

A wide-angle photograph of a modern industrial control room. In the foreground, two black ergonomic office chairs are positioned at a long, light-colored wooden desk. On the desk, there are three computer monitors displaying various data and graphs, along with keyboards and other peripherals. In the background, a large wall is covered with numerous smaller monitors arranged in a grid, showing different camera feeds and data. The room has a clean, professional look with a white ceiling and walls.

SIEMENS

Making potentials visible

Perfect integration provides crystal clear advantages

Plant-wide automation in the glass industry

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Transparent production processes lead to lower operating costs

With plant-wide automation based on Totally Integrated Automation (TIA), all automation components from the different machine builders and plant manufacturers can be combined in a single, plant-wide automation solution. The benefits can be seen all along the value chain – for plant operators as well as for the machine builders.

The entire lifecycle at a glance

Plant-wide automation starts with the design of a plant and includes all subsequent phases – from construction and

commissioning all the way to ongoing operation and service.

This is all possible through Siemens' comprehensive portfolio for the glass industry, which includes automation technology and industrial switching technology as well as a plant's process instrumentation, analytics, and power technology components. Add to that the digital design and virtual commissioning for the plant as a whole, and lastly a comprehensive service portfolio. All of this – along with the extensive industry knowledge that Siemens has developed through many years of partnership with a wide

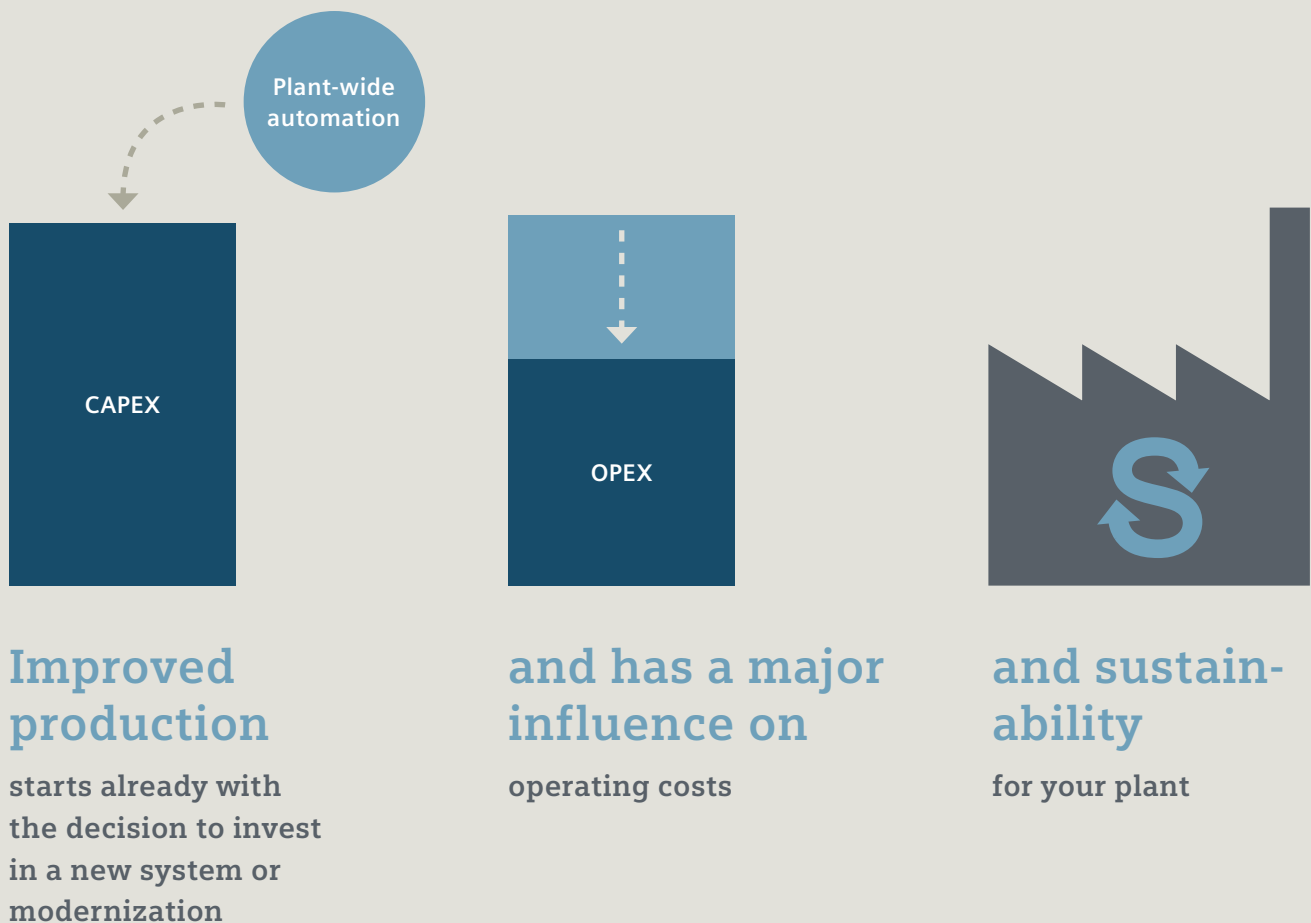
Winning results that speak for themselves:

- Significantly higher economic efficiency for the entire plant thanks to increased productivity, greater cost transparency, and more energy efficiency
- Up to 25 percent lower operating costs by comparison
- Easy integration of innovations into production management and a correspondingly shorter time to market
- Less time needed for design, engineering, commissioning, and integration
- Uniform database ensures optimal cooperation among everyone involved in the project
- Protection for intellectual property and secure, easy, low-cost remote maintenance for machine builders
- A wide range of lifecycle services

range of glass manufacturers and subject matter experts in plant and building – forms the basis for plant-wide automation. All plant data for all aspects of production – from the mixture to the hot and cold ends all the way to further processing, along with all supply and ancillary systems – are brought together centrally and thus become usable. OEMs can use plant-wide automation for all work – from diagnostics to configuration and simulation, calibration of field devices, and factory acceptance tests. The result: Production transparency cuts operating costs by up to 25 percent and ensures stable operation throughout the entire lifecycle of the plant.

Advantages for everyone involved

Plant-wide automation benefits glass manufacturer as well as the machine builders who are involved in the project. Operators have a reliable, transparent basis that enables them to increase your plant efficiency, improve processes, and respond more swiftly to market demands. At the same time, machine builders can work with noticeably improved efficiency thanks to secure, standardized interfaces in engineering, commissioning, and integration. In addition, plant availability at a reasonable cost can be ensured through value-added services such as remote maintenance.



Sustainable planning

Involvement at an early stage pays off

The ultimate technical skills, decades of experience in the industry, intensive networking, and strength of innovation, along with the necessary financial resources, enable Siemens to help investment projects succeed as part of a long-term partnership. As early as during the feasibility study, plant-wide automation creates the vital foundation to ensure that the plant enjoys maximum efficiency and profitability by providing a comprehensive overview of the investment project.

If all plant units operate using the same automation hardware and software as well as precisely defined interfaces, this will guarantee data consistency and make it noticeably easier to connect all elements to a higher-level process control system.

Software as a critical success factor

The choice of software is also a determining factor in the efficiency of the entire project and the productivity of a plant.

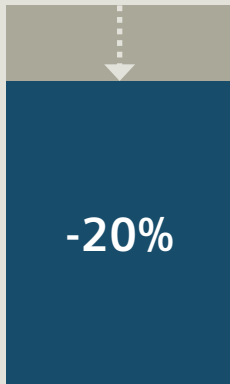
The COMOS plant engineering software enables end-to-end design of plants and plant sections – all the way to total, plant-wide automation – while product lifecycle management software such as NX and Tecnomatix can be used to design, simulate, and analyze the entire manufacturing lines in advance. And, using this as the basis, the process can be started up error-free. The result is an up to 30-percent reduction in time to market, delivering a decisive competitive advantage.

Simulation leads to increased productivity

Simulation is also the key to greater productivity: Real-life examples show that Siemens simulation tools can improve production from the outset, enabling a growth in productivity of up to 20 percent, while cutting the design investment costs by up to 20 percent.

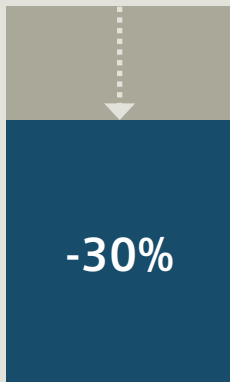
What plant-wide automation during the design stage means:

- The perfect basis for maximum project and plant efficiency throughout the entire lifecycle
- Reduced design investment costs and up to 30 percent shorter time to market
- Noticeable improvement in productivity of the entire plant, with reduced operating costs
- Overall robust design of the entire plant for maximum efficiency
- Comprehensive consulting, reliable partnership



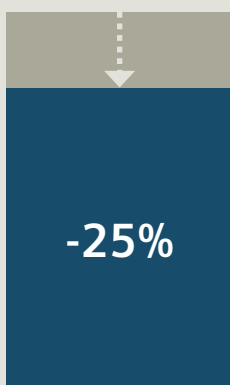
Reduced financial risk

thanks to the right tools and expert consulting



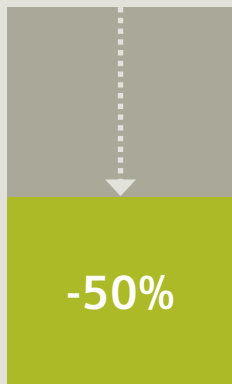
Shorter time to market

thanks to consistent design and total simulation of the entire plant process



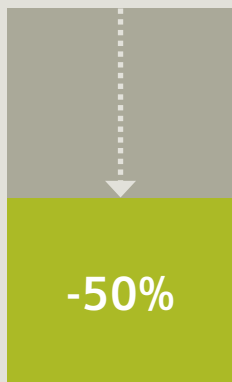
Reduced operating costs

by consistent planning right from the beginning



Engineering time cut in half

thanks to a standardized data platform with minimal interfaces



Virtuell commissioning

thanks to a reliable database and simulation tools

Faster plant construction

Just in time for the plant start-up

The foundation laid during the design stage, using plant-wide automation, starts to pay off as early as during construction of the overall plant: The use of standardized products, interfaces, and tools saves a tremendous amount of time and effort. This is because shared engineering with centralized data management ensures that all project components are integrated into the automation of the entire plant. The plant can thus be swiftly and reliably built and commissioned within the predetermined timeframes.

50 percent faster commissioning

Digital simulation of the entire plant before commissioning leads to substantial time gains. The SIMIT simulation software simulates the plant commissioning process, based on the real automation components, making it possible to identify and fix any errors. This means that the real commissioning process can pro-

ceed without faults and the entire plant can start up without problems.

All set for a smooth start

Digital simulation also makes it possible to familiarize system operators with the process control technology from the start-up of the plant, and to ensure that they are optimally prepared for ongoing operation. Documentation of the entire automation system is also reliable and up to date at all times. This ensures maximum transparency and guarantees that all preparations for a rapid, problem-free start to operations have been completed ahead of commissioning.

What plant-wide automation means for plant building:

- Short, on-time project implementation
- Substantially reduced engineering costs, thanks to integration of all plant sections into a total automation concept with standardized interfaces
- Commissioning time reduced by 50 percent
- Operators can be trained ahead of commissioning
- Documentation is accurate and up to date at all times, with full transparency

Efficient production

Transparency creates efficiency

In light of the long lifecycles of plants in the glass industry, low and continuously optimized operating costs are a key factor in ensuring economic efficiency. That means that the slightly higher initial investments for uniform plant-wide automation are quickly amortized – particularly when it is possible to respond to market changes in real time in order to systematically leverage the potentials for growth in the glass market. Standardized plant design and plant-wide transparency of production and supply facilities mean that plant-wide automation from Siemens offers significantly more opportunities – including central monitoring and optimization of the entire plant, detailed control of energy consumption and optimization of energy efficiency, overall automation concept, and flawless documentation. Systems can be

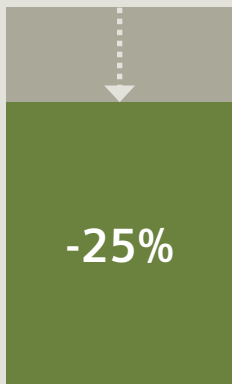
upgraded and the automation further expanded during ongoing operation. A standardized operating and monitoring strategy for the entire plant guarantees that system operators are fully familiar with all processes at all times.

Rigorously optimized lifecycle

The data transparency achieved by plant-wide automation allows reliable maintenance of even complex automation structures throughout their entire lifecycle. Extensive self-diagnosis functions and remote-access solutions enable efficient, status-oriented maintenance and a lean spare parts strategy that saves costs.

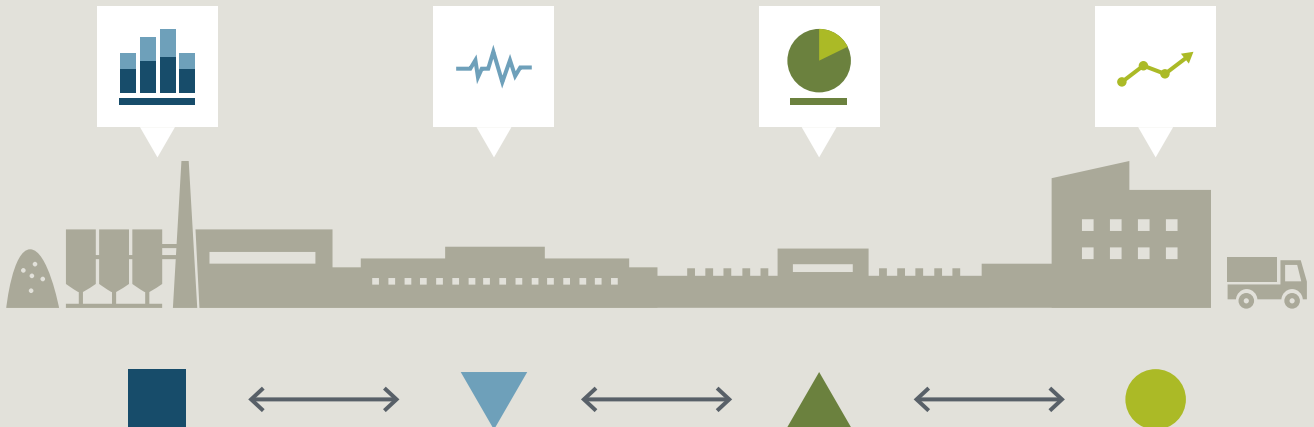
What plant-wide automation means for production:

- Excellent economic efficiency thanks to low operating costs, high plant availability, and flexibility that allows production to be switched over rapidly
- Uniform data management ensures maximum transparency for all processes, resulting in a wide range of options for optimization, standardized reporting, and flawless documentation
- Central monitoring and optimization of many plant sections and processes
- Process improvements, upgrades, and expansions to the automation system can be performed even during ongoing operation
- Optimum servicing, status-oriented maintenance, lean spare parts strategy



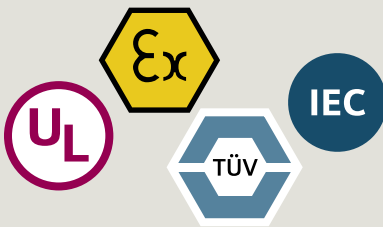
**Save up to 25 percent
in operating costs**

thanks to intelligent design and
plant-wide automated operation



**100 percent plant-wide
transparency**

thanks to plant-wide automation



Certification

Maximum safety in accordance with international standards



Worldwide services

Lifecycle services and contracts



Condition monitoring

Diagnostics and intelligent devices provide remote and on-site monitoring



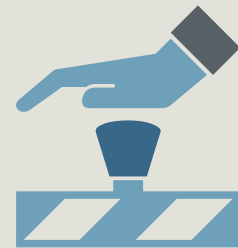
Operator training

Risk-free training using simulation under real conditions



Industrial security

Protection against real risks from the cyber space



Safety Integrated

Maximum safety, fault tolerance, and availability

Value-added services

Much more than just repairs and service

When it comes to leveraging the full potential of a plant, services can make a significant contribution. They allow energy and resource savings without compromising product quality. They can optimize a plant through targeted expansion or modernization. The experts know the possibilities for eliminating restrictions on production for entire plants.

In other words, the portfolio of services from Siemens far exceeds the traditional concepts of repair and maintenance. It includes services for the entire lifecycle of a plant – from design and engineering all the way to ongoing operation. Siemens' experts provide tangible added value by offering services such as energy-efficiency management, condition monitoring for large drives, IT security solutions, maintenance of entire plants, and even financing for entire projects through Siemens Financial Services.

Lifecycle services for SIMATIC PCS 7

SIMATIC PCS 7 Lifecycle Services provide you with a powerful service program for SIMATIC PCS 7 process control system. This results in individual, flexible service contracts which are tailored towards the requirements of your plant's whole lifecycle. The service program not only offers standard services, but also proactive Lifecycle Services which can be combined with contract options, e.g. for contract duration or response times. A customized service contract protects investments and ensures service capability of the control system for up to 15 years, while keeping costs predictable.

Services associated with plant-wide automation include the following:

- Preventive maintenance, servicing, technical support
- Stand-by service, on-site service, spare parts supply
- Condition monitoring remote and on site
- Financing solutions
- SIMATIC PCS 7 lifecycle service
- SIMATIC system and audit
- Obsolescence management
- Modernization, updates, and upgrades

Find out more

siemens.com/glass

Learn how plant-wide automation can ensure your lasting success throughout the entire lifecycle of a glass plant – including design and services.

Just scan the
QR code
for details!



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