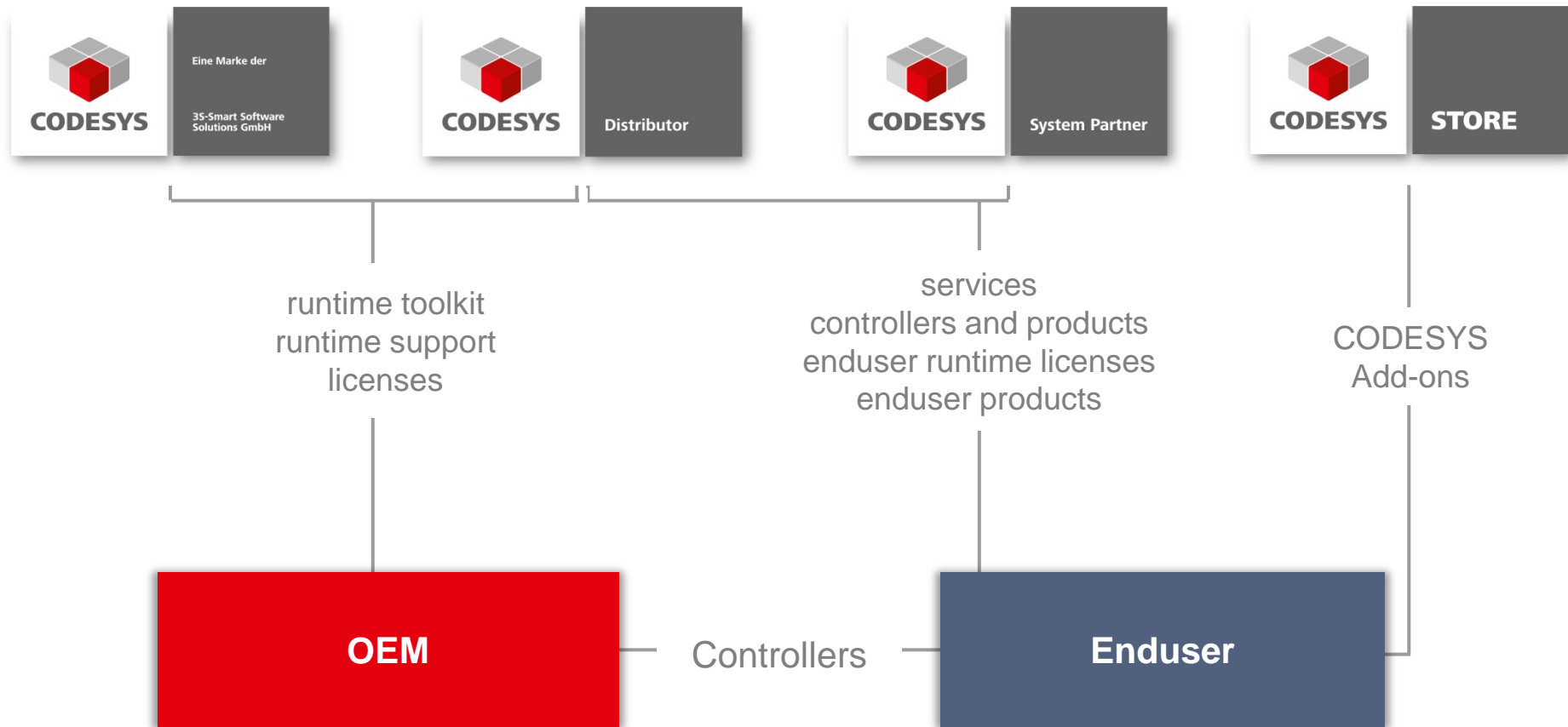


20% turnover growth per year

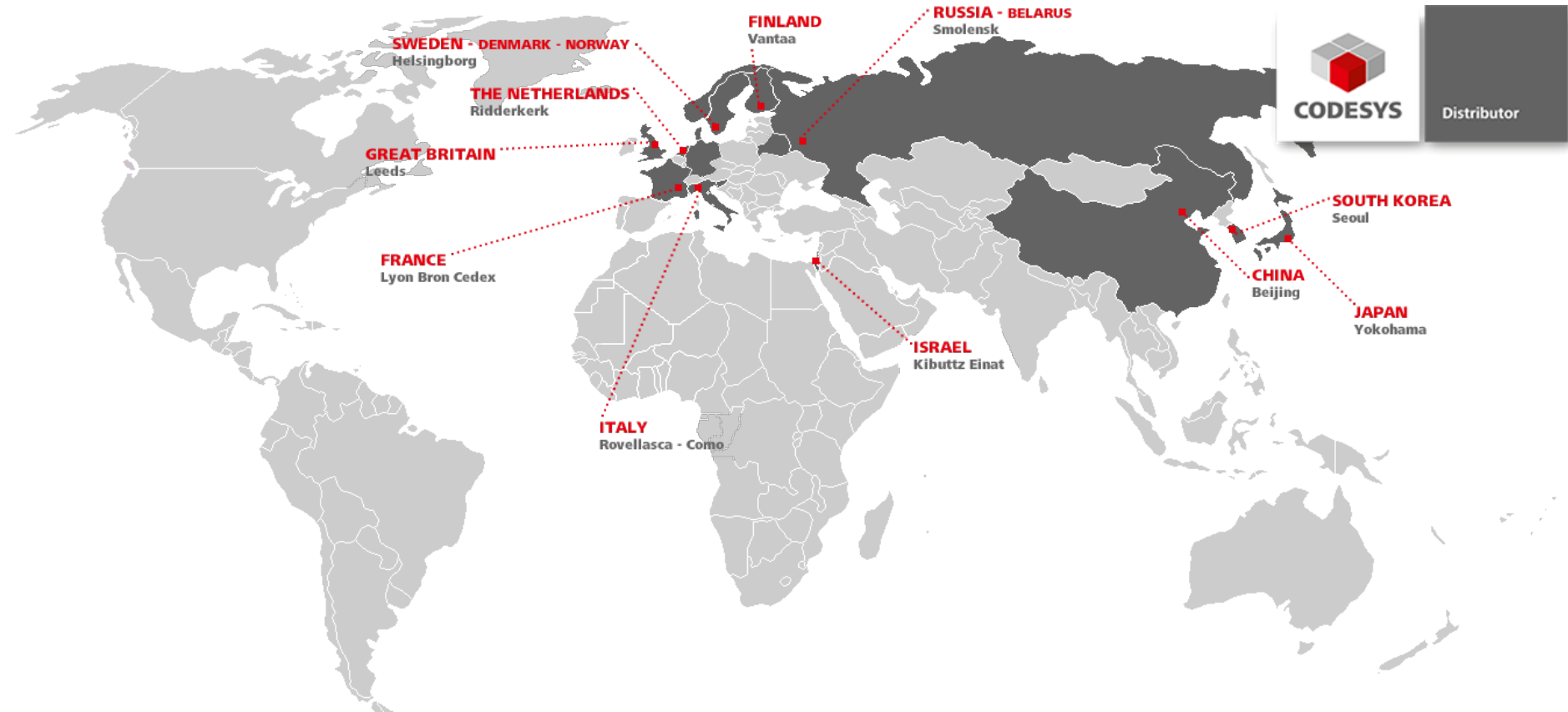
Distribution of 3S-Smart Software Solution staff

Distribution of 3S-Smart Software Solution staff

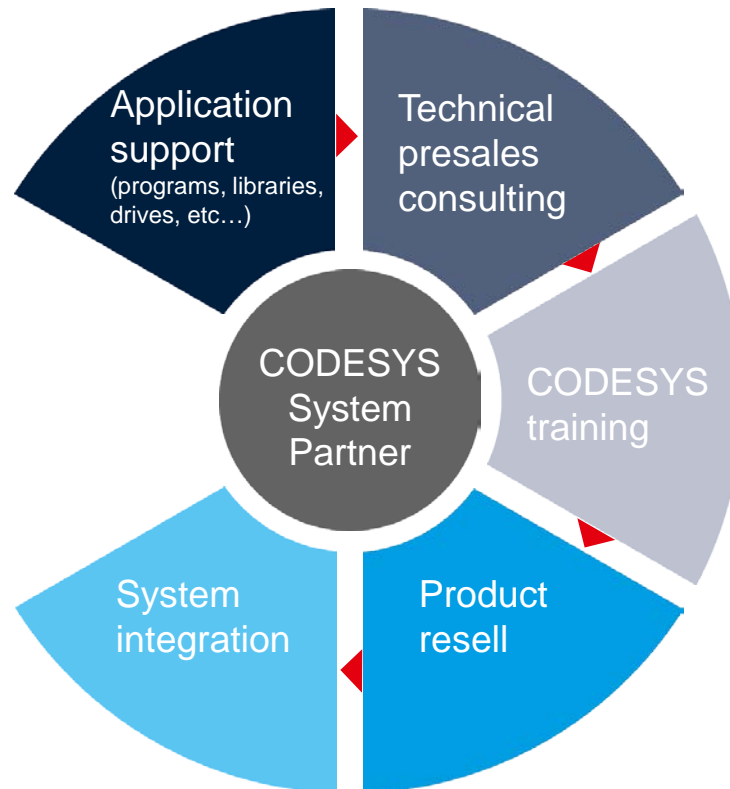




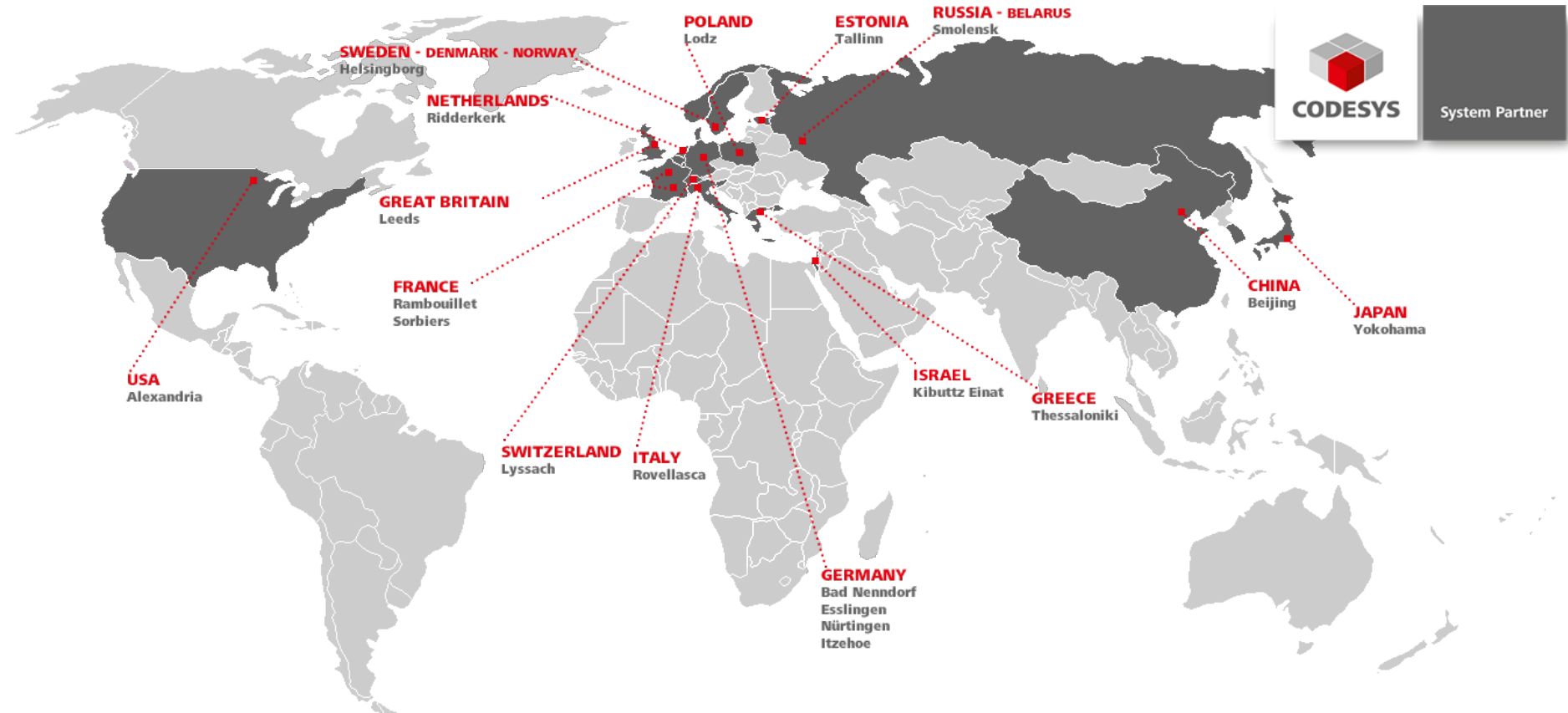
CODESYS Distributors



CODESYS System Partners

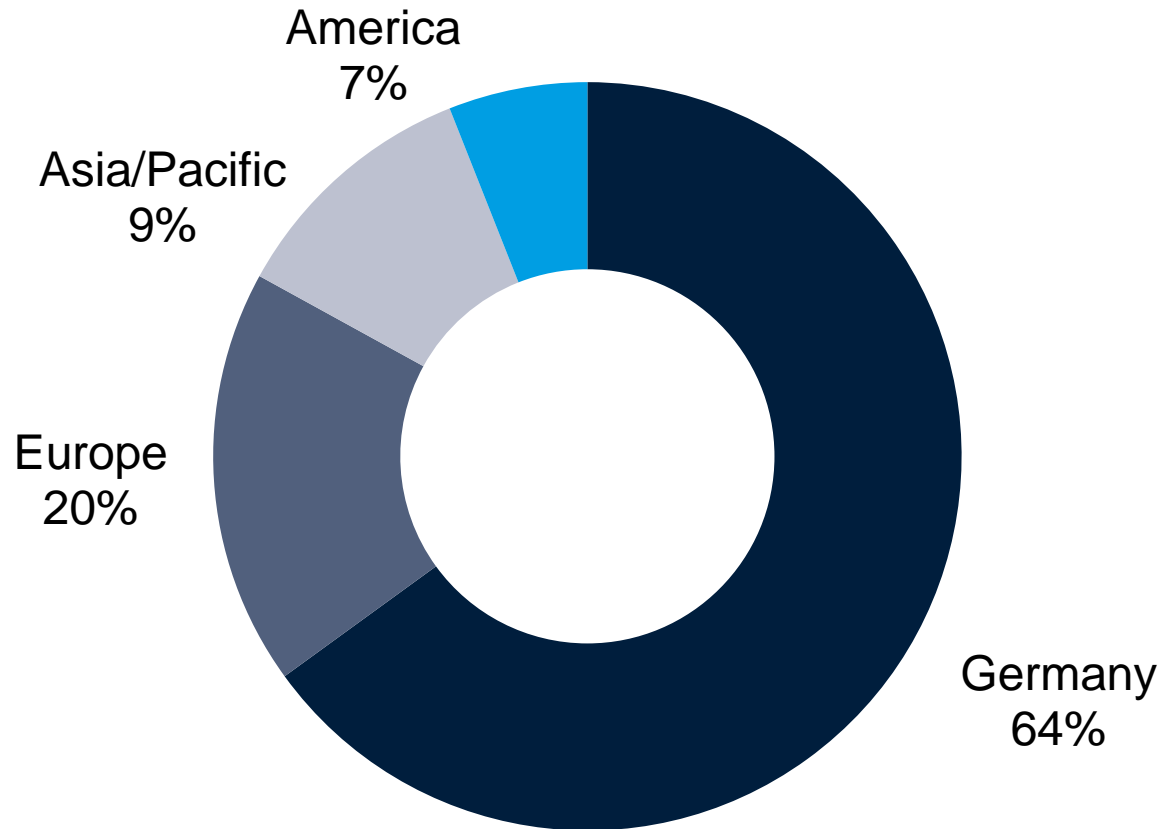


CODESYS System Partners



Turnover per Continent

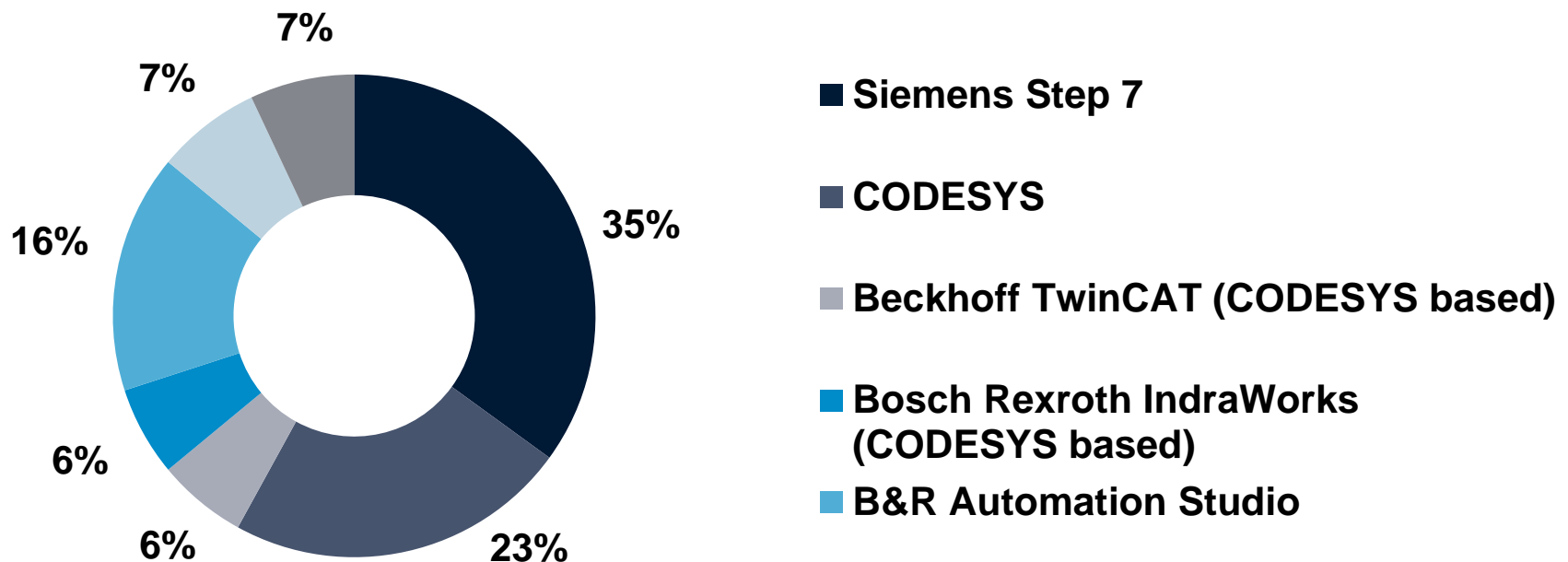
Turnover 2013



Survey conducted by one of the most important German Automation Magazines “Computer&AUTOMATION”, ITQ and two German Universities (9/2011):

70 companies (machine- and plant manufacturers) were interviewed. One of the questions asked was: *Which development tool do you use to program your controller systems?*

Result: PLC Benchmark



CODESYS in the field



Innovative and flexible product

> 380 OEM customers



Our technology provides solutions

Thousands of applications



Successful use in many applications

> 700.000 licenses in 2013



High market acceptance

**hardware-independent
market leader**

1

Company portrait

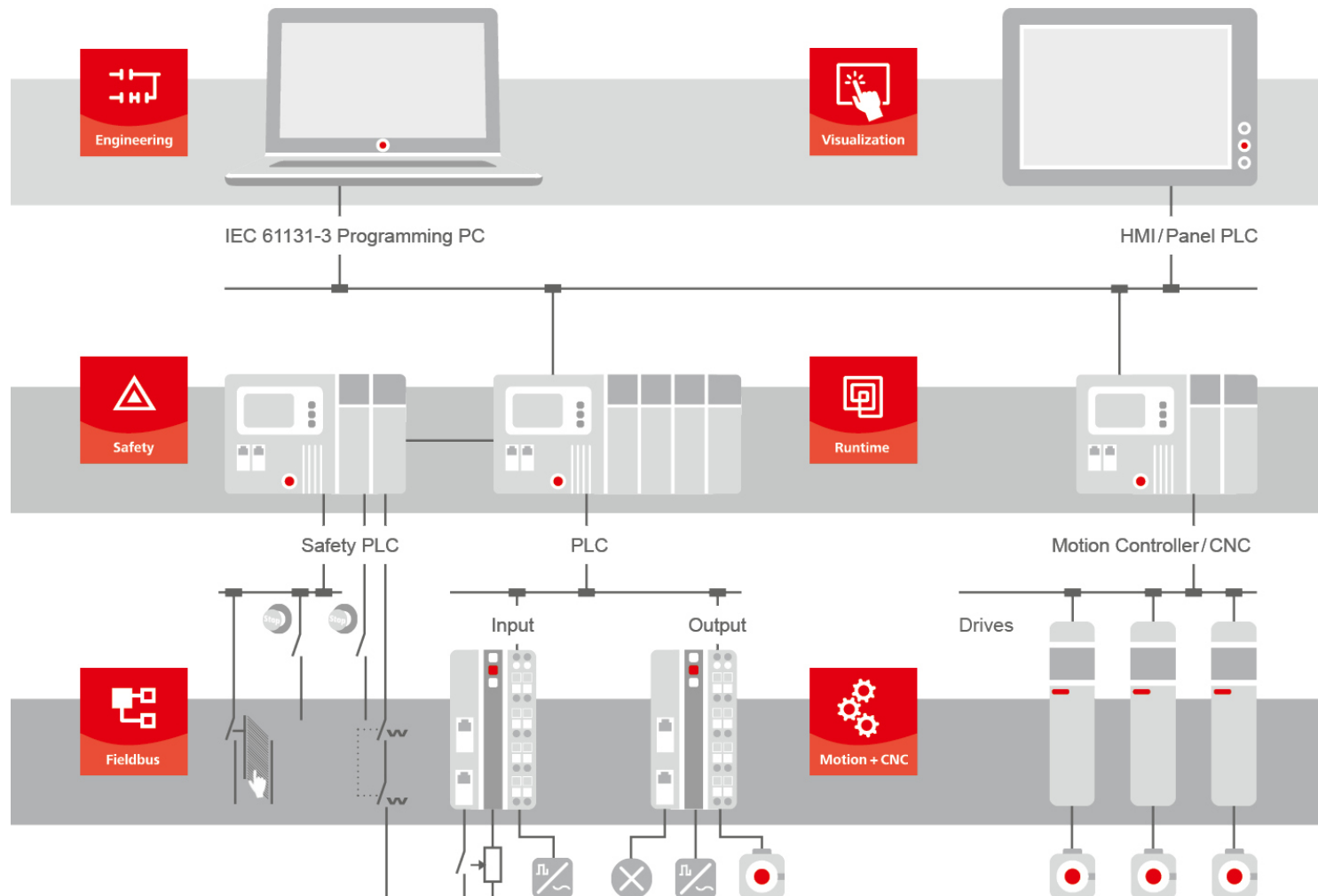
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CODESYS – product families (overview)

3

Fields of application and references

CODESYS - product families (overview)





Agenda

1

Company portrait

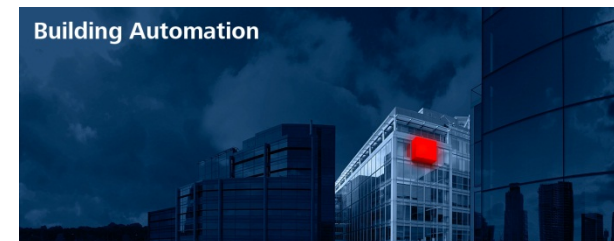
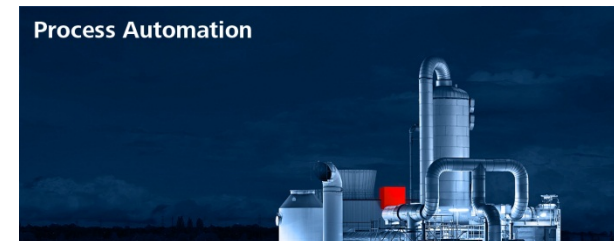
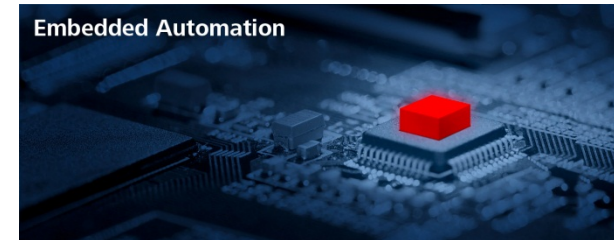
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CODESYS – product families (overview)

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Fields of application and references

CODESYS is successfully used in many different fields of application





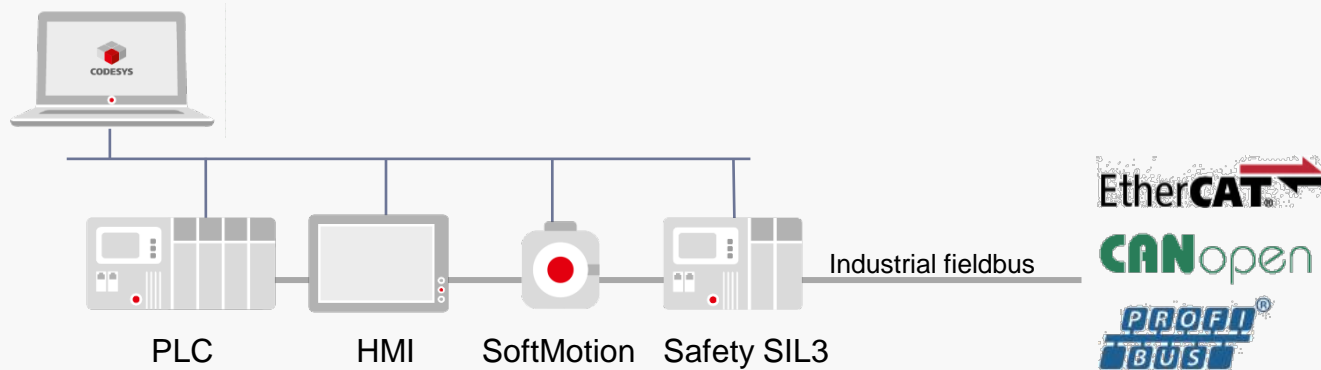
CODESYS in Factory Automation



CODESYS is used to automate serial machines and special purpose machines for the production of different goods and products around the world, e.g. in book or newspaper printing, in the furniture production industry or in the production of vehicle components.

CODESYS in Factory Automation

products & features



applications



Packaging



Printing and
paper



Assembly
automation

Packaging Machines



BOSCH



Bosch PA is a world leading supplier of packaging machines.

All members of the Bosch PA Group use CODESYS based PLCs as their standard controllers

Tevopharm, a Dutch member of the Bosch PA Group, uses CODESYS SoftMotion for the whole motion control of the machine.

CODESYS Runtime

CODESYS SoftMotion

CODESYS Visualization

PLC / logic cycle time: 10 ms

SoftMotion cycle time: 2 or 3 ms

Number of Sercos servo axes: 3 to 30 axes

Capable of packing up to 2000 products per minute

Book Binding Machines



KUHNKE



Control and drive technologies for the printing and paper industries

CODESYS Runtime

CODESYS SoftMotion

CODESYS Visualization

IPC with slot PLC

The integrated PLC controls up to 80 drives with partly synchronous operation, which are connected via EtherCAT

Remote control PLCs and I/Os

Flexible settings using the CODESYS motion control libraries

Wood Processing Systems



Homag Holzbearbeitungssysteme AG – world market leader for machines, plants and systems for the woodworking industry.

More than 2000 machines per year

CODESYS Runtime

Profinet

CODESYS Visualization

Operated by CODESYS based controllers

Operation control with CODESYS HMI

VarioShuttle Conveyor System



EISENMANN



EISENMANN is a leading international supplier of systems for the general finishing technology, environmental technology, material flow automation and process & high-temperature technology.

The EISENMANN Vario Shuttle is a special conveyor system that facilitates especially flexible car body handling in the pretreatment of a Paint Shop.

CODESYS Runtime

CODESYS SoftMotion

CODESYS Visualization

Berghof Dialog Controller DC1005

Display for diagnosis and operation in each VarioShuttle

Handling the travel gears and the gears for moving the hand axle

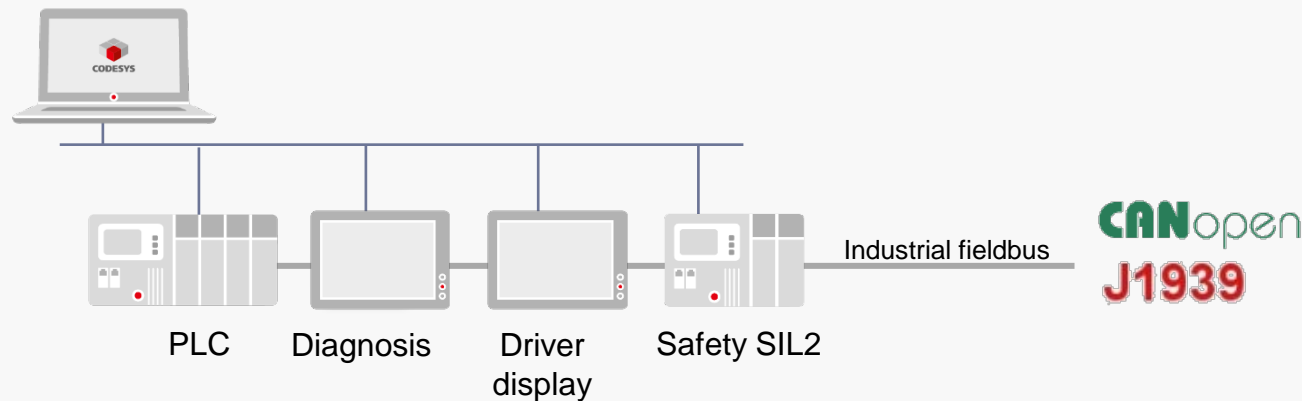
A vertical strip of six small, square images on the left side of the slide. From top to bottom: 1. A close-up of a red button or indicator. 2. A blue and white aircraft. 3. A white industrial machine. 4. A red hexagonal object. 5. A red and white industrial machine. 6. A red and white industrial machine.

CODESYS in Mobile Automation

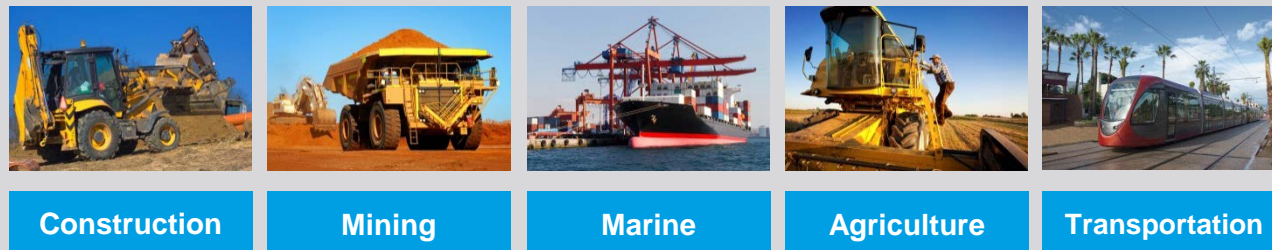
CODESYS is the number one Development System for industrial controllers used in off-highway vehicles or other mobile machines. CODESYS controllers can be found in many construction machines, cranes, fork lift trucks and mining equipment.

CODESYS in Mobile Automation

products & features



applications



Hydraulic Excavators



Terex O&K produces hydraulic mining excavators from 100t operating weight with a 7m³ shovel up to the world's largest hydraulic mining excavator with just under 1000 t operating weight and a 50m³ shovel.

These machines are mainly used by big surface mining companies to extract coal, gold, copper, platinum, diamonds, tar sands etc..

CODESYS Runtime

PLC controls the backup systems (lubrication, lighting, valve control)

Blast Hole Drill Rigs



SANDVIK


Sandvik Mining and Construction is a world-leading provider of equipment and solutions for mineral exploration, underground mining in hard and soft formations.

Designed for high capacity rock drilling, the self-contained Sandvik DTH crawlers are equipped with efficient down-the-hole hammers, onboard compressors, efficient dust collectors and a comfortable operator's cab with ergonomic controls and excellent visibility.

CODESYS Runtime

From 5 up to 130 CANopen nodes

2 to 22 nodes are PLC modules programmed with CODESYS

LIEBHERR



Liebherr builds various types of special-purpose cranes for material handling tasks in the maritime sector.

The Enduro controller from SMA controls the Liebherr port crane as well as the movement of the main platform.

CODESYS offers various different visualization options as well as a comprehensive library with ready-made function blocks.

CODESYS Runtime

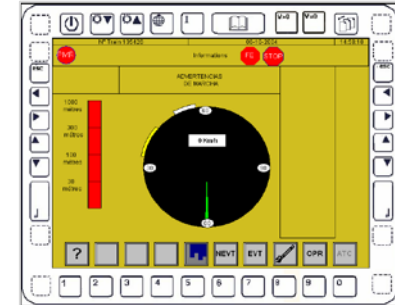
CODESYS Visualization

Control of the frequency inverters via CAN

Communication with I/O data via INTERBUS

Train Operating Interfaces

ALSTOM



Alstom Transport is a global player in train engineering and manufacturing

Nowadays most modern trains have a display which substitutes the mechanical switchboard.

CODESYS offers various different visualization options as well as a comprehensive library with ready-made function blocks.

CODESYS Visualization

CODESYS TargetVisu under QNX to provide the driver with the required control information

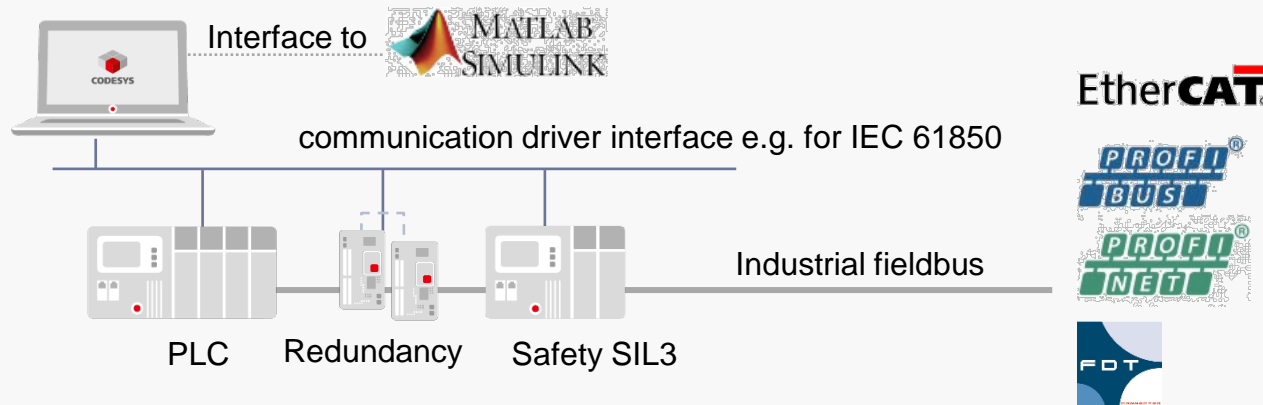


CODESYS in Energy Automation

CODESYS is used in industrial applications for power generation und distribution for example for the control of solar power plants and block heating plants, wind turbines or transformer stations.

CODESYS in Energy Automation

products & features



applications



Power distribution



Gas motors



Wind mills



Thermal solar power plants

Power generation and distribution




German company which has specialized in the automation of power generation and distribution.

Working with CODESYS since 2000

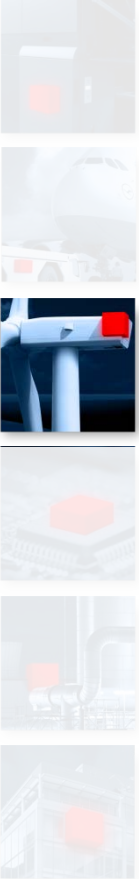
CODESYS Runtime

CODESYS Automation Platform

Common development for redundant PLCs

One of the first advanced users of the CODESYS Automation Platform

Control of solar thermic trough power plants



Prototype for Desertec project in Spain

CODESYS Runtime

Solar field of trough-shaped parabolic mirrors controlled by 1000 ABB AC500 PLCs powered by a CODESYS runtime.

Wind turbines



-power in control



CODESYS is present in a lot of wind turbines on the pitch controller (KEB) and on the main controller (Bachmann, Beckhoff, Deiff)

Gas and Diesel Engines



MAN Gas and diesel engines – Uses CODESYS for engine control

CODESYS Runtime

CODESYS Target visualisation for engine operation

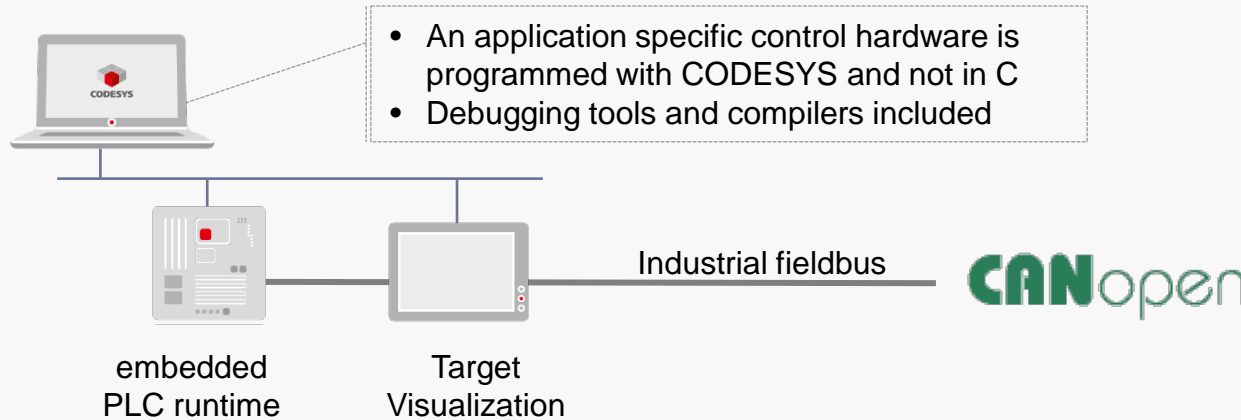


CODESYS in Embedded Automation

CODESYS is used for the development of special-purpose control devices which require on-site adaptation by the application engineer, e.g. for controllers in industrial compressors, industrial weighing and dosing and medical technology.

CODESYS in Embedded Automation

products & features



applications



Compressors



Medical applications



Electrical drive firmware

Compressors




Atlas Copco is an industrial group with world-leading positions in compressors, construction and mining equipment, power tools and assembly systems.

~ 30000 devices p.a.

CODESYS Runtime

CODESYS Visualization

Small runtime using Infineon x167

fast, flexible changes possible

Drive Applications




As a world-wide specialist in drive and automation technology, Lenze offers products, solutions, systems and services for mechanical and electronic drives as well as complete automation systems from a single source.

Firmware functionality realized as IEC 61131-3 application

CODESYS Runtime

CODESYS Automation Platform

CODESYS Visualization

Interface to current controller of the drive

Parameter interface configured by CODESYS

Fast, flexible changes possible

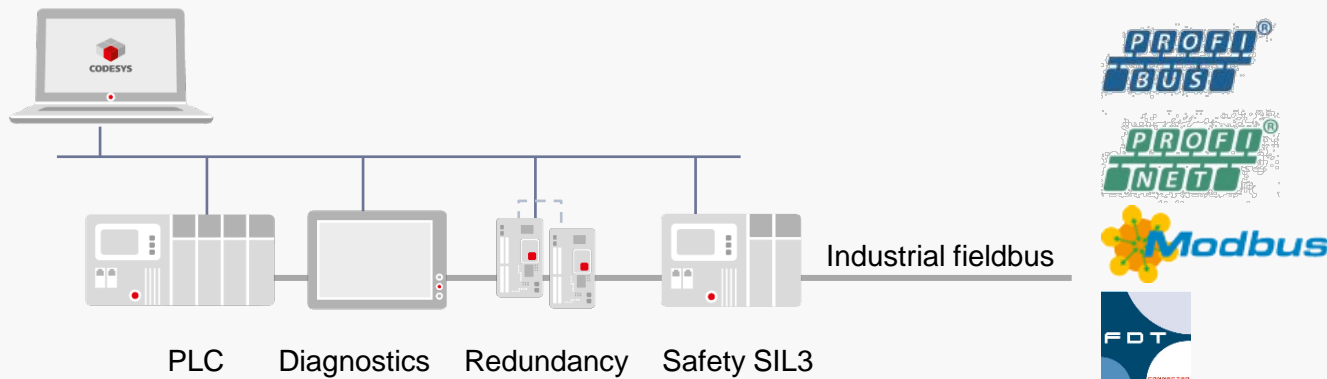
A vertical strip of six small, semi-transparent images on the left side of the slide. From top to bottom, they show: a control panel, a close-up of a machine, a white industrial component, a factory building, a large industrial pipe, and another factory building. Each image has a small red square overlay.

CODESYS in Process Automation

CODESYS is perfectly suited for controlling processes or plants. It is used in steel and aluminum rolling mills and for monitoring and controlling sewage or paper processing plants

CODESYS in Process Automation

products & features



applications



Steel



Oil and Gas



Waste water
treatment

Steel Plant Control



Systems for iron and steelmaking

Systems for flat products casting, hot/cold rolling and processing

CODESYS Runtime

CODESYS Visualization

Handling thousands of I/Os

The control system is not application specific but an excellent base environment to develop special industry-related function blocks with.

Oil drilling



Altus is the biggest Brazilian PLC manufacturer

Oil drilling platforms from Petrobras are controlled with the Altus Nexto PLC using CODESYS V3.5

CODESYS Runtime

CODESYS Profibus Master

CODESYS Redundancy

One Oil drilling platform is controlled by 5 redundant PLCs

The system controls the drilling as well as the first steps of preprocessing like separating oil from water and sand.

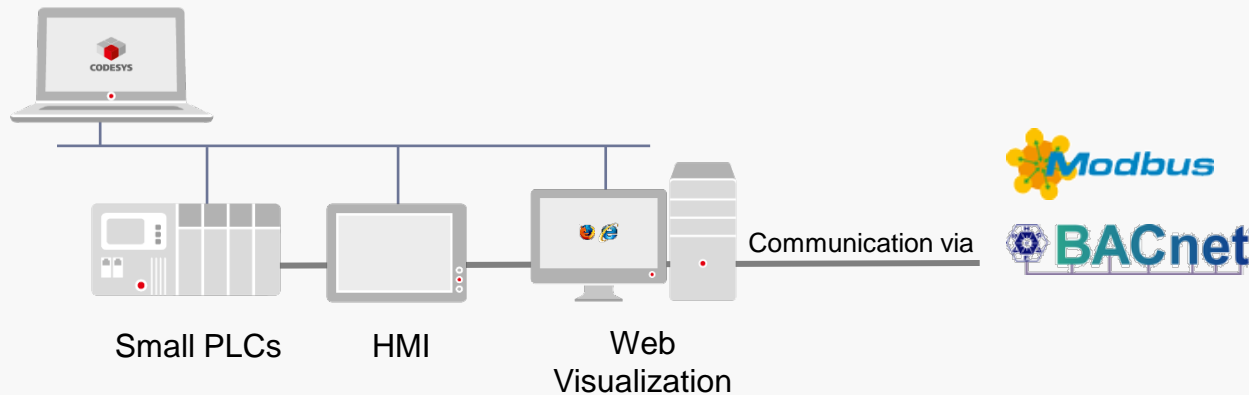


CODESYS in Building Automation

CODESYS is used for the automation of commercial buildings and private homes, for example for intelligent lighting control, shading or air conditioning for individual rooms or complete floors or for the management of entire building complexes.

CODESYS in Building Automation

products & features



applications



Room control



HVAC



EMS

Building Automation



ADAC

WAGO®



New building of German Auto Mobile Club (18 million members, biggest automobile club in Europe)

More then 1000 Wago controllers

CODESYS Runtime

CODESYS Web Visualization

- Over 2,900 window axes
- Over 15,000 DALI electronic control gears
- 650 linked controllers throughout the building
- One application on all controllers
- Completely configurable
- Central parameter database
- Each PLC controls several air conditioning devices, lighting and other peripherals.



Inspiring Automation Solutions

Thank you for your attention.