

**SIEMENS**

Technical Article

Toward the digital factory

Modernization, not migration, is the way to go

Most visitors to Amberg, Germany, a quaint Bavarian borough founded in 1034, don't know that an industrial revolution – Industry 4.0, otherwise known as the Digital Enterprise or Smart Manufacturing – is going on south of town. From a clean, well-lit factory there, more than 12 million control components used in plant automation are built each year, about one per second during operating hours.

Except for production setup, maintenance, and repairs, virtually nothing is done manually in this plant. Yet its management has real-time visibility into material stocks,

work-in-progress, and inventories of finished goods. From start to finish, production is truly a data-driven, Digital Enterprise – what many also call Smart Manufacturing. Data is shared across all levels, from the factory floor to enterprise resource planning (ERP) and product lifecycle management (PLM).

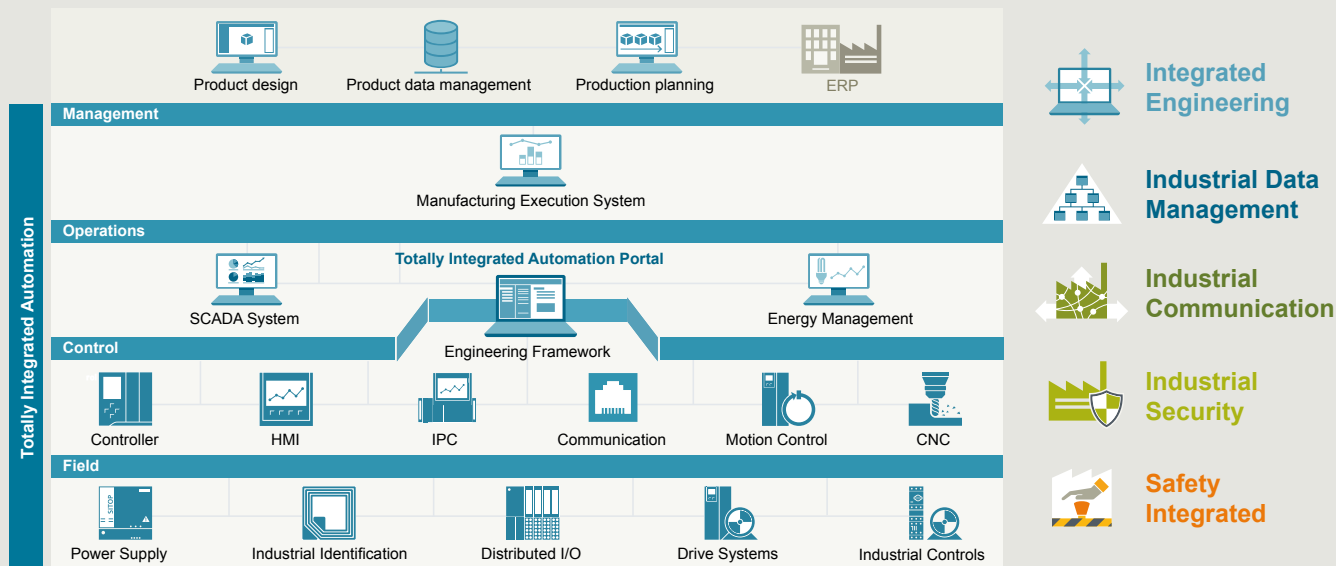
Not surprisingly, Siemens owns the factory, operated by its aptly named Digital Factory division. The plant produces SIMATIC automation components that ship worldwide to thousands of Siemens manufacturing customers. As they retire obsolete capital assets in their factories that

are costing more and more to operate, they are choosing to deploy advanced technologies in becoming Digital Enterprises fully engaged in the Industry 4.0/Smart Manufacturing revolution.

North American factories and OEMs choose to modernize, not migrate

In North America, more manufacturers than ever are choosing to break with the status quo and fully modernize their plant operations. After careful evaluation, they're installing the most advanced automation technology available. Regardless of the legacy PLCs used, they do not see the need to stay with their legacy vendors. OEMs are doing the same with the machines they build.

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The portfolio for the Digital Enterprise with efficient interoperability of all automation components

They realize that if they must still invest money, time, and effort into migrating to the next milestone in their PLC supplier's portfolio roadmap, they owe it to all their stakeholders – especially customers and investors – to consider highly integrated, alternative modernization solutions in lieu of Rockwell or other PLC vendors falling behind in the technology race.

If not, they might miss out on ways to lower costs much more, get to market much faster, and achieve much greater operational visibility, agility, and reliability than if they stuck with their legacy suppliers. Plus, their investment costs and risks of disruption are likely no more, and possibly less.

Digital Factory front runner: Siemens Totally Integrated Automation

Increasingly, North American manufacturers and OEMs are turning to extremely sophisticated yet modular, plug-and-play components from the **Siemens Totally Integrated Automation (TIA) portfolio** and programmed with the **TIA Portal**, its point-and-click engineering framework. Both support an open-systems architecture that covers

the entire production process with shared foundational characteristics: *global standards; consistent data management; and uniform hardware and software interfaces.*

The Siemens TIA portfolio includes the latest SIMATIC controllers, like the S7-1500 PLC, plus advanced I/O, HMI panels, communications, and other components. It's all manufacturers and OEMs need to achieve a Digital Enterprise that spans the entire product lifecycle – from initial product design to full production planning, engineering, execution, and services. Together, the TIA Portal and portfolio gives them one platform for all of their production processes:

- Integrated Engineering
- Integrated System Diagnostics
- Industrial Data Management
- Industrial Communication
- Industrial Security
- Safety Integrated
- Drive Integrated

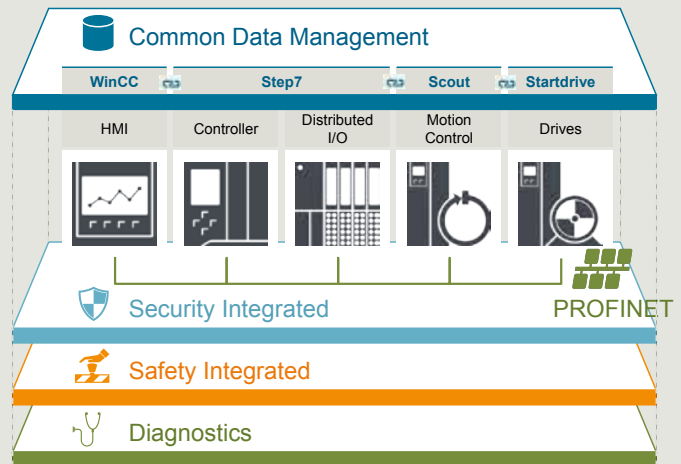
Efficient automation starts with efficient engineering

The fully integrated Siemens TIA approach to Industry 4.0 modernization can cut engineering time by as much as 30 percent – and for many customers, even more. For example, the TIA Portal provides a common engineering framework to program a complete production system, including multiple controllers, HMIs, networks, and other components and subsystems. Easy-to-use, intuitive system functions, such as implementation wizards and drag and drop between editors, provides faster engineering. In addition, a common tag database helps reduce errors, which can derail aggressive deployment schedules.

To facilitate the standardization of company code, the TIA Portal supports the concept of code libraries. Users can build their own libraries of specialized functions of proven software logic, hardware layout and property assignment, HMI screen designs, symbolic tag definitions, all the way to complete running project. This makes sharing and updating of companies' programming – often key intellectual property – simple, easy, and error-free.

Totally Integrated Automation Portal

- + **One common framework**
- + **Unique and consistent user interface concept**
- + **Common and centralized services**



Integrated Engineering with TIA Portal saves significant engineering time



Modernization made easy

Across North America, new Siemens TIA customers are using the Siemens **Migration Studio** to easily and quickly convert their code. It's a powerful software tool that first translates legacy data files and tags, logic files, program files, tasks, and routines. It then exports it all to the TIA Portal where they can be tweaked, if necessary, and re-purposed for use with PLC, I/O, HMI, communications, and other components from the TIA portfolio.

Proven in thousands of deployments worldwide

Around the world, thousands of Siemens TIA customers have used these advanced technology tools to dramatically cut production costs, operating expenses, and time-to-market. At the same time, they've gained more agility and flexibility to respond to new market opportunities. This has helped them become more competitive, too. Here are just some

of the ways, the Siemens TIA Portal and portfolio are helping them to all this, boosting their returns on investment much higher than had they stayed with their legacy PLC suppliers:

- Improved engineering efficiency for lower design costs
- Less downtime via integrated diagnostic functions
- More production flexibility with integrated communication tools
- Enhanced plant and network security through integrated security functions
- Better safety with protective features for personnel, machinery, and the environment
- Higher data quality with a single, streamlined database
- Streamlined access to data for smarter decisions
- Simplified implementation of automation solutions with global standards
- Greater overall performance with interoperable, system-tested components

Need proof?

Check out the many [Siemens TIA success stories](#) from across North America and around the world. Here's a [recent modernization story](#) from one of North America's largest beverage companies that chose to modernize its bottling plants with a Siemens TIA platform, leaving Rockwell behind. For more information and a no-obligation consultation, contact your local Siemens Solution Partner or Siemens representative today.

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