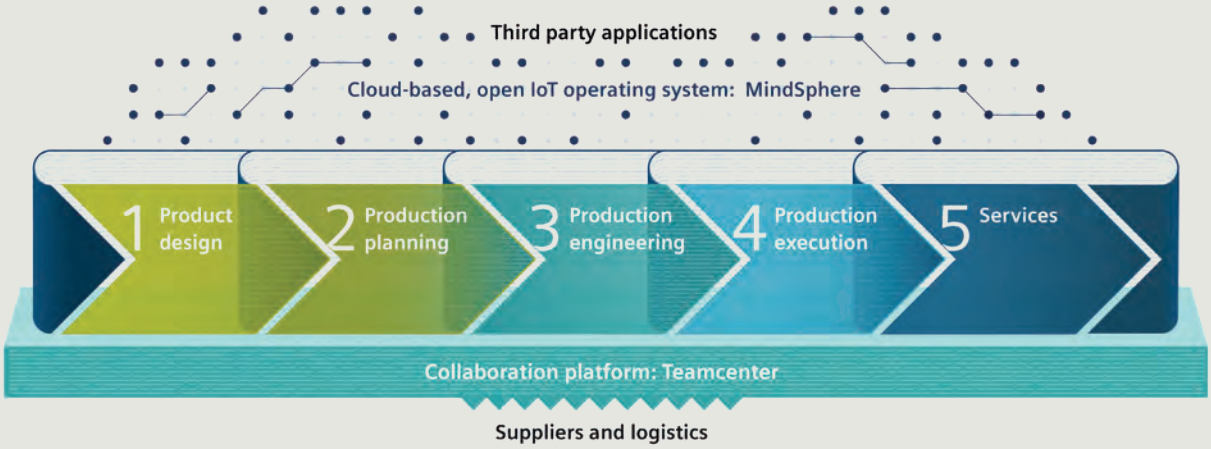
SIEMENS
Ingenuity for life

Modernization made easy

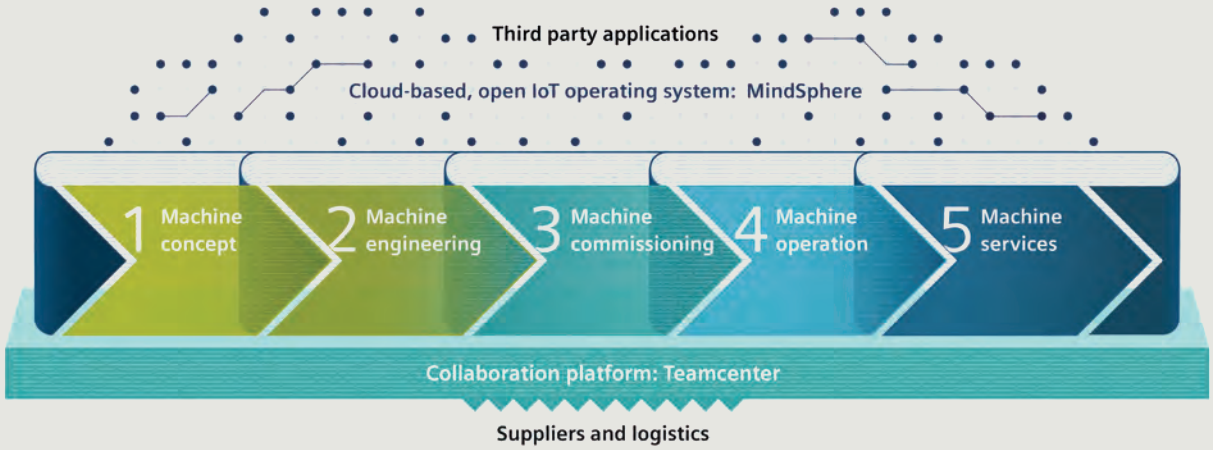
Future-focused technologies for today's Digital Enterprise.

usa.siemens.com/modernize

End Customers Model



Machine Builders Model



The Digital Enterprise Suite enables manufacturing companies to integrate and digitalize their entire business model, including suppliers. Steps of the production life cycle can be completed simultaneously rather than sequentially.

Modernizing with Siemens Digital Enterprise

To compete in the global market place of the future, manufacturers have to find new and innovative ways to reduce time-to-market, enhance flexibility and increase quality, efficiency and security. Digitalization – the convergence of technologies such as data analytics, the cloud and the Internet of Things – addresses these challenges by offering operational agility and efficiency across the entire value chain. Benefits include shorter development times, resource and energy savings and improved flexibility – all increasing your ROI.

Modernizing with Siemens Digital Enterprise

Siemens Digitalization solution leads the industry by offering a seamlessly integrated, complete, end-to-end solution across the entire manufacturing process. Our future-focused software, hardware and powerful automation technologies – backed by global sales and support – have made Siemens the global leader in manufacturing automation systems. We'll show you the advantages of partnering with Siemens and how to modernize your operation on a time-frame and budget that meets your needs and positions you for the future – today.

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Siemens: Your partner for modernization

Why Siemens?

ROI

We can help you increase your ROI by investing in our "best-in-class" solutions that are early in their product lifecycles, resulting in solutions for future technologies – today. An example is our TIA Portal – a single engineering framework that seamlessly integrates controllers, distributed I/O, HMI, drives, motion control and motor management — allowing you to reduce your engineering time by up to 30%.

Productivity

Siemens helps customers increase productivity and reduce scrap rates through our integrated "no programming" diagnostic capabilities that allow you to display to your line operator exactly what has happened to your system.

Transparency

Efficient sharing and receiving of data allows for easy access for quicker, smarter decisions. Our devices have the ability to connect to existing third-party controllers for data sharing and move information to today's MRP systems. Remote monitoring is easily achieved with the included web servers built into the devices.

Leading Technology

Our state-of-the-art products allow you to enhance your flexibility and throughput for increased competitiveness. For example, our new SIMATIC S7-1500 controller family is a comprehensive portfolio offering extremely fast response times, safety integration, security integration, easy commissioning and integrated system diagnostics for the full range of medium and high-end applications.

Safety

With Safety Integrated, we offer the world's most unique and comprehensive portfolio of control, drive and switching technology, which covers all requirements placed upon the functional safety of machines and systems. From risk assessment, to safety validation, Siemens supports you throughout the complete machine safety lifecycle. Siemens Safety Integrated provides you with reliable protection of persons, machines and the environment. It exceeds global compliance requirements and provides the most sustainable efficiency, flexibility and safety.

Security

Siemens provides a comprehensive, integrated approach for the protection of plant, network and system security. This includes designing security features directly into our automation components as well as customizable security services.

Support

We provide global and local sales and support to ensure you get the help when and where you need it. Siemens is active in 190 countries and has an extensive channel and solution partner network.

Why not just stay with your current vendor?

Staying with your current vendor might not be as easy as you may think. Even if you replace your obsolete products with their "newer" versions, you may still need to convert your code to their new programming software, train your engineers and maintenance personnel, and risk downtime during the changeover. Siemens makes this process easy with our modernization tools, step approach, training and support — with the added bonus of upgrading your system to state-of-the-art technologies that are fresh in their product lifecycles and can sustain you into the future.

Automation solutions for today and tomorrow

Whether you're replacing components in an existing system or investing in a future-focused complete solution, Siemens has the technology, expertise and support to customize a solution that can transform your organization into a Digital Enterprise.

A future-focused, totally integrated approach

Totally Integrated Automation (TIA)

TIA is an open system architecture that covers the entire production process and offers maximum interoperability across all automation components. This is accomplished by the following shared characteristics: consistent data management, global standards, and uniform hardware and software interfaces – which minimize engineering time, reduce costs and boost flexibility.

TIA optimizes the entire manufacturing process, leading to **increased ROI** by:

- Improving engineering efficiency for lower design costs
- Minimizing downtime by applying integrated diagnostic functions
- Boosting production flexibility through the use of integrated communication tools
- Enhancing plant and network security through integrated security functions
- Improving safety with technologies that protect personnel, machinery and the environment
- Optimizing data quality with a single, streamlined database
- Improving access to data for smarter decisions
- Simplifying implementation of automation solutions with global standards
- Improving overall performance through the interoperability of system-tested components

How did we calculate the 30% TIA Portal savings?

We interviewed actual Siemens customers who implemented our TIA Portal engineering framework and asked them to share their success stories.Read their stories and watch the videos at: usa.siemens.com/tia-portal-references

Totally Integrated Automation (TIA) Portal

The key to unlocking the full potential of TIA is our TIA Portal – a single engineering framework that seamlessly integrates controllers, distributed I/O, HMI, drives, motion control and motor management – allowing you to **reduce your engineering time by up to 30%.**

Significant TIA Portal features and benefits that enable you to **reduce your engineering time while increasing your level of transparency and diagnostics** include:

- Integrated "no-programming" system diagnostics, automatically generated during device configuration
- One common tag database for fewer mistakes
- Ability to create custom libraries to be shared across your corporate servers for easy creation of company standardization for projects
- An overall project management tool that allows for complete system (multiple controllers, HMIs, networks, etc.) to be programmed, monitored, saved and stored all in one software package
- Easy-to-use, intuitive system functions, such as implementation wizards and drag and drop between editors, for fewer clicks and faster engineering
- Additional time-saving functions, such as online/offline comparisons, pictorial system view with online diagnostics, no-PC-required trace functions and the ability to make code modifications while in "run" state without stopping the PLC

Find out more: **usa.siemens.com/tia**

usa.siemens.com/tia-portal

Best-in-class individual components

For manufacturers that want to upgrade individual products, Siemens offers a comprehensive, competitively priced automation portfolio that can be used in your existing system to enhance performance, offering:

- Ease of integration with existing assets
- Easy-to-configure hardware and software
- Resolution of maturity/obsolescence issues by replacing legacy components with state-of-the-art technology
- Innovative features to support flexibility and competitiveness
- Flexibility to support various network protocols, including PROFINET and EtherNet/IP

For more information on our products, see pages 10 and 11.

Support

Support and Consulting Services

- **Industry Online Support site** is your esource for comprehensive information, FAQs and application examples covering all products, systems and services in the fields of automation and drives, as well as for the process industry. **Support requests** may also be initiated and tracked on this site.
- **Technical and Engineering Support** specialists provide 24/7 advice and answers for all inquiries about functionality, handling, and fault clearance of Siemens industrial products and solutions – via phone, email, support request, and remote access. Services also cover **obsolete and discontinued products**.
- **Regional Application Engineers** provide local assistance.
- **Experienced global network of Certified Solution Partners** with extensive industry knowledge using Siemens components for the implementation of tailored solutions for your specific applications and timetable.
- **Global support** available in 190 countries. Standardized global part numbers and ease of communication in your preferred language.

Training Services

We help you to assess, define, implement and manage a **workforce improvement program** that is customized to your exact learning needs. Courses include **product, safety and certification learning programs** delivered the way you want them – **in-person, virtual instructor-led** or using our **digital environment**.

Siemens Basic Technical Support Services provide you with more value, reducing your Total Cost of Ownership (TCO)

- No Charge single, toll-free number with live operators
- No Charge basic technical support until product maturity during normal business hours

Contact us today!

Industry Customer Care Center
800-333-7421

Replacing or retrofitting obsolete/mature products

Easy and flexible approach to upgrading your system to future technologies

You've invested heavily in industrial automation. But your legacy components have become an obstacle to growth, innovation and operational excellence. When does it make sense to migrate?

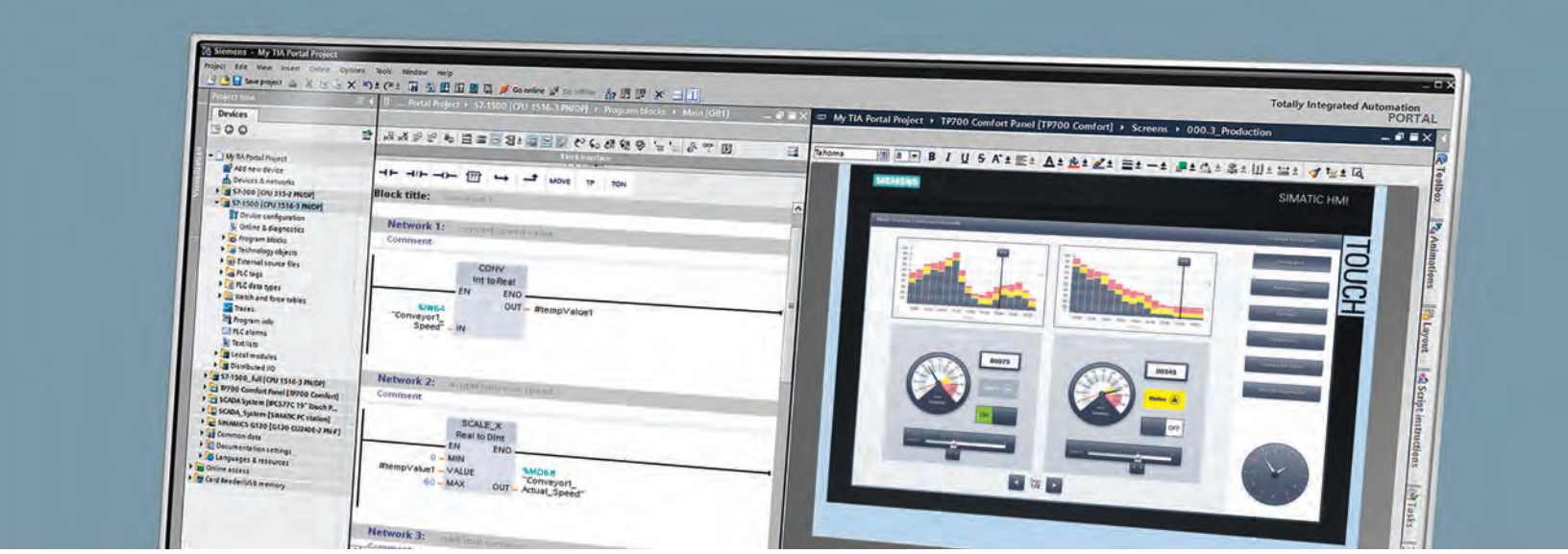
- Growing threat of unscheduled downtime and system faults
- Vendor has dead-ended or phased out legacy hardware, and no spare parts are available
- Legacy system cannot support new information technology that enables competitive advantage
- Capitalizing on a new or emerging business opportunity is impossible without a new system
- Old system is inflexible and cannot adapt to rapid shifts in customer demand
- A mature system does not provide needed data transparency or diagnostics
- Legacy system has reached maximum capacity, or would require a significant investment to add capacity
- Continually escalating costs to procure obsolete/legacy parts

Challenges	How Siemens can help
I need to keep my plant running during the migration process.	Siemens can help you implement this change according to your needs with a stepped or phased approach that will allow you to **retain your current level of productivity.**
How can I make sure I don't lose years of code/tribal knowledge that make my system currently work?	Siemens' **no-charge code-conversion services** ensure the protection of your assets while upgrading you to the state-of-the-art TIA Portal that retains your current structures and naming conventions, allowing for familiarity from the start. This will allow you to meet the challenges of future automation architecture.
How am I going to train my personnel on this new system and get the support I need?	Your partnership with Siemens ensures your success with the **knowledge and support** you need for your project today, and those of tomorrow. See page 5 for more information.

Global beverage manufacturer deploys Siemens retrofit with the following benefits:

- Immediate production start-up without issues
- No networking or hardware requiring special IT knowledge
- Seamless program logic
- Transparent diagnostics
- Redundant ring Ethernet network
- Merging of segmented communication networks into one
- Reduction of three monitoring systems into one
- Secure remote access to whole platform
- Decrease in needed spares
- Free technical support
- Repeatable design and systems platform

Read the entire story at usa.siemens.com/replace-retrofit.



Modernization assurance

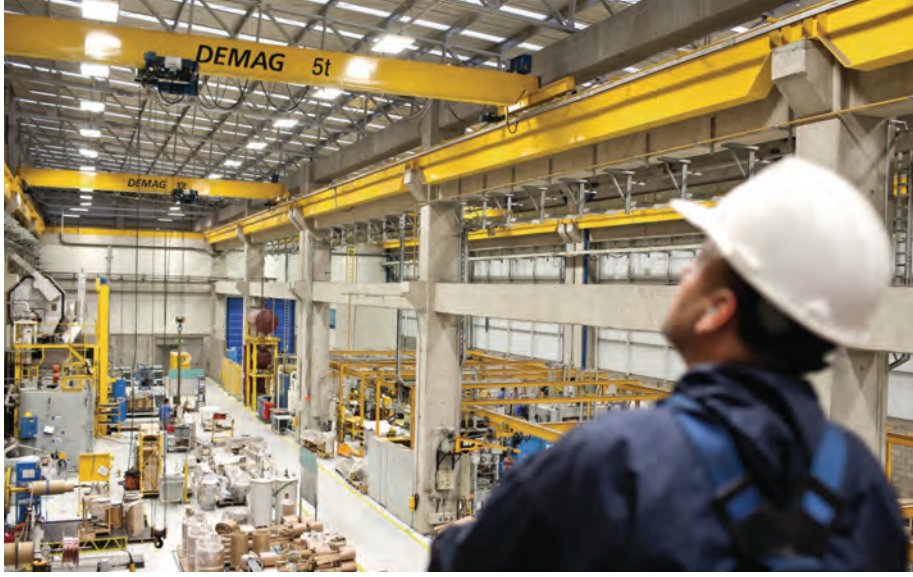
Have peace of mind knowing that Siemens' current products are engineered to migrate seamlessly into future technologies, ensuring your industrial automation needs will continue to be met in future competitive environments.

Modernization Tools

Siemens offers a comprehensive set of tools to ease your transition. To access our complete offering, please visit usa.siemens.com/modernization-tools.

Challenges	How Siemens can help
Why convert?	We understand what you are facing. Consult our list of industry controllers that are legacy products.
Can I convert?	We provide step-by-step checklists, flowcharts and guides to a successful conversion.
What will I be converting to?	We provide guidelines for selection replacement parts, allowing for quick budget analysis without extensive research.
How can I make a Siemens controller easily share data in my plant?	Use our instructions for open user communication to a third-party control system.
How do I convert my code?	Siemens provides no-charge code-conversion services and instructions for converting your current project to a state-of-the-art TIA Portal that retains you current structures and naming conventions, allowing familiarity from the start.
How will I create new drawings and manuals?	We offer a complete database of imagery and documentation for easy creation of process technical drawings and manuals.
How do I convert other automation products?	Siemens offers HMI tag converters, I/O conversion tools, controls products cross references and much more! See pages 10 and 11 to learn more about our products.
How can I test/own the TIA Portal Software?	As a registered customer on our Support website, you can download trial software and test it for 21 days. Or, complete the form at usa.siemens.com/tia-portal-trial-license, and we'll send you a DVD.
How can I get training?	Links to online and classroom training courses and self-paced options are provided.

New plants or expansions to existing processes



Easy, complete and scalable open systems for Digital Enterprises that allow for upfront engineering and smarter, more transparent systems that easily coexist with your current system to enhance future performance

Building a new facility or adding capacity through expansion can be a catalyst for growth. With Siemens as your automation partner, we can help you achieve your desired results that will sustain you into the future.

Challenges	How Siemens can help
I need a solution that will increase my return on investment.	Siemens TIA solution will increase your ROI due to the efficient interoperability of all automation components — allowing you to lower costs, reduce time-to-market and increase your flexibility. See page 4 for a complete list of advantages.
I need a solution that is superior to my existing system and will carry me into the future.	Siemens TIA Portal software will **reduce your engineering time** while also providing the level of **transparency and diagnostics** needed to meet the challenges of future automation architecture. See page 4 for a complete list of advantages.
How am I going to train my personnel on this new system and get the support I need?	Your partnership with Siemens ensures your success with the **knowledge and support** you need for your project today, and those of tomorrow. See page 5 for more information.

Global company builds new manufacturing plant to obtain the following benefits offered by Siemens:

- Common database for easy access into data and tags for reduced engineering effort
- Significant cost savings due to piece-to-piece savings and the reduction of industrial communication infrastructure
- Better diagnostics to help reduce downtimes
- Faster PLCs and networks for more throughput
- Single common programming platform for reduced complexities

Read more stories at usa.siemens.com/resource-library

Adding capacity through an expansion?

Placing different manufactures into your existing process can be tricky. Siemens understands this challenge and has developed simple, easy connections for data-sharing within the existing process – without any modifications required in the current controller. The result: components that easily coexist with your current system while providing the benefits of enhanced performance.

Modernization assurance

Have peace of mind knowing that Siemens' current products are engineered to migrate seamlessly into future technologies, ensuring your industrial automation needs will continue to be met in future competitive environments.

Machine builders

Easy-to-set-up, competitively priced, scalable systems that decrease your time-to-market

OEMs are on a never-ending quest to build high-performing machines that are faster, more reliable and more flexible. To meet the specific requirements of customers while keeping design costs in check, machine builders must harness innovative and cost-effective automation solutions.

Quantify the value of Siemens' TIA solution using our Cost-Savings Calculator

The TIA Cost-Savings Calculator is a tool to help quantify the value of a typical Siemens TIA solution to a potential or existing machine builder. Use the calculator to discover areas of significant cost savings and ROI improvement. Visit usa.siemens.com/oem-solutions and get started today.

Challenges	How Siemens can help
I need to be able to get parts anywhere in the world.	Siemens is your global partner, providing a worldwide network of resources that includes more than 50,000 specialists in automation, drives, networks, safety, motion control and motor management across every application or industry. This global accessibility and ability to respond rapidly to market changes helps you serve your machine customers with confidence.
I need the ability for individualized production at the lowest cost available.	Siemens' state-of-the-art features are perfect for accelerating design innovation for the increased machine performance required to meet the growing customer demands for individualized mass production, all while minimizing costs and providing competitive value. Notable features include option handling, which enables you to satisfy customer-specific requirements without making engineering changes — even during ongoing operation.
I need to be able to easily maintain my machines.	Additional Siemens state-of-the-art features, perfect for machine builders, are: • Ability to perform software updates in the field without the need to send a technician on-site • Intuitive, state-of-the-art programming software • Application-specific software libraries/examples • Remote monitoring and secured web-server access via PC, smartphone or tablet computer

Machine builders benefit by partnering with Siemens:

- Systemic TIA approach (see pages 4 and 5).
- Integrated security technology
- Open communication via EtherNet
- Energy-efficient drive technology
- Scalable controller solution (modular/PC-based)
- High-performance, rugged industrial PCs
- World-class HMIs (hardware and software)
- Technical advisers with experience in your application
- Complete database of imagery and documentation
- SIMATIC OEM Software Tool Kits
- Machine Builder Partnership programs, including mentoring and conversion services

Global Machine Builder converts to Siemens controllers with the following benefits:

- 25% to 30% savings in engineering time due to the TIA Portal's ability to reuse code
- Faster development time
- Faster time to market
- Increased business due to new opportunities

Read the entire story at usa.siemens.com/machine-builders

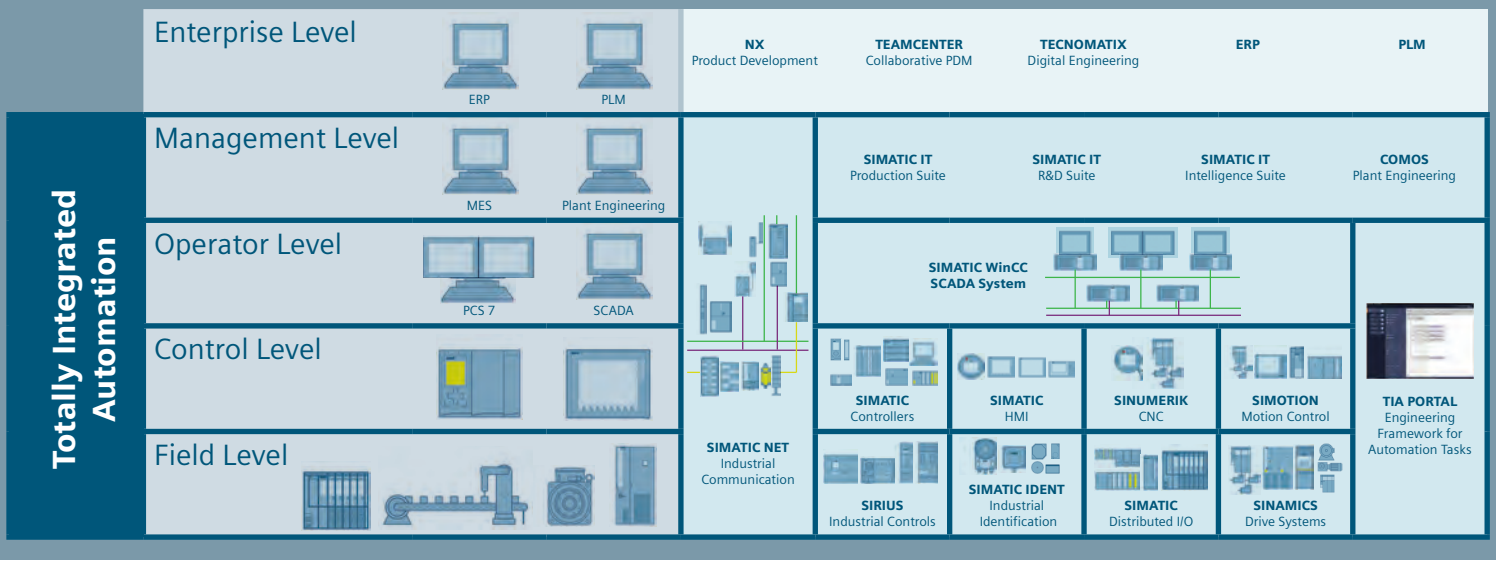
Products to coexist with your current system

Easy-to-configure, compatible components to enhance your system performance

For manufacturers that want to upgrade individual products, Siemens offers a comprehensive, competitively priced automation portfolio that can be used in your existing system to enhance performance, offering:

- Easy integration with existing assets
- Resolution of maturity/obsolescence issues by replacing legacy components with state-of-the-art technology and innovative features
- Easy-to-configure hardware and software
- Innovative features to support flexibility and competitiveness
- Flexibility to support various network protocols, including PROFINET and EtherNet/IP

Siemens Product	Select "Best-in-Class" Features
Controllers usa.siemens.com/plc	• Cost-effective controllers for all performance levels ranging from simple to complex applications • Scalable offering ensures portability of programs throughout the full range of controllers • Integrated Safety: Cat 4, SIL 3, PLe safety levels available in each size of the Siemens automation controllers • Integrated Security: Protection against unauthorized access and intellectual properties • Integrated Diagnostics: "No programming" diagnostics automatically displayed on all system devices: HMI, controller web server, engineering software and S7-1500 series display • Commissioning features: Integrated Trace within the controller for fault analysis • Built-in Communications: Ethernet TCP/IP (onboard all S7-1200/1500 series) for PROFINET IO communications, programming and third-party fieldbus protocols. PROFIBUS is included (either onboard or added module). • Connections to existing controllers: Options including native PROFINET, PROFIBUS, Modbus, Modbus TCP, TCP/IP and Open Ethernet protocols. Ability to share data via EtherNet/IP without any code modifications to current installed controllers.
HMI Panels usa.siemens.com/hmi-panels	• Wide portfolio including basic, comfort, key and mobile panels. Display sizes from 4 inches to 22 inches. • Automatic project backup to the HMI Memory Card for fast device replacement • High-resolution, dimmable wide-screen displays with up to maximum 16M colors • Touch/key functionality options for intuitive operation • Data-archiving storage options: Onboard, removable memory card; connected USB drive; or remote server locations. • Remote connection ability via integrated web server • Remote-control options via VNC connections • Interfaces available for PROFIBUS/MPI, PROFINET/Ethernet, USB host and USB client • Extensive integrated list of third-party communications drivers
Drives usa.siemens.com/drives	• AC and DC drives scalable for all applications • Highly efficient and easy to implement • Integrated safety functions built-in • Multiple network compatibility including PROFINET and EtherNet/IP



From the field level through to the enterprise level, Siemens can provide the solution!

Siemens Product	Select "Best-in-Class" Features
Industrial Networking Infrastructure usa.siemens.com/industrial-communication	• Wide portfolio range of product, from simple plant-floor switches to enterprise-level devices • Different physical medias, from electrical to fiber optic, including media conversions onboard • Easy configuration setup through web-based management • Security-enhanced products for plant/machine network separation for outside, including VPN tunnel access. Fast replacement abilities due to configurations stored in memory cards integrated in the devices. • Wireless offering for in-cabinet, indoor and outdoor applications • Built-in EtherNet/IP required functions for enhanced performance
I/O Systems usa.siemens.com/io	• Wide portfolio range for in control cabinets, at the machine and in hazardous areas • Multifunctional, modular and precisely scalable systems for distributed automation • Space requirement reduced by up to 50% vs. competitive offerings • Rapid wiring installation without tools for push-in terminals • Fast reaction time for increased system throughput for faster production lines • Integrated motor starter for reversing/non-reversing applications up to 10 hp • Fieldbus connections include PROFINET, PROFIBUS, EtherNet/IP and DeviceNet • For third-party connectivity, predefined add-on instructions and hardware diagnostics
Industrial PCs usa.siemens.com/ipc	• Wide portfolio range from plant-floor box PC to enterprise rack-mount offerings • Industrial hardened internal components for high quality in production environments • Intuitive designs including solid-state, fanless embedded operating systems • Long-term availability and compatibility ensures optimal software performance • Extensive range of HMI monitors including Ethernet-based and Thin Client technologies
SCADA usa.siemens.com/hmi-software	• Scalability: Easily expandable for modernization of plants • Efficiency: Shorten time-to-market, minimize downtime, increase productivity, lower costs • Innovative web and multi-touch solutions: Relevant and easy access to complex or large sets of data • Integrated scalability, from the single-user to the client/server to thin client • Meet complex requirements easily; openness and integration capability for: connectivity to IT systems; integration of third-party controllers and other field devices via native driver sets and standard technologies and software tools
Power Supplies usa.siemens.com/power-supplies	• High efficiencies reduce energy costs and temperature dissipation in the cabinet • Slim design in single-phase and three-phase units to save space within a cabinet • Comprehensive certifications for universal use in applications, worldwide • Innovative power security add-ons to minimize downtimes and protect against power failures and short circuits • Ethernet-enabled power supply system for comprehensive diagnostics/maintenance visibility
Controls Products usa.siemens.com/controls	• Quick assembly, reduced wiring and space-saving panel design • Integrated communication offers connectivity of SIRIUS controls into your automation system, providing control, monitoring and diagnostic information • Wide portfolio range, from push buttons to motor-protection devices

The technical data presented in this document is based on an actual case or on as-designed parameters, and therefore should not be relied upon for any specific application and does not constitute a performance guarantee for any projects. Actual results are dependent on variable conditions. Accordingly, Siemens does not make representations, warranties, or assurances as to the accuracy, currency or completeness of the content contained herein. If requested, we will provide specific technical data or specifications with respect to any customer's particular applications. Our company is constantly involved in engineering and development. For that reason, we reserve the right to modify, at any time, the technology and product specifications contained herein.

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usa.siemens.com/modernize

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Contact Siemens today for a free consultation!

Locate a Siemens Migration Partner near you by calling 1-888-454-4704 or visiting the web:

- Siemens Sales Representative:
  www.usa.siemens.com/saleslocator
- Siemens Distributor:
  www.usa.siemens.com/distributorlocator
- Siemens Solution Partner:
  www.usa.siemens.com/solutionpartnerlocator