

# Machine truxure<sup>TM</sup>

Automation solutions  
for industrial machines



**Schneider**  
 Electric<sup>TM</sup>





## Your challenges

- Reduce time-to-market
- Improve performance
- Develop your business

... while reducing your costs

# Your customers are more demanding and your machines more intelligent

To take on your competitors you must supply machines with shorter lead-times that are more efficient, productive, and reliable, at a reduced cost.

Your choice of automation solutions is now, more than ever, a determining factor in distinguishing yourself at each stage, from the design and development to implementation and maintenance of the machine.

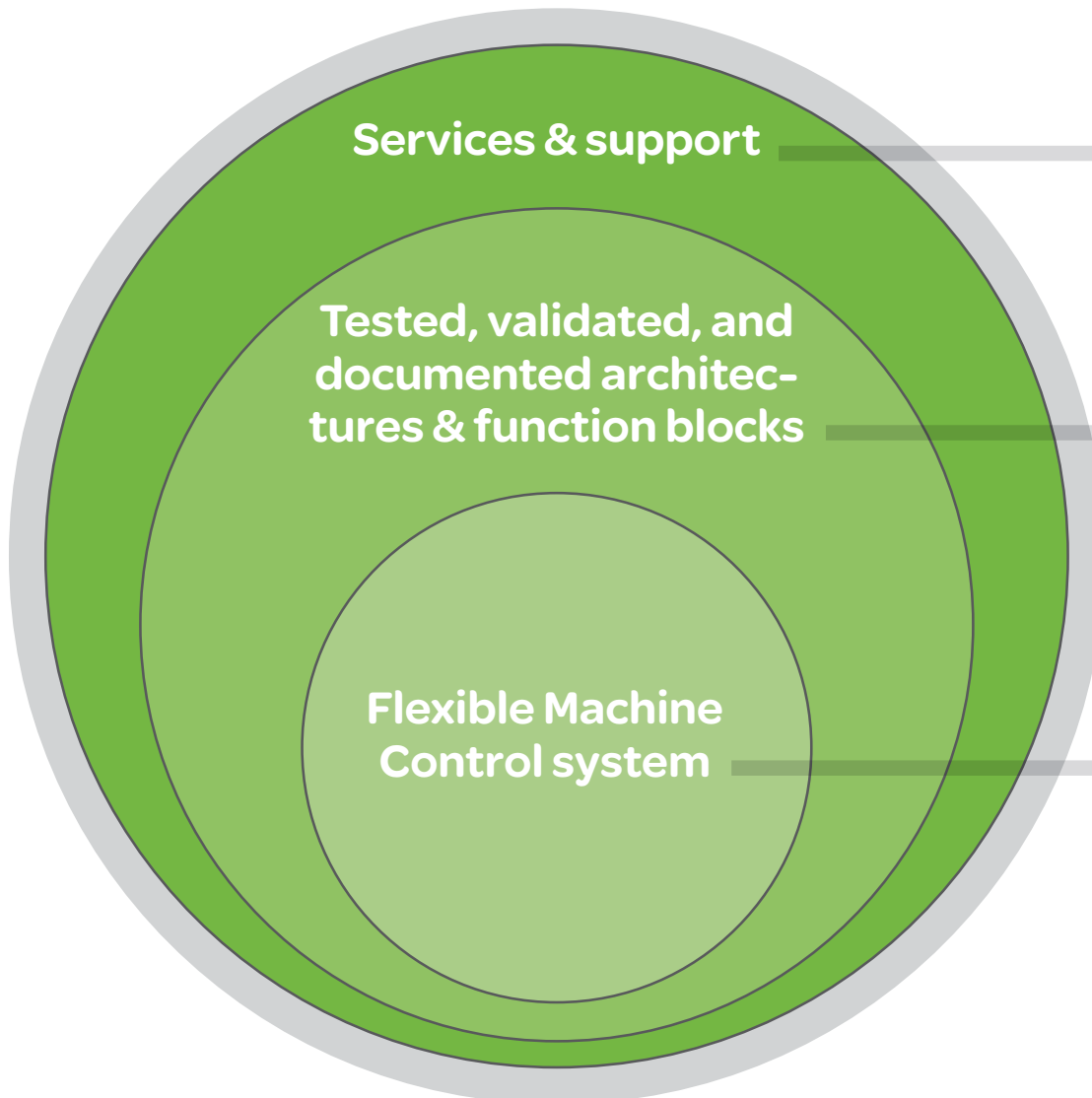
## Your customers want machines that are:

- > Productive
- > Reliable
- > Flexible
- > Available
- > Energy efficient
- > Easily integrated into their factory processes
- > Easily integrated with machine safety solutions

## The requirements of a competitive market:

- > Quicker time to market
- > Optimized machines
- > Increased performance
- > Easily upgradeable
- > Compliance with worldwide standards
- > Worldwide assistance

# Improve your machine and business performance with MachineStruxure



# MachineStruxure™

MachineStruxure™ helps you design more energy-efficient and cost-effective machines and installations whilst maximizing their performance. Based upon flexible hardware platforms and a comprehensive single software suite, MachineStruxure proposes tested, validated, and documented architectures with application function block libraries.

## > Stay one step ahead

However complex your machine, you can rely on our team of dedicated experts and our international presence to assist you and achieve excellence at every stage of the machine's life cycle.

## > Save up to 50% of design and implementation time

Use the solid base of tested, validated, and documented architectures and function blocks to quickly build your automation solutions. Optimized cost, footprint, and performance—all you need to do is adapt them to your applications.

## > 100% flexibility and optimization of your machines

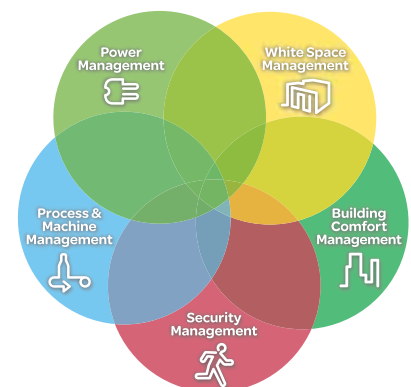
Our different machine control platforms include embedded intelligence. Now you can integrate control that is perfectly suited for your machine requirements. By utilizing SoMachine™ software, you can move from one application to another capitalizing on your developments.



### MachineStruxure, one of the mainstays of EcoStruxure

EcoStruxure™ is a system based on active energy management architectures, from an electrical power plant to a single electrical socket. EcoStruxure enables you to benefit from intelligent and simplified energy management systems, to reduce your investment and operational costs, and reduce waste resulting in energy savings up to 30%.

PlantStruxure™, an automation system for industrial processes, and MachineStruxure, an automation solution for machines, are the mainstays of EcoStruxure.





How can you reduce  
your machine's  
time-to-market?

# Save time in design, installation, and implementation

Machines are becoming more complex every day, increasing engineering time, the amount of data that must be processed, and the time needed to integrate all the automation elements.

Our new MachineStruxure approach rethinks the design processes with a single aim: to reduce the complexity of the functions that are not specific to your field of activity and quickly build your automation solutions to allow you to concentrate your efforts on your expertise:

- > ready-to-use architectures and application libraries
- > simplified programming with SoMachine
- > co-engineering
- > integrated machine safety solutions



By simplifying the development  
of your projects, MachineStruxure  
can save you up to **50%** of your  
time

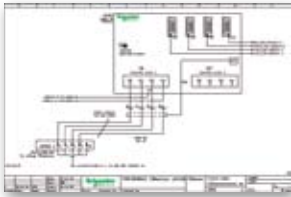


# Quickly build your automation solution

MachineStruxure uses tested, validated, and documented architectures with application function block libraries developed for generic or dedicated applications (hoisting, packaging, material handling, etc.) that can be easily adapted to your specific requirements. Integrated with our SoMachine software suite, the simple configuration will accelerate the design, implementation, and installation.



System user guide



Wiring diagrams and predetermined CAD panels

## Ready-to-use architectures for optimized results

Created from predetermined equipment lists, they are:

- > **Tested:** our experts tested each application to ensure that they work in all possible configurations.
- > **Validated:** the solutions are compatible with your automation components.
- > **Documented:** a full user manual contains all the required information for installation and assembly, including CAD and wiring diagrams.



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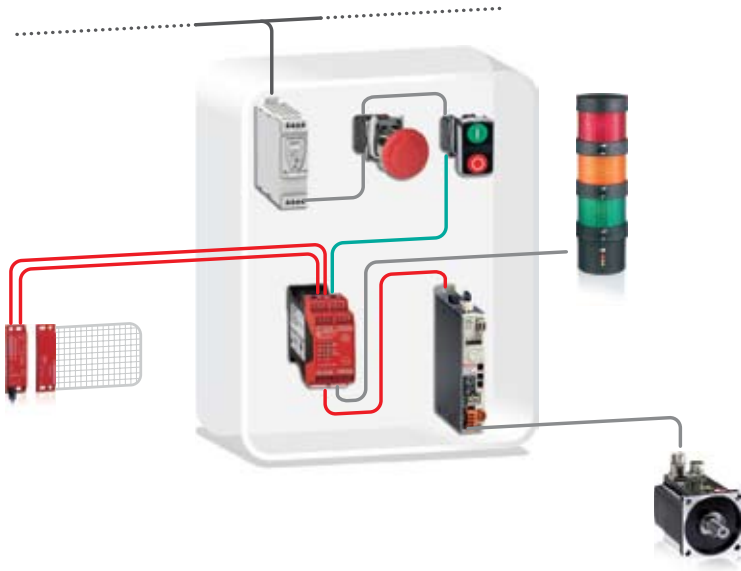
Examples of application function blocks (AFB)  
“Grouping/ungrouping,” “anti-sway,” “temperature control” ...

## Application function blocks help carry out tasks more quickly

Our pre-programmed function blocks offer speed in development for your generic or dedicated applications.

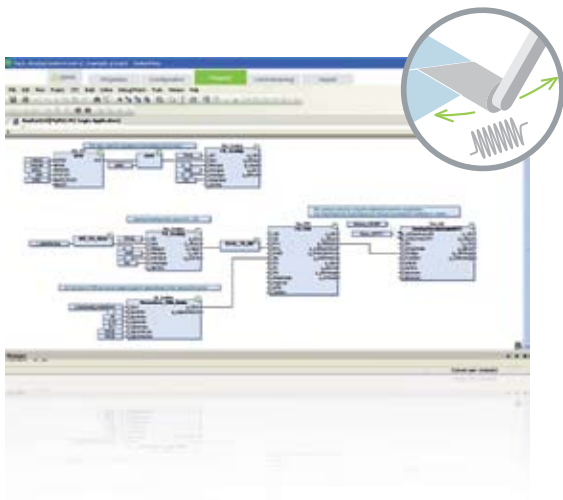
- > **Tested and Validated** by our engineers, our application function blocks can be configured with a simple copy and paste. They can be quickly implemented in the machine programs, reducing the effort required to create an application and reducing the risk of errors.
- > **Documented**, they improve the quality of your application.





### Our expertise

- > Tested, validated, documented architectures
- > Application function blocks and libraries



Discover our automation solutions, use  
our online selector tools.

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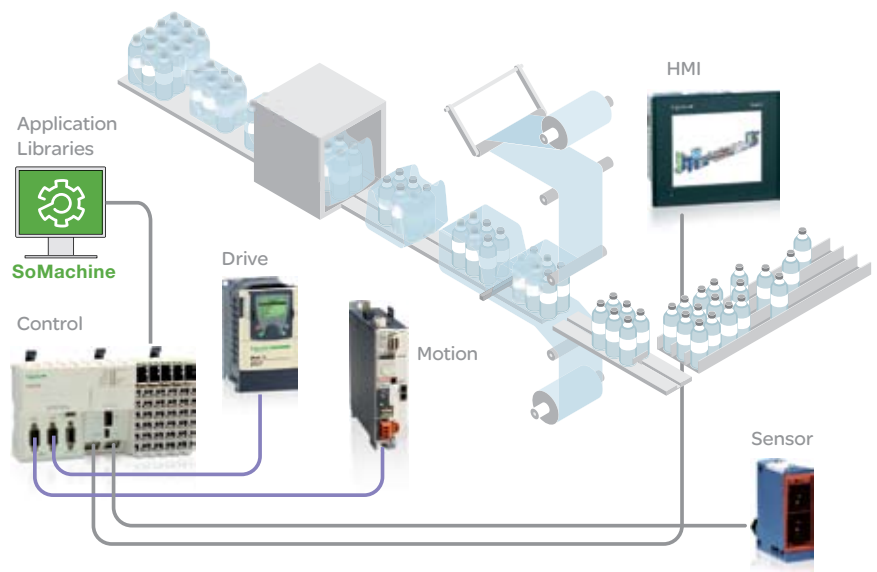
# Simplify machine programming and commissioning

The SoMachine software solution, developed specifically for OEM machine builders, allows you to design, commission, and service your machine in a single environment. It helps you get to market faster and gives your machines a competitive advantage.

## A single software suite for your automation system

### SoMachine makes it possible to program and commission:

- > Controllers
  - > Human machine interfaces (HMI)
  - > Drive and motion control
  - > Sensors
  - > Networks
  - > Application libraries
- > Install all automation equipment in one step.
- > Gain complete and transparent access to networked equipment.



## Reduce the complexity of your program design and implementation times

### Includes a rich set of templates and libraries:

- > Programming and automation architectures templates
- > Graphical libraries
- > Logic libraries
- > Application function blocks and equipment modules libraries

### Includes a variety of integrated expert functions:

- > Variable indexing and tracing
- > Fast and easy sharing of variables between control and HMI
- > Smart coding
- > Commissioning screens

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#### Software suite

for controllers, HMI, and remote devices

#### Download

to transfer the entire machine program in a single step

#### Connection

to access to all devices

#### File

Create and maintain a single project file



# Simplify the management of your customized solutions

MachineStruxure allows you to customize your machines and upgrade them without increasing the design phases or costs.

## Simple customization and integration

- > With our existing function blocks you can simply modify, reuse, or create your own.
- > Easily integrate your own systems into our architectures utilizing FDT/DTM technology.

## Compliance with global standards for maximum flexibility and durability

- > SoMachine and the control platforms support the 6 programming languages (FBD, ST, SFC, LD, IL, CFC) and are compliant with IEC 61131-3
- > PLCOpen function blocks for movement control
- > Integrated open and standard networks in devices
- > SoMachine software combined with our control platforms allows you to simply upgrade your architectures



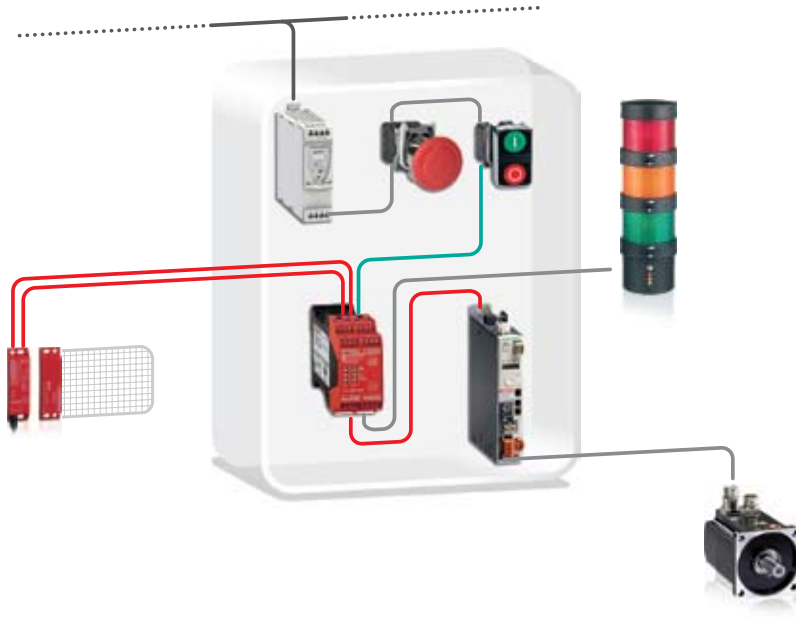
### Our expertise

Design and optimize your automated solutions with our co-engineering support:

- > Tested & validated customized solutions
- > Latest technological evolutions

# Simplifying machine safety

Our certified “machine safety chain” solutions can help you reduce your machine design time and simplify the determination of safety integrity (SIL) and performance (PL) levels.



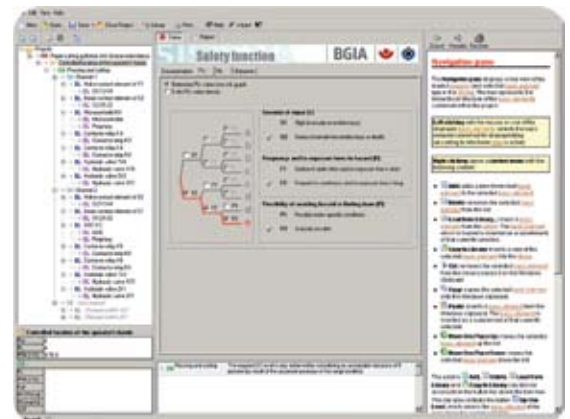
## Safe Stop 1 (PL e, SIL 3)

- > Solution architectures that indicate PL and SIL
- > Bill of materials and the system description file
- > Machine safety conceptual principle diagram
- > Example description of the PL and SIL calculation
- > Certified by TÜV

## Simplifying EN ISO 13849-1 Standards

In order to simplify the determination of the PL achieved by the safety-related parts of control systems, the German Institute for Occupational Health (IFA), has developed SISTEMA, a free-to-download software.

- > Automated calculation of the reliability values with various levels of detail, including that of the attained PL
- > Saving time with Schneider Electric™ components library for SISTEMA
- > Safety Chain Solutions can be reused—like basic examples to be adapted for your specific safety applications
- > Print your summary and see the final results



SISTEMA software Interface







How can you improve  
the performance of  
your machines?

# Innovative solutions for even more flexibility

That allows your customers to increase production rates and vary production on the same production line.

MachineStruxure allows complete adaptation of your automation architectures by using:

- > A flexible control system; now your machines' functionality and performance can quickly be upgraded
- > Energy-efficient solutions for your machine
- > Simple integration in factory process

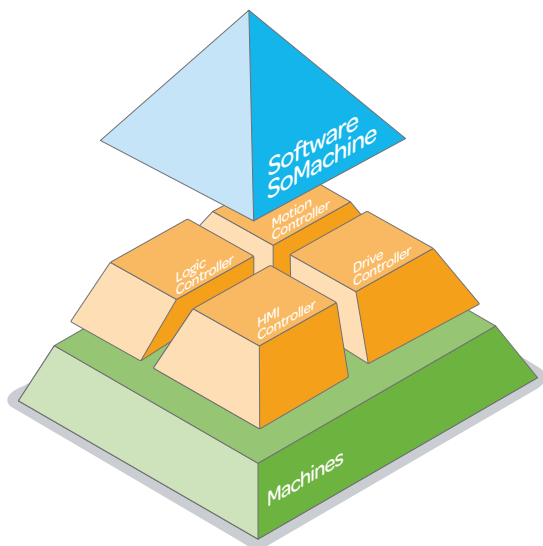


**MachineStruxure,  
100% flexible, reliable, and  
energy efficient**

# Flexible and optimized control systems for all applications...

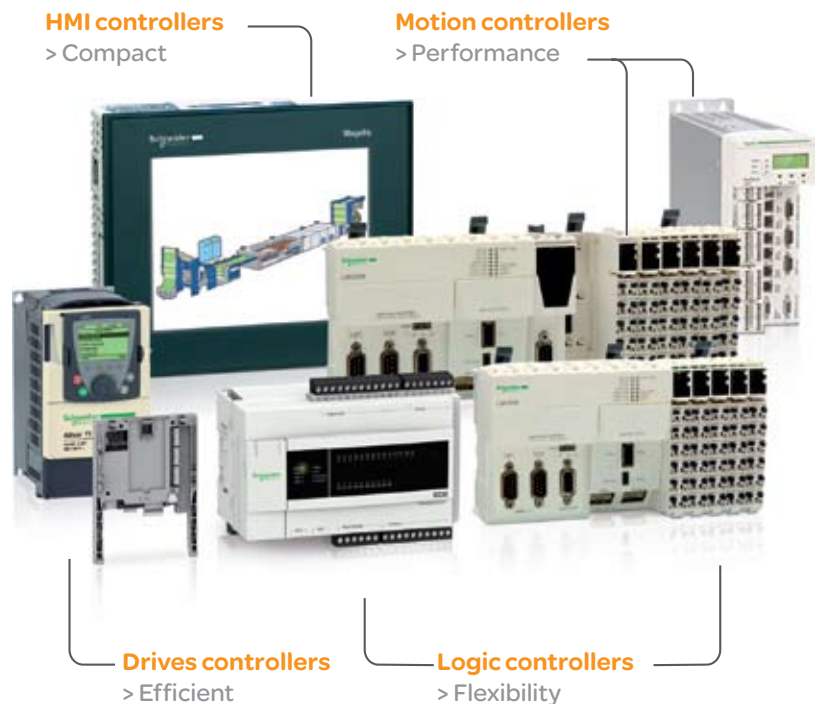
## ...from the most simple to the most complex

From the simple movement of axes to motion control, the flexible control system of MachineStruxure allows you to control your machines from a variety of platforms that include combined integrated intelligence. Optimize your machine cost by selecting the control platform suited for your specific requirements.



#### 4 types of control platforms / 1 software suite

- > Embedded intelligence
- > Complete controller ranges
- > Extendable performance
- > Open to standard networks (Ethernet, CANopen, etc.)



**100%** flexibility and optimization of your machines so you can easily upgrade your system when your customers' requirements change





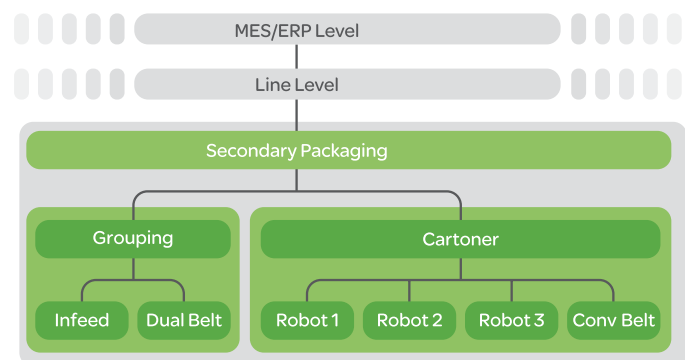
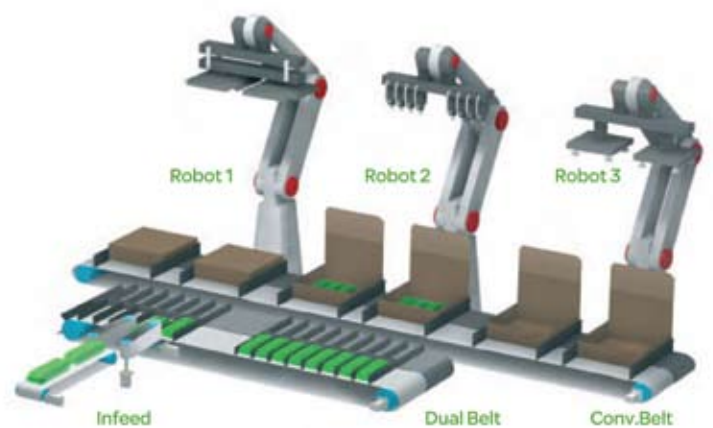
## ... right up to the complete production line

### One coherent, scalable automation platform

PacDrive 3 is based upon proven motion logic technology, using PLC, motion, and robotics control functionality on a single hardware platform. With its centralized system architecture, PacDrive is the ideal solution for controlling a broad range of servo-driven production and packaging machines, as well as material-handling equipment and robotics, using fully integrated, IEC 61131-3-compliant program structures.

### A single control/ordering system for the machines and the robots

The integration of robotics into the machine control solution is one of the outstanding aspects of the PacDrive automation system. PacDrive eliminates the need for proprietary controller solutions or additional programming languages.



Predefined program structure and library functions: reduced programming work by creating modular, reusable software



### PacDrive

The scalable performance offered by PacDrive controllers allows automation solutions with 0 - 99 servo axes or up to 30 robots.

# Improve the energy efficiency of your machines

Energy efficiency is an increasing concern in the global strategy of your customers. By offering them machines that save energy you will have a definite advantage over your competition.



## Design energy-efficient machines

Drive elements and motors account for 70% of industrial electrical consumption. It is possible to reduce the energy consumption of your machines significantly by putting into place suitable automation systems:

- > optimize the sizing of motors with high power consumption
- > replace normal motors with high-output motors with regulators
- > use intelligent fine control technology such as predictive control
- > replace mechanical shafts (belt, chain, cam) with intelligent electric shafts, etc.

## Implement optimized architectures to reduce energy consumption

As world leader in automation and control as well as energy efficiency, we put all our expertise and experience at your disposal through the development of products, architectures, and function blocks that are tested, validated, and documented. With optimized designs and perfect combinations, they can increase your energy efficiency by up to 30%.

Download our White Papers:

[www.schneider-electric.com](http://www.schneider-electric.com)

# Easily integrate your machines into their factory processes

Our equipment platforms and software suite are equipped with an integrated Ethernet connection for gains in performance and to allow easy integration with a factory-level information system.

As a supplier of industrial process solutions for over 40 years, we understand the production environment of your customers and can assist them in reaching their objectives via the PlantStruxure system and associated tools.

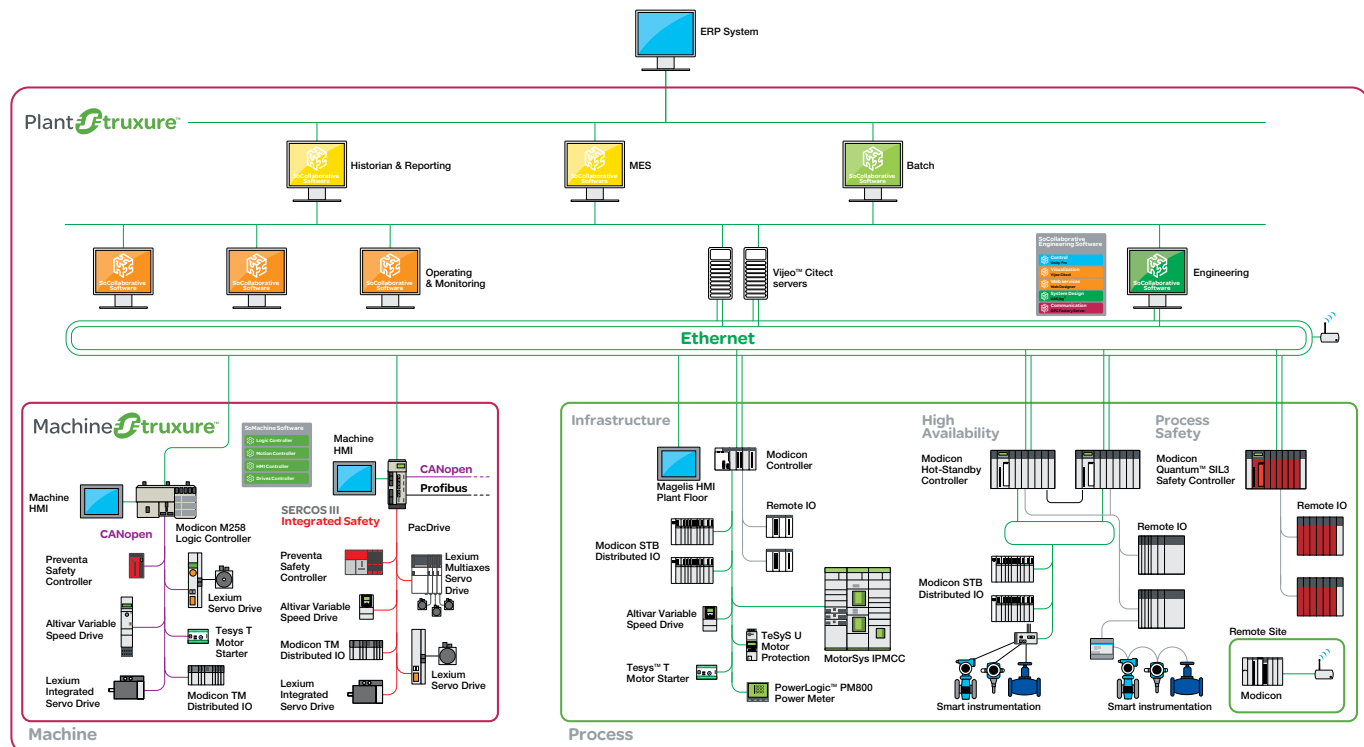
## PlantStruxure™

PlantStruxure™ is the collaborative automation solution that helps you to achieve your energy and productivity improvement objectives by creating a single environment to measure energy usage, process data, asset utilization, and machine performance.



### Our expertise

- > Simple connectivity
- > Transparent operation
- > Consistent diagnostics
- > Single company for support







How can you develop  
your business?



# Gain the competitive advantage in each stage of your machine

In order to increase customer satisfaction, your sales, and profitability you must achieve excellence in each stage of your machine's life cycle.

From design to maintenance, you can rely on us for assistance throughout the process.

MachineStruxure is much more than products and architectures adapted to your needs; it is also services and support. Our expertise and experience allow you to increase your efficiency and competitiveness throughout the life cycle of your machines or installation.



Achieve more with less at each stage. MachineStruxure keeps you one step ahead!

# Services and support throughout the co

## Make your machines stand out right from the start

Design and optimize the automation solutions with the help of our design engineers

- > Fully customized solutions for a unique design
- > Innovative tested and validated automation configurations for cost savings and increased performance

Design machines that are compliant with the new machine safety standards with our team of engineers

- > Risk analysis and assessment
- > Application of functional safety specifications

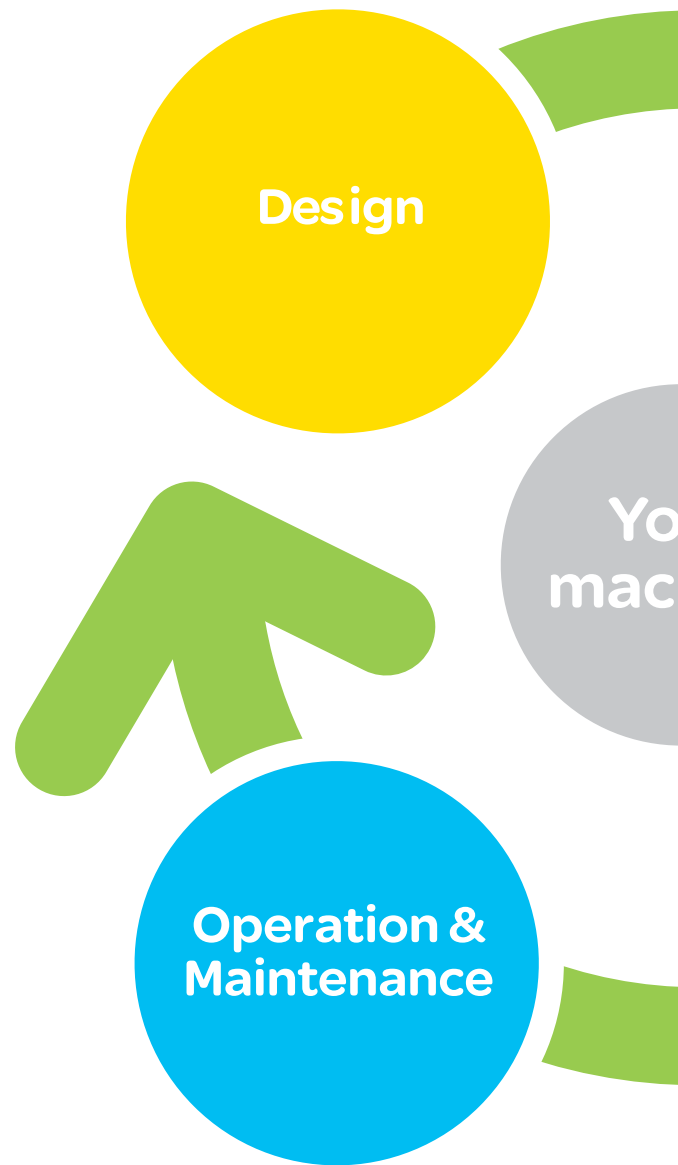
Improve your performance:

- > A global network of training centers

## Worldwide customer assistance and post sales support

Minimize your machines' downtime and maintenance cost

- > A worldwide network of dedicated local representatives
- > Assistance from a local technician at the end user's site for quick troubleshooting
- > Local access to replacements
- > Local after-sales service team
- > Easy remote monitoring, diagnosis, and management of your machines



# Complete machine life cycle



## Optimize the assembly processes of your machines

Utilizing a “lean manufacturing” approach, we will assist you in:

- > Implementing tested tools and methods in your factories to increase your industrial efficiency
- > Generating direct gains during the machine's assembly phase
- > Optimizing your industrial investment
- > Transferring our experience and expertise to your teams via practical training

## Develop your sales

You can rely on a dependable partner

- > Shorter delivery times of your machines due to reduced development time
- > 24/7 telephone assistance in the language of the country where your machine is in use
- > Develop new machines more quickly using our MachineStruxure automation solution
- > Sell your machines all over the world—our equipment is compliant with all international standards

For more information, go to  
[www.schneider-electric.us](http://www.schneider-electric.us)

 Make the most of your energy<sup>SM</sup>

**Schneider Electric North America**

8001 Knightdale Boulevard  
Knightdale, NC 27545-9023

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