Proficy Software
A powerful production solution that delivers results
# Introduction

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Transforming your business for a sustainable advantage

Every day, you face real challenges in your operations that can dramatically impact the overall performance of your business—whether it’s a single site or an extended enterprise. Customer demands, disparate processes and systems, regulatory standards and a host of other issues all add complexity to your operations on a daily basis.

Achieving a sustainable advantage in today’s competitive marketplace means having to take the next steps toward transforming your business. Your ability to drive operator effectiveness, access the right information at the right time, control rising costs and operate at the highest levels of quality and productivity is no longer optional—it is required for success.

For businesses in infrastructure industries such as power, water, and oil and gas—or in manufacturing such as those in healthcare, consumer packaged goods and automotive—there are important decisions to address on your journey toward transformation:

- How can I make my plant or operations more efficient and productive?
- Is there one solution set that can work with my existing infrastructure to resolve my business challenges?
- Can the solution be scaled to cover my entire enterprise to establish standards and operational best practices?
- Would I be able to support my internal and external customers globally through the solution?
- Which company has a solution that can help me achieve my goals and continue supporting me through my ventures?
Proficy Software provides an industrial Service Oriented Architecture (SOA) platform and enables you to solve production challenges with improved interoperability and composite applications that leverage a cross-system, real-time data and services bus and repository. You can consolidate and simplify systems, lower operating costs, respond more quickly to changing needs and ease training.

**Proficy: Better, Faster and More Cost Effective Results**

GE Intelligent Platforms understands the challenges you face, and we can help you manage the complexities of your operations so you can focus on delivering results. Combining decades of technology expertise and domain experience, we offer a suite of proven, commercial-off-the-shelf software solutions called Proficy—designed to help you solve your greatest operations challenges.

With Proficy, you can transform your operations and position your business for a competitive advantage that sustains over time. From control and optimization to lean production execution and enterprise integration, we offer the depth and breadth of capabilities that fit your business needs and deliver better, faster and more cost-effective results:

- Improved quality and consistency of products
- Increased compliance with regulatory standards
- Increased efficiency through higher productivity and lower costs
- Decreased time-to-value
- Decreased investment
- Decreased risk and costs

**Critical Success Factors**

**Interoperability to protect existing investments**

You need a solution that works within your unique production environment, embracing your current systems and infrastructure and extending them with value-added solutions and capabilities layered right on top. Built on an open and layered philosophy, Proficy integrates seamlessly with your existing infrastructure and resources to help you leverage your existing investments—translating into real value.

**Modularity and scalability**

Whether you have a single objective or multiple goals, it’s essential to have the ability to choose the right applications that meet your business needs—to start small and grow big. Proficy can expand the size and footprint of your systems, adding capabilities on your timetable, to provide strong stand-alone applications as well as powerful, tightly integrated modules.

**Reliability and visibility of information**

Access to accurate, timely production and process data is critical. Proficy quickly integrates information from across your business so you can gather, correlate and interpret your critical business intelligence efficiently. It also helps you trace process and product data, providing you with an accountable and up-to-date status of your operations at any time.

**Security**

Proficy helps manage security governance and security

**Powerful Genealogy for Increased Visibility**

Proficy integrates all your data and traces the complex genealogies of batches, continuous processes, sub-assemblies, components or by-products, so you know the origin and destination of all incoming materials and outgoing finished goods. The result: improved quality, yield and accountability.
With GE Intelligent Platforms, you have the tools and practices to properly adopt, enhance, support and evolve your systems over time. We'll help you apply the latest technologies and processes using our proven methodologies, to help manage the lifecycle of your systems and ensure your success.

Proficy is designed to be an asset to both the plant floor and the executive offices—optimizing and integrating site-to-enterprise operations.
Combining technology and industry domain expertise

We offer powerful technology expertise and unparalleled domain experience across various industries—leveraging proven methodologies and best practices—to deliver leading-edge solutions designed to meet your mission-critical goals. We understand what it takes to transform your operations, and we are committed to turn your vision into reality through real results.

The strength of GE

In addition, you gain many advantages from working with a GE company, including the experience and security of a mature, stable and respected partner. You have access to our global organization, which means you can tap into a depth and breadth of comprehensive resources. And you can count on us to provide the most innovative, technologically advanced solutions to help you get ahead.

Partnering with an Industry Leader for Long-Term Growth

You need a partner who understands your business and will work with you to offer the most effective solutions that meet your needs—one with a global reach and a local touch. You want a partner who can drive commonality and consistency in your operations, large or small, and far or near. And, you need a partner with a vision for the future that’s grounded in proven success. That’s why GE Intelligent Platforms is the right choice.

Your business. Our expertise.

GE Intelligent Platforms understands the challenges you’re facing, and we leverage our extensive domain expertise, and that of our business partners, to define and drive real solutions to real problems. You can tap into our many advantages:

- The vast resources of a large global supplier; the responsiveness and customer focus of a small company
- A comprehensive global network of support, available around the globe, around the corner, and around the clock
- Extensive experience solving problems across various industries
- A company that is financially secure with a clear migration strategy for your current products
With GE Proficy software, I can create data diagrams in the most diverse formats at the touch of a button, and I immediately notice when anything gets out of control and can react immediately.

Uwe Rosenski
Head of the Electrical Engineering Department, Stockmeyer GmbH

“We chose GE for complying with all commercial proposal requirements [and providing] technology knowledge, besides being the best option at integrating hardware and software available in the market.”

Martin Siegenthaler
Process Automation & System Support, Blaser Swisslube AG

“Using GE Proficy software has enabled us to demonstrably increase productivity and significantly improve the process quality. In addition, the software facilitates the daily work of our staff.”

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**PROFICY DELIVERS RESULTS**

- **10%** increase in OEE, Major Chewing Gum Manufacturer
- **80%** decrease in integration costs, Nissan North America
- **$4,000,000** cost savings in one year, Mohawk Fine Papers
- **45%** reduction in energy costs, Blaser Swisslube
In an increasingly competitive marketplace, the ability to truly understand and control your operations is critical for success. You need access to accurate, timely data to make informed decisions in real time. And you need the power and security to precisely monitor and control every aspect of your process as well as your equipment and resources.

With our powerful solutions, you can visualize, control, analyze and optimize production data across your operations—resulting in enhanced decision making, faster time-to-market, improved productivity and reduced costs.
As businesses move away from an isolated silo approach to one that is integrated and collaborative, our visualization and control solutions leverage the latest technologies to connect the data you need across multiple, interrelated systems and departments. As a result, operators, supervisors, engineering, maintenance, quality and business personnel can quickly respond to accurate, comprehensive and enterprise-wide information.
Today’s businesses have a more collaborative approach toward their operations, driving them to leverage an integrated view of their automation solutions.
A market-leading supervisory monitoring and control solution that leverages advanced technologies, Proficy HMI/SCADA - iFIX provides a window into your total operations cycle—enabling faster, better business decisions for high performance.

**Key Technical Benefits**

- Flexibility of connecting and presenting data
- Scalability from isolated sensor to company-wide integration
- Reliable information analysis
- Real-time data management
- Adherence to compliance standards

Proficy HMI/SCADA - iFIX is a flexible, integrated solution that provides superior process visualization, data acquisition, analytics and supervisory control of your operations. It offers a robust SCADA engine, rich set of connectivity options, open architecture and highly scalable and distributed networking model.

Used in a variety of applications across diverse industries, iFIX is ideally suited for applications as simple as typical HMI applications such as manual data entry and validation to very complex SCADA applications like batching, filtration and distributed alarm management. It also complies with industry standards—making it ideal as part of more IT-focused operations management and MES systems.

**Open, Flexible and Scalable Architecture**

Distributed Client-Server Architecture – Isolated to Integrated. iFIX can be configured from the machine and remote I/O level to the enterprise and advanced analytical layer. Its distributed client/server architecture enables flexible, scalable and powerful visualization for your plant or process.
iFIX is known for its robust SCADA engine that enables simple or complex applications to help you precisely monitor, control and visualize every aspect of your process. iFIX also has an extremely flexible architecture that provides the power to meet your current application needs while delivering scalability for future growth.

**you to spread applications across your operations, either geographically or across various application domains.**

**Thin Client Capability.** iFIX leverages Microsoft® Terminal Services and/or Citrix-based services either through operation on a SCADA node or as a separate Terminal Server. You can easily manage your users and terminal services session with iFIX’s Profile Manager, a powerful configuration and management tool.

**Native and OPC Connectivity.** With a rich set of over 500 and a growing list of I/O drivers, iFIX enables you to connect to a wide range of hardware. It also supports different communication standards like Serial, TCP/IP, leased lines/modems from a single SCADA server. Its native I/O drivers and OPC servers support various performance-enhancing tools and provide support for driver failover across multiple communication channels to ensure seamless integration.

**iFIX Embedded.** iFIX is also available for Windows Embedded XP—enabling you to develop your application once and deploy it across a wide variety of devices.

**Web Client Capability.** iFIX WebSpace is an easy-to-use, full-featured web client that enables full control and visualization capabilities over your company intranet or secure internet without the need to alter the iFIX application.

iFIX can handle large numbers of I/Os, alarms and client nodes. Its built-in mathematical and logic processing capability can help you process large amounts of data; iFIX’s SCADA servers can serve the data to as many as 200 thick clients at the same time.
iFIX offers an extremely reliable ActiveX® container based on Secure Containment technology. Its GUI container has been specifically designed for high reliability and offers technology that can capture failures of third-party ActiveX controls and scripting without crashing the container environment.

**RELIABLE AND SECURE**

**Advanced Failover - Database Synchronization and Alarm Synchronization.** iFIX SCADA servers support replication and failover of database and alarms between the primary and backup SCADA servers—ensuring that you have high availability and continuous control. Every aspect of the iFIX database is replicated, including adding/deleting tags, run time modifications, alarm generation, acknowledgement and database storage. All of the E-Signature configuration and audit trails can also be replicated.

**Secure Networking – Network Encryption and Controlled Topology.** To protect your data assets, iFIX offers a high degree of network security with a proprietary set of communications, a layer of network encryption and the ability to explicitly define communications with remote nodes. In addition to enabling communications with any requesting node, iFIX offers a communication table for defining nodes that are allowed to communicate.

**Integrated Change Management.** iFIX tightly integrates with our Proficy Change Management software to provide you with additional security and disaster recovery capability. You can report differences between databases, graphics, graphic scripts, dynamos, global variables, security configuration and other important system files; you can also track audit trails of system changes in real time.

**DATA ANALYSIS, MANAGEMENT AND PRESENTATION**

**Flexible Charting and Trending.** iFIX provides flexible options with support for real time, historical, SPC, histogram and logarithmic charts—enabling you to customize the data. Within each chart type, iFIX provides options for arranging data through several plotting methods, different legend selections, exporting options and auto-scaling for best-fit charts.

**iFIX’s distributed alarm management allows you to view, acknowledge and notify personnel in their respective functional areas, thus reducing alarm clutter.**

With Proficy Change Management, you can easily compare current versions with previous versions to ensure the integrity of your information.
Advanced and Distributed Alarm and Event Management.
iFIX offers you maximum flexibility in configuring alarms such as:

- Distributed alarm management – You can divide your solution into functional areas and distribute alarms across these areas.

- Advanced alarm management – You have the flexibility to define alarm delays, alarm inhibit factors, alarm suspension factors and re-alarming time. iFIX’s alarm statistics and counters provide critical insights into the alarm and operator behavior.

- Store and forward capabilities – You can store and forward alarms to a relational database or Proficy Historian through the OPC Foundation certified OPC A&E Server, providing the ability to access alarms and events through simple SQL queries.

Whether you’re implementing a single, stand-alone HMI or a highly complex, multi-node, multi-site SCADA system, iFIX offers the functionality to help you quickly develop an application of any type and size.

You can customize and arrange data to view trends and other key information for enhanced decision making.
With iFIX, you have two tightly integrated storage options: Proficy Historian helps you address the need for more demanding node-based applications and more centralized data logging. iFIX supports configuration of Historian through a single environment, which allows you to quickly set up your applications. Classic Historian manages the typical data logging tasks of a small application.

Electronic signatures. You can easily configure e-Signatures, which are part of the iFIX core, while creating the tag database. E-Signatures work together with iFIX’s Alarm & Event engine to record runtime changes made to the system and create an audit trail to help you meet regulatory compliance standards such as 21 CFR Part 11 and NERC.

**EASY CONFIGURATION FOR DEVELOPMENT PRODUCTIVITY**

- **Prebuilt Dynamo Objects, Efficient Dynamo Management and Dynamo Toolkit.** iFIX offers over 500 prebuilt dynamos from basic lights and gauges to ISA symbols and equipment dynamos. iFIX dynamos are objects that can be versioned and named, and they follow the master-instance linkage—automatically replicating when changes are made to the master through the Dynamo Updater toolbar. iFIX’s Dynamo Toolkit enables you to build custom dynamos, which can be stored as Dynamo sets and will follow the same master-instance linkage.

- **VisiconX Objects.** You can connect to any relational database by simple configuration of wizards. You can build SQL queries using the VisiconX objects to access simple data from a single database or combine multiple queries to access complex data from various sources.

**FLEXIBILITY TO CUSTOMIZE**

- **VBA – Scripting to Match Today’s Demands.** iFIX includes a powerful and comprehensive scripting language, Microsoft® Visual Basic for Applications (VBA). In addition, the implementation of VBA in iFIX is pervasive in the GUI environment.

Discovery and auto-configuration (DAC) tools allow you to discover PLC configurations, which in turn can be used to create the iFIX Database, and configure the I/O driver and the Historian database. DAC also supports OPC drivers and can be used to discover OPC data sources.

It’s easy to configure e-Signatures while configuring your iFIX database.
Powerful APIs for Data Access and Automated Development. You can easily customize iFIX with various toolkits that enable system integrators and OEMs to apply iFIX to virtually any application:

- iFIX Integration Toolkit—designed to give you APIs for programming and data interfaces
- System Extension Toolkit for network access
- Database Dynamo Toolkit enables you to develop custom function blocks
- Biometric Toolkit—to customize the iFIX e-Signature dialogs for biometric interfaces.

iFIX drives effective utility management and has proven to be a reliable and innovative solution for process visualization, alarm management, and integration of SCADA with business systems — empowering users with better analytics. This results in operational excellence for our clients, which aligns with our business vision.

Bill Serjeantson
VP of SCADA and Telecommunications Services, Westin Engineering

From runtime actions to special development tools, VBA enables you to customize iFIX beyond all other products.

Vertical Solutions Packs

Vertical Solutions Packs for iFIX are a packaged set of industry-specific components designed to reduce costs by accelerating, enhancing and standardizing your applications.

**iPower**

Specifically developed functionality for transmission, distribution or substation automation SCADA. Major components:

- Automatic configuration of dynamos and database
- Powerful menu navigation customizable to your application
- Pan, zoom and de-clutter

**Water Solutions Pack**

Specifically developed for water and/or wastewater HMI/SCADA. Major components:

- 651 Water/Wastewater Dynamos
- Advanced pump, valve and tank objects
- PLC5/SLC 500 DAC & Productivity Pack
- E-Signature option

**OEM Solutions Pack**

A compilation of pre-configured out-of-the-box graphic objects and screens tailored to machine-level applications. Major components:

- Out-of-the-box screens, including OMAC-based templates
- Integrated WorkSpace configuration toolbar
- Machine-ready Dynamos
- Touch screen trend and input screens
Proficy HMI/SCADA – CIMPLICITY

Maximizing the power of your information, Proficy HMI/SCADA - CIMPLICITY helps you visualize plant floor operations, perform supervisory automation and deliver reliable production data to higher-level analytic applications.

**Key Technical Benefits**

- Easy application development and deployment
- Seamless scalability with a true client/server architecture
- Tight integration with Proficy software suite
- Open system design to protect your current investments
- Change-based execution architecture

CIMPLICITY is a client/server based HMI/SCADA solution that collects and shares real-time and historical data across all business levels and provides actionable visibility to monitor and control plant processes, equipment and resources.

Its process visualization, data acquisition and supervisory control provide a solid and reliable data foundation for digitized operations management.

CIMPLICITY provides operators and engineers with the power and security to precisely monitor and control every aspect of their manufacturing environment, equipment and resources. The result is a faster response to equipment operation issues—enabling reduced waste, improved quality, faster time-to-market and increased profitability.

**Features and Functions**

**Flexibility and Scalability**

CIMPLICITY is highly flexible and can be applied as a small solution or can be architected to provide a high-performance enterprise solution.

**→ The Proficy HMI/SCADA – CIMPLICITY Viewer** is the standard CIMPLICITY client. Serving as a traditional PC-based client, it is installed locally and accesses data from a local or remote server. Applications you can run include real-time graphics, trending, alarming and reporting. A CIMPLICITY Development Viewer option allows users to perform development online, including building graphics and adding points to local or distributed servers.

**→ CIMPLICITY Advanced Viewer** is an option on the CIMPLICITY Viewer that offers direct connection to OPC data sources—allowing for point solutions and the ability to visualize OPC data without configuring the server.

**→ Proficy HMI/SCADA – CIMPLICITY GlobalView** is a highly scalable client option that delivers the power of CIMPLICITY to remote clients—enabling real-time monitoring, data analysis and plant floor control from within a web browser. Its unique Relay Server feature balances the client load across multiple GlobalView servers, enabling support for hundreds of simultaneous users within the plant or across the globe.
**Proficy HMI/SCADA – CIMPLICITY ThinView** is a CIMPLICITY client solution that allows you to display CIMPLICITY screens on a PDA or smart phone device, providing the ultimate in remote viewing capability.

**Proficy HMI/SCADA – CIMPLICITY Terminal Server Viewer** is a thin client and web solution that uses the Microsoft Terminal Server technology and provides the capabilities of a standard CIMPLICITY Viewer—providing users with complete access to their screens and the CIMPLICITY Server with full use of CIMPLICITY Viewer technology, ActiveX controls and third-party content.

**Development Productivity – Reduced Time to Solution** CIMPLICITY comes with a powerful set of development tools and capabilities to help you build your application quickly and easily.

**Application Wizard** guides you through the steps of getting started with your new application so you don’t need to start with a blank page, saving you hours of setup time.

**Screen Navigation** helps operators easily locate the correct screens. Using a drag-and-drop interface, you can create a hierarchical menu that appears in your tool bar, and colors and fonts can be configured so that screens can follow themes.

CIMPLICITY is a highly scalable solution that can run in a simple or redundant architecture with a wide variety of viewer or client options to offer flexibility when architecting your solution, providing you with more control over how and where you view your data.

"Dell needs a measure of closed-loop control, but the business logic is too complex to reside completely within the SCADA layer. CIMPLICITY had the components to meet the challenge."

Richard Brown
Development Manager, Dell Global Manufacturing, Finance, and Supply Chain
Powerful APIs allow you to develop your own direct interfaces with the data and alarm information collected, managed, and maintained by CIMPLICITY. This design provides seamless integration of custom or third-party applications.

→ **Scalable Screens** allow you to modify dimensions of the CIMPLICITY screens without redrawing graphics. CIMView will scale the screens for various devices, so you don’t need to develop new screens for different display sizes.

→ **Symbols and Objects Library** features an extensive library of symbols, along with the powerful SmartObjects feature that allows for easy application creation and maintenance. With SmartObjects, you can create your own custom objects and easily drag and drop them into the screens.

→ **Powerful Object Model** provides an external interface to CIMEdit and CIMView to extend the capabilities of the system. You can drive behavior through a powerful API to integrate with ERP and other external systems.

→ **Scripting** extends CIMPLICITY capabilities and tailors the individual applications according to specific needs. Scripts can be executed based on process events such as changing the value of a point, a specific alarm state or can be based on time of day.

→ **Linked Objects** allow you to create master objects as templates and have those objects created and used identically on multiple screens. The objects can contain graphics and scripts and are linked to the master object—automatically replicating when changes are made to the master.

→ **System Points** provide pre-defined information for your applications such as project and computer information, date and time, and alarms.

→ **Dynamic Measurement Systems** enable you to develop projects and dynamically switch between different measurement systems with a simple point and click.

→ **Dynamic Screen Localization** enables a CIMPLICITY application to be adapted to accommodate multiple users who speak different languages.

→ **Alarm Viewer** is an ActiveX object that can be embedded into screens to create a single, seamless interface for your process.

**Ease of Commissioning**

Once your project is developed, the next task is going live with it. CIMPLICITY offers tools for deploying and troubleshooting during the critical commissioning phase.
→ **Deployment Server**
eliminates the need to manually copy the application files to the viewers, as updated application files can be placed in the application server, and the viewers will automatically detect changes and update the files without user interaction. Running viewers will have the option to update live displays automatically or ask the operator when to update.

→ **Point Control Panel**
allows you to verify the data collection and alarm configuration of your system without configuring a single graphics screen.

→ **Point Cross Reference**
enables you to easily locate where various point data is being used to facilitate troubleshooting your application.

→ **Operational Productivity and Process Improvement**

→ **Database Logger**
provides the ability to choose how and where you want to store your critical and valuable production and process information. CIMPLICITY supports logging to Proficy Historian, Proficy SQL, Microsoft SQL and Oracle.

→ **Trending**
allows you to analyze data collected by the CIMPLICITY system or other third-party software packages. You can compare current trends with historical trends to quickly identify and correct process malfunctions. Quick-trends provide a fast, easy way to select any point and trend it with no configuration.

→ **Integrated Historian (100 Tags Included)**
offers a powerful combination with Proficy Historian and the included Historian license. CIMPLICITY enables you to revolutionize your application with true information—not just data—for enhanced decision making.

CIMPLICITY provides superior reliability and availability for the most demanding industrial applications—maximizing uptime and continuous control for increased productivity and profitability.
Digital Graphical Replay (DGR) enables you to replay and analyze past events in slow motion, real time or up to ten times the speed—enabling you to identify and troubleshoot issues and prevent repeat occurrences. DGR provides the ability to replay trending data as well, a powerful feature for more intelligent decision making and accelerated issue resolution with minimal development effort.

Statistical Process Control (SPC) provides tools for data measurement and analysis, as well as process improvements and quality control. Collect data from sensors or manual input, receive alerts for problem conditions (i.e., out of control) and use analysis tools to pinpoint the problem.

Reliability, High Availability and Performance

Powerful Data Collection enables you to connect to hundreds of other systems and devices. Through native drivers and standard communication interfaces such as OPC, you can collect data from virtually any third-party device.

Change-Based Execution Architecture enables you to acquire data from field devices (either polled or via unsolicited communications), perform database math and logic, archive data, network data and run scripts—all based on change—unlike other products that offer a scanned execution environment.

CIMPLICITY Host Redundancy provides for the failover from a primary computer to a secondary computer in case the primary computer fails, supporting redundancy at several levels to minimize the effect of any failure.

Dynamic Configuration allows you to make changes, modifications and updates to running CIMPLICITY projects without shutting down.

Change Management increases the security of your system, provides you with revision control of your projects and offers powerful disaster recovery capabilities.

Action Calendar gives you the power to create, maintain and execute a calendar schedule of manufacturing events and corresponding actions. This allows controlling lights, heat and equipment based on a pre-defined schedule.

System Sentry provides real-time information about the health of the computers and the CIMPLICITY application within a network—immediately alerting you to problem conditions and providing tools to pinpoint the cause.
Proficy Change Management

Helping you manage your automation systems and protect your software and engineering investments, Proficy Change Management provides you with more control for minimized risk.

**Key Technical Benefits**
- Client/Server architecture
- Easy deployment
- Customizable HTML interface
- Tight integration with GE Proficy products
- Comprehensive third-party device support

Proficy Change Management is a client/server system that offers detailed tracking of your operations to help you meet essential business goals. It provides value-added information for engineers, maintenance, IT and compliance personnel to help manage operational, regulatory and quality issues with increased efficiency and effectiveness.

Change Management allows you to keep your plant’s critical files, programs and applications in a central, secure location—ensuring easy accessibility and keeping track of all previous versions of those assets. The server is also the core storage unit for the information, configuration and product modules contained within the system.

**Features and Functions**

**Effective Management and Protection**
With powerful capabilities—including security, version control, audit trails, central storage and automated backup and recovery—Proficy Change Management ensures that your automation system continues running safely and efficiently through its lifecycle.

**Version Control** ensures that only one person at a time is making changes to the system and archives the versions once those changes are made. You can also revert to previous versions; for example, if unauthorized changes are made, you can easily restore a previous version to keep your operation running.

With increasing regulatory and security requirements, controlling changes to your software and data assets is becoming ever more critical. Proficy Change Management provides an automated way to manage your systems and protect your technology investments while meeting crucial regulatory standards.
In the Operations and Maintenance phase, Change Management stores the latest information and backups in a central location with change history and audit records to help maintenance personnel troubleshoot issues and keep your system running efficiently.

In the Assess phase, Change Management provides the ability to manage your project documents, providing traceability on your design decisions.

In the Qualify and Deployment phase, as a system is being installed, Change Management helps capture changes and ensures careful control of modifications—recording details for future recall.

In the Design and Develop phase, Change Management provides version control to ensure that work is being done on the current plan and that only one person at a time is making changes—saving time and avoiding duplication or even destruction of effort.

Proficy Change Management offers an automated way to assess, monitor, manage and control your automation system throughout its lifecycle—providing a free and clear flow of information to ensure that engineers, maintenance, IT and compliance personnel can access the information they need.

Change management software is a key component in enabling synchronization between all levels of the plant and plays a key role in standardization and collaborative operations management, which aids in transparency across business levels.

Craig Resnick, Research Director, ARC Advisory Group

Security allows you to monitor and control who has access to what function—reducing the number of errors that occur due to unauthorized access. It also enables you to set up a permission hierarchy by roles, which eliminates the need to establish permissions for every employee.

Audit Trails and Reports enable you to track what has been happening with programs and devices in your plant, automatically providing the “who, what, when, where and why” information of events taking place throughout your operation. An integrated report generator allows data to be sorted and filtered, and compiles reports according to need. Audit trail databases can be maintained in a variety of formats, including Microsoft® Access®, SQL or Oracle®.

Automated Scheduling, Notification and Reporting allows you to check the integrity of what is happening on a regularly scheduled basis. It automatically reviews server files and compares them to what is running—notifying management of any discrepancies through regular automated reporting. Furthermore, it helps determine root causes for future prevention.

Track versions, review changes and restore versions for a variety of GE and other popular automation software and hardware.
Electronic Signatures help you gain additional control over changes in your plant by allowing you to enforce authorization to make changes to your devices and projects. Whether you want to better meet regulatory compliance requirements such as 21 CFR Part 11, NERC, or just improve your Good Manufacturing Practice, the Electronic Signature functionality provides you with more control over what is being changed.

HTML Interface and Plant Layout allows you to customize the end-user interface to match your plant’s needs. This powerful point-and-click interface makes accessing projects and devices easy and helps you simplify the interface used by your end users, giving them access only to what they need—thus reducing errors and training.

Extensive Product Support provides access to valuable resources because Proficy Change Management is pre-configured to support a variety of commonly used software and devices used in the industrial environment, including GE, Rockwell, Schneider, Siemens and many more. It can also help you manage any file type such as documents, spreadsheets and drawings with our easy-to-use Wizard.

With the installation of change management capabilities, there are fewer failures, and recovery from failure is quicker, as the technology brings consistency to maintaining the hundreds of programs used in the operation.

“Once it saves you a couple of times, it becomes invaluable.”

Joe Gruber
Director, Process Controls,
Barry-Wehmiller Design Group
Proficy View – Machine Edition

An intuitive, machine-level HMI for machine control applications, Proficy View - Machine Edition makes it quick and easy to configure applications and helps reduce system integration efforts.

**Key Technical Benefits**

- Quick and easy configuration
- Object re-use (Toolchest)
- Integrated development environment (Control, Motion and HMI)
- Connectivity to most PLC devices via OPC communications
- Web publishing of application to standard internet browsers
- Scalability of applications from Windows® CE-based platforms to Windows NT/2000/XP platforms

Proficy View – Machine Edition offers an all-inclusive graphics configuration tool and a wide range of PLC communication drivers using OPC client/server technology, and provides connectivity support for remote monitoring and diagnostics.

**Features and Functions**

**Data Collection.** There are two ways to collect data:

- View Logging allows easy customization of user-defined logging conditions to groups. During runtime, the data is then logged to a file that can be viewed offline.
- Proficy Historian’s Collector is integrated with Proficy View, featuring store-and-forward capability and automatic reconnection to the Historian Archiver to ensure that data is never lost during a network outage.

**Visualization/Animation.** With a complete set of machine level objects, including push buttons, pilot lights, data entry, data display, gauges and message display—as well as a full set of drawing tools—it’s easy to develop user interface graphics.

**Alarming.** Integrated alarm management allows you to define, group, display, acknowledge, log and print both discrete and analog alarms. You can even notify an operator with an email if an alarm event occurs.

**Advanced Scripting.** To perform the difficult tasks required by your application, Proficy View provides Microsoft’s Visual Basic® (VB) Script language. Scripts can be developed at the application level or per graphic page; you can generate and access detailed reports documenting a project.
they can also be configured to execute periodically or conditionally. Common examples of VB Scripts are simple-to-complex process algorithms, reading and writing to a file and sending an email with a file attached that contains production data for that day.

**Web Publishing.** With the setting of a single property, Proficy View allows you to publish your application—making it available to a web browser for remote monitoring and diagnostics and remote client-based reporting.

**Toolchest.** Providing the ability to streamline your application development through the re-use of objects from one application to another, the Toolchest stores, manages and retrieves application objects; allows objects to be shared across applications and across users/PCs, and automatically updates all occurrences of an object in applications when the master version is changed.

**Multi-language support.** Proficy View delivers multi-language support that allows you to switch languages on the fly during runtime. In the development environment, you can choose to translate text strings using Machine Edition’s user-friendly grid or export the text strings and work in a spreadsheet or word processing document. The only limitation to the number of languages used by an application is the amount of memory.

Proficy View – Machine Edition offers an extensive list of communication drivers.
Providing a robust and effective plant data repository, Proficy Historian enables you to collect, archive and distribute large volumes of real-time, plant floor information at incredible speeds.

**KEY TECHNICAL BENEFITS**

- Robust redundancy for high availability
- Fast read/write performance speeds
- Built-in data collection that leverages OPC and specific built-in drivers to legacy or non-standard equipment
- High data compression
- Superior collection, storage and retrieval performance
- Enterprise-level data management
- Extensive standards-based connectivity

With the ability to read all types of process data, Proficy Historian enables true process visibility and feeds higher-level operations management systems with accurate, real-time information.

Whether you’re a small municipal facility, a global pharmaceutical company or any business that needs to capture mission-critical data, Historian can help improve your profitability and productivity.

**FEATURES AND FUNCTIONS**

- **Standard Edition Connect-and-Collect Capabilities.** The heart of Historian’s data acquisition capabilities is the collector, providing automatic data collection of configured points. Our collectors feature store-and-forward capability and automatic reconnection to the server—ensuring that data is never lost during a network outage.

- **Versatile and Simple Administration.** Historian provides both a Windows®-based and web-based administrator that have similar interfaces and operate in the same fashion—eliminating the need for additional training. Users can access and configure Historian from virtually anywhere, including over the Internet.

- **Archive Data Servers.** The archive manager administers the archive files and is completely configurable to meet the specific needs of your application. It serves as the main data retention and information conduit, providing full archive management and messaging services. It also enables online system backups without the need to disconnect clients, as is often required by other data historians. With Microsoft® Cluster Server, you can configure two historian servers in a primary-backup pair for uninterrupted access to critical production data.

Using the Proficy Historian web-based administration tool, you can perform all configuration tasks, including browsing data servers, configuring points, performing on-line backups and viewing system messages and alerts.
Interfaces. Historian provides four standard interfaces: the OLE DB Provider, Software Developers Kit (SDK), user application interface, and OPC HDA for a standards-based approach, plus many optional client tools and applications. You can easily integrate Historian with these interfaces using applications such as Microsoft® SQL Server, Business Objects™ Crystal Reports, Excel®, Proficy HMI/SCADA – iFix’s VisiconX, and others. OPC HDA offers HDA clients a way to query for data, abstracting Proficy Historian’s specific technology from the user—allowing a focus on results, not the interface.

Enterprise Edition—For Advanced Enterprise-Level Data Management

The Enterprise Edition offers all the features and functions of the Standard Edition, in addition to the following capabilities:

Alarm and Event Management. You can collect and store process data with alarms and events in a single, secure data repository. They can be collected from any OPC alarm and event server, and they are indexed with the process data tag in a Microsoft SQL Server or the bundled SQL Server Express 2008 database that does not require any additional configuration. Furthermore, with administrator tools, you can manage both the process data and alarm and event data simultaneously.

Advanced Calculations. The Calculation Collector has pre-configured but extendable business rules and calculations that allow users to manipulate the collected data, including alarm and event data, and store the calculated values in Historian.

Distributed Data Management. The Server-to-Server Collector shares all of the features of the Calculation Collector and distributes data from one Historian to another—enabling robust data distribution. You can centralize administration for all remote tags and standardize on performance and reporting metrics across multiple locations, thereby streamlining your processes and reducing variances.

Enhanced High Availability. In addition to Microsoft Cluster Server support, the Historian Enterprise version includes redundant data collectors that automatically switch to a backup collector in the event of a system failure—providing uninterrupted access and collection of plant data, regardless of network, software or hardware problems.

The benefits of Proficy have touched almost every department in the plant, as we are a data-driven company. We never would have achieved our current productivity and scrap rates without Proficy.

Lee Fortney
General Manager,
INTERMET Columbus Foundry
Delivering advanced process analysis and process understanding, Proficy Troubleshooter and Proficy Cause+ can find the hidden value in your production data—increasing quality, throughput, and yield while reducing costs and waste.

**Key Technical Benefits**

**Troubleshooter**

- “What if” scenario analyses
- Process rules extraction
- Batch fingerprinting
- Obtain causes of process/batch variation
- Benefit estimation

Proficy Troubleshooter extracts process knowledge from Proficy Historian’s raw data, and Proficy Cause+ puts that knowledge into real-time actionable information. Together, they provide you with the critical intelligence needed to improve quality and yield in your operations.

**Extract Knowledge from Your Data**

Proficy Troubleshooter provides powerful analytical tools that utilize leading-edge techniques to extract knowledge from existing historical process and manufacturing plant data. These tools help identify causes for production problems as well as opportunities for preventing these problems in the future.

Ideal for batch and discrete processes as well as continuous processes, it provides you with the capability to visualize process problems and their causes through modeling and simulating the process, using available historical plant data.

Troubleshooter enables an "Intelligent Historian" that is clearly differentiated from, and more valuable than competing historians.

**Capabilities**

- Predictive Analytics
  - What might happen?
  - How to optimize?
- Process Control & Action
  - What to do?
  - How to control?
- Process Monitoring
  - What is happening & why?
- Analytical Reporting
  - What are the problems & causes?
- Analysis
  - Why did it happen?
- Data & Reporting
  - Reliable data?
  - What happened?
- Proficy Troubleshooter
- Proficy Cause+
With a clearer understanding of the relationships between your data, you can build meaningful business cases before attempting real-time solutions and prevent problems in the future.

**PROFICY TROUBLESHOOTING WIZARDS ENABLE:**

- Guided troubleshooting steps
- Visual and automated data preparation
- Visual analysis of historical data
- Use of powerful, intuitive models and statistical charts to identify the causes of process problems using continuous/batch/discrete data
- Configuration of smart process monitoring

**TAKE ACTION ON YOUR KNOWLEDGE**

Cause+ analyzes your real-time data based on the knowledge extracted from Troubleshooter, providing real-time predictive analysis with intelligent correction. It enables an intelligent form of proactive alarming and decision support so operators can correct issues before a problem occurs.

Cause+ provides predictive analysis capabilities, which enable your team to put appropriate corrective actions in place—reducing downtime and maintenance costs and increasing your productivity.

**KEY TECHNICAL BENEFITS**

**Cause+**

- Real-time analytical engine
- Root cause identification
- Proficy Action Object definition
- Development wizard interface
- Web-based reporting of causes over user-defined periods

**FEATURES:**

- Active avoidance
- HMI/SCADA real-time interface
- Analytical engine
- Intelligent correction
- Post-alarm analysis

Leverage actionable information through knowledge extraction and prevent issues in the future through predictive analysis.
Proficy Real-Time Information Portal

Delivering information through a common web client and reporting environment, Proficy Real-Time Information Portal provides comprehensive visibility into your plant floor operations.

**Key Technical Benefits**

- Connectivity across Proficy software solutions and third-party applications
- Interactive analysis of real-time and historical data sources
- Easy web-based configuration by users without programming
- Personalized and role-based navigation
- Suitable across broad applications

By applying sophisticated trending, graphical presentation and statistical analysis to all of your online data, Proficy Real-Time Information Portal provides unique organization-wide views and insight into how your plant is operating, and how to improve it.

In addition to enhanced real-time decision support, it offers tight integration that maximizes the value of other Proficy applications, as well as connectivity to various plant floor technologies such as OPC, HMI/SCADA, quality and operations management systems and third-party databases. As a result, you have a “window” into your total operations.

**Features and Functions**

- **Historian Edition** is a powerful and flexible historian client tool that provides visualization and analysis of time-based data from historical and real-time data sources throughout your plant. Sophisticated and easy to use, Historian Edition includes applications such as process trending, monitoring and diagnostics, event and production trending, and ideal or golden batch analysis.

Proficy Portal enables you to monitor key performance indicators (KPIs) from many different plant floor sources and systems for real-time performance management.
Enterprise Edition

Proficy Real-Time Information Portal Application Framework provides the common platform for development and deployment. It offers data connectivity and a host of client functionality, available in both the Enterprise and Historian editions of the software.

Data Connectivity

Data Connectivity to real time, historical and SQL-based data sources allows you to visualize and analyze information from virtually any plant source, including PLC/DCS systems, SCADA/HMI solutions, plant-wide historians, lab systems, MES, ERP or MRP systems.

Linked Content/Hosting

Linked Content/Hosting enables you to easily pull and organize information into Portal, display it in a contextual manner and link to content from other systems and sources without leaving the application.

Natural Presentations

Natural Presentations allow you to drag and drop information directly into Portal displays to present information in the most appropriate way.

Read/Write Support

Read/Write Support enables you to write back to data sources and is available through several components, including data links, command objects and the grid.

Symbols and Substitutions

Symbols and Substitutions can be used to populate displays with different datasets at run-time—increasing productivity by providing a way to re-use displays or to set the context of a display.

Data Export and Reporting

Data Export and Reporting enables you to quickly and easily print displays and charts; reports provide a simple way to document the descriptive statistics and detailed information behind SPC analysis.

Proficy Portal’s architecture allows for remote installation of connectors to visualize information throughout your operations.
Operations Management

GE Intelligent Platforms’ Operations Management Software bridges the gap between your plant floor and business systems, combining proven MES, EMI and Quality & Compliance capabilities. When your business systems have access to real-time results, you have the information you need to intelligently drive your business forward.

With our Operations Management solutions, you can focus on delivering results through improved visibility into your performance, decreased production costs, enhanced regulatory compliance, and increased productivity and product quality.
Proficy Plant Applications

A family of powerful solutions, Proficy Plant Applications allows users to make business sense out of plant data for informed business decisions in real time.

**Key Technical Benefits**

- Open and Layered architecture
- Integrated modular applications on a common data model
- Scalable from a single machine to multiple plants
- Extensible using standard tools
- Supports a mix of different production processes

Proficy Plant Applications features a unique approach to digitizing production operations by creating a unified, easy-to-configure “virtual plant” that provides unprecedented levels of analysis, reporting and insight throughout your operations.

By digitizing your production processes, Plant Applications allows you to gain a clear and very detailed perspective of how your products are being produced.

It leverages the data being collected by any process historian and provides in-depth analysis and reporting of that information—not just by time, but by the specific events taking place throughout your operation.

Plant Applications puts the information you need at your fingertips, allowing you to make informed decisions in the plant and in the office.
Plant Applications delivers powerful analytical and reporting capabilities, tracking genealogy, quality and operating performance across a site or business.

**PLANT APPLICATIONS FAMILY OF SOLUTIONS**

**Proficy Plant Performance Modules - Plant Performance**
Manage your Production Operations to run a smooth and profitable plant, improve first time quality, reduce waste and meet compliance with end-to-end tracking and tracing capabilities.

**Proficy DataMart - Enterprise Reporting**
Benchmark KPI comparisons across your manufacturing sites and production areas, and measure productivity improvements with roll-ups and drill-downs of KPIs, data, and events.

**Proficy Maintenance Gateway - Plant Maintenance**
Align your Production and Maintenance departments to eliminate costly delays in responding to your plant’s evolving operational dynamics, resulting in healthy assets for healthy operations.

**Proficy Scheduler - Operations Planning**
Create and maintain more dynamic and effective production schedules based on your plant resources and asset capacity.

Proficy Plant Applications’ Open and Layered architecture, modular and scalable capabilities, and ability to span the spectrum of production typologies, make it the solution-of-choice for companies seeking to upgrade their production operations.

“Proficy Plant Applications enables us to effectively identify and monitor all areas of our manufacturing for inefficiencies, perform root cause analyses, compile historical data summaries, schedule reports, and control OEE.”

Jose Marrero Diaz
Latin American & Puerto Rico Region
IT Director/Team Leader, Pfizer
(Control Engineering, “Building Manufacturing Efficiency” February 2008 issue)
Proficy Plant Performance Modules

Designed to help you measure and improve your complex production processes, Proficy Plant Performance Modules provide real-time information to help you optimize your plant’s operations.

**Key Technical Benefits**

- Integrated, scalable modules
- Automatically generated, intelligent KPIs
- Powerful genealogy reporting
- Real-time modifications
- Unified, configurable plant model

Proficy Plant Performance Modules are integrated, scalable, and focused on the most critical aspects of your production to help you manage performance and deliver results. Providing clarity and visibility into your processes, these modules empower you to truly understand your performance to address competitive pressures, customer demands, corporate and regulatory requirements, and a host of other challenges that add complexity to your work in the plant every day.

**Core Modules**

- **Efficiency** – Tracking and monitoring to reduce downtime waste and improve OEE
- **Quality** – Specification management, product and process quality analysis
- **Production** – Production schedule execution and product genealogy tracking
- **Batch Analysis** – Batch trending, analysis and reporting for Batch Execution software
- **Reporting** – 50+ “ready-to-go” reports and configurable web parts

**Efficiency** enables you to monitor and control performance with a comprehensive view of factors such as OEE, equipment downtime, waste and production quantity. You can also associate each downtime event with a specific cause on a real-time basis, calculate important KPIs and create ad-hoc performance reports that can be shared throughout the organization via the web.

**Quality** allows you to capture the specifications of your ideal product run and re-create it consistently throughout your entire production—reducing product waste, scrap and over-runs and virtually eliminating quality-related product returns.

Quality allows you to capture and summarize manufacturing and quality data in the context of production events such as batch, lot, item, serial number, time period and more. You can then apply product specifications and recipes to that data and alarm against any out-of-spec conditions the moment they occur. If a batch or run is flawed, the module allows you to isolate exactly which products have been impacted to greatly reduce waste.

**Production** provides insight into how products actually flow through your operations. It is the ideal tool for creating genealogy reports as well as
making scheduling changes to reduce excess inventory.

Production seamlessly ties together plant operations by exchanging key production and status information with customers and internal business systems, including ERP, as well as between plant processes. It provides a “scoreboard” for your operators, which identifies the components of the product being produced and indicates when a particular order is scheduled for completion.

Information such as inventory, production, schedule and genealogy can then be shared across the web for a real-time look into your production process.

**Batch Analysis** presents a comprehensive picture of your batch operations in the context of your overall manufacturing facility—allowing you to increase the overall quality and consistency of products and better understand and control variation.

With our unique layered applications approach and interface to several commercially available batch execution systems, Batch Analysis is a great fit for both new and existing systems. When combined with the rest of the Plant Applications solution, additional capabilities, including genealogy tracking, quality and production, can be combined to provide a powerful and comprehensive solution that delivers results.

**Reporting** includes a report server that allows users to configure a number of web-based reports and provides a dashboard of web parts, providing key performance indicators for your processes as well as drill down analytical views for causal analysis. Like our runtime displays, our reports are multi-lingual and can be scheduled for optimal performance.

Part of the reporting solution is a powerful Microsoft Excel add-in that allows users to develop custom reports in a familiar environment. These reports can be run from Excel or imported into the main report server to be shared by everyone.

A key component of the Production module, product genealogy allows you to trace a product throughout every step of the manufacturing process and identify exactly what materials and quality characteristics it contains. This allows you to control the flow of product between equipment and manage in-process inventories in real time—enabling you to close the gap between orders and production.
Proficy DataMart

With state-of-the-art enterprise reporting, Proficy DataMart delivers enhanced Enterprise Manufacturing Intelligence within your plant and across your business.

**Key Technical Benefits**

- Enhanced reporting and analysis of Proficy Plant Applications information
- High-performance KPI roll-ups and drill-downs from data across your Plant Applications sites
- Integration of Plant Applications with existing Business Intelligence and Data Warehouse solutions
- Multiple contexts to view manufacturing operation performance
- Report builders to create better reports faster
- Extended capability to include your own data and calculations

Proficy DataMart extends the core reporting capability of Proficy Plant Applications, providing Enterprise Manufacturing Intelligence (EMI) for your existing Business Intelligence (BI) environment and further aggregating key performance indicators (KPIs) and data into important contexts across your enterprise.

DataMart enables benchmark comparisons across many manufacturing and business aspects. You can explore roll-ups and drill-downs of KPIs, data, and events, and flexibly “slice and dice” information as needed.

It also helps reduce the cost of developing and maintaining custom reports by providing an enterprise reporting platform that you can use with your existing BI tools.

**Features and Functions**

**Real-time analysis cube of Proficy software**

- Powerful ad-hoc reporting

and analysis capabilities allow users to “serve themselves” so you can spend time analyzing the information to drive operational excellence, rather than trying to get the information in the first place.

**A platform for plant and enterprise operations intelligence**

DataMart reduces the time, development and support costs of creating custom reports. It also fits within your existing reporting initiatives, supplying access to real-time, contextualized production information vital to your strategic and operational success.

Multi-server, multi-time zone, multi-language capabilities

DataMart supports a broad range of production environments around the clock by connecting to multiple Proficy sites locally, regionally and around the world.

Enhancement of existing deployment platforms

By removing the need to understand the production database schemas and leveraging your existing BI infrastructure, DataMart exposes production information to fit directly into your Data Warehouse and Enterprise Performance Management strategies.
Proficy Maintenance Gateway

Helping you drive the right maintenance strategies for optimum health of your plant assets—and your business—Proficy Maintenance Gateway provides real-time manufacturing intelligence.

**Key Technical Benefits**

- Information designed for plant maintenance personnel
- Easy administration that enables business logic to be developed on contextual plant floor information
- A single view of asset performance and maintenance history
- Write-back capability to the process control systems
- Automatic triggers and tracking of maintenance work orders

Proficy Maintenance Gateway connects your production and maintenance systems for enhanced asset reliability by mapping real-time plant floor data in context to plant or corporate maintenance systems—providing accurate production data straight off the shop floor.

You can perform maintenance when and where you need it to decrease both scheduled and unscheduled downtime, increase production readiness, eliminate unnecessary maintenance, and maintain your assets at optimal health.

**Features and Functions**

- **Easily configurable rule builder** enables rules to be developed by maintenance personnel triggered by plant floor information.

These business rules provide the actionable intelligence to be used in conjunction with maintenance systems to decrease downtime and increase plant equipment reliability.

**Enterprise Asset Management (EAM) Connectors** allow real-time, automatic updates of information directly to MAXIMO.
and SAP asset management systems, reducing the latency of time required to react to critical maintenance issues.

Maintenance status tracking integrates information such as the maintenance work order status, spare parts inventory, and failure histories contained in the plant or corporate maintenance systems through a web browser for maintenance status tracking by shop floor personnel.

Automatic meter reading removes the need for manual capture of asset run or cycle times and allows automatic updates of meter information within your EAM system.

Live feedback loop provides contextual information into your maintenance system to drive a reactive maintenance strategy, preventative maintenance strategy and predictive maintenance strategy. Its write-back capability to your process control systems allows you to reset counters/meters or trigger paging/annunciation systems based on the status of the work orders.
Proficy Scheduler

Providing the power of Finite Capacity Scheduling for efficient operations planning, Proficy Scheduler helps dynamically optimize and balance the impact of unplanned production disruptions.

Key Technical Benefits

- Easy-to-use graphical interface
- Asset and materials planning capability
- Built-in rules for dynamic re-planning
- Real-time displays for visibility across the plant
- Integration with Plant Applications for departmental coordination and planning

Proficy Scheduler is an interactive graphical planning tool that helps create and maintain more dynamic and effective production schedules in real time based on resources and asset capacity. It enables fast and easy planning tasks to help you optimize the scheduling of new orders and the rescheduling of planned orders.

Providing automated rules and easy-to-configure routes and resources, Scheduler empowers you to efficiently respond to production changes such as the date and time for the start or delivery of a production order, new orders, quantity changes, and processing speed modifications. It provides an integrated view of your plant’s resources, so you can make quick, informed decisions that reduce order lead times, increase operational efficiency, and save significant time on planning activities.

Proficy Scheduler provides visual interaction and rule management that enable planners to better leverage their knowledge to quickly create and adjust production schedules.

Features and Functions

- Forward and backward production planning allows you to flexibly reschedule and configure product routings and resources such as personnel, materials, and equipment as needed to address changes that impact production.
- Management and evaluation of complex consequences helps you execute activity scheduling changes quickly and accurately, avoiding planning errors, long lead times, and additional costs.
Proficy Scheduler’s interactive graphical view of the production plan across the plant enables planners to optimize and balance the production schedule with materials, energy, labor, equipment, and delivery times.

Detection of bottlenecks and materials shortages enables you to efficiently make resource adjustments in advance and integrates your ERP system to align expectations to maintain dynamic and effective production schedules.

Integrated real-time tracking provides actual production, consumption and events information and their impact on schedule adherence, so you can forecast order completion times based on real production rates and efficiencies.

“What if” simulations help you visualize the impact on load factors if activities are changed, enabling you to make better decisions that optimize and balance your production plan.

Scheduler empowers you to:
- Obtain orders and bill of materials from ERP systems automatically
- Forecast order completion times based on real production rates and efficiencies
- Optimize and balance the production plan with resources
- Track actual measured production, consumption, waste, and yields and update ERP systems automatically
- Provide reports and analysis tools
Proficy Workflow

Powered by Proficy SOA

Digitizing and streamlining production processes—from work instructions and SOPs to corrective action and HACCP monitoring—Proficy Workflow helps reduce errors and costs.

Key Technical Benefits

Solves production problems immediately without demands on IT

Captures manual and automated processes with one tool—without custom code

Enables fast response based on real-time events—“Manage by Exception”

Connects to any OPC data source

Third-party extensible and enables composite solutions

Compliance with industry standards, including ISA 95

High-Level Workflow Example

Proficy Workflow can help you achieve process visibility and management. This digitization provides visibility across the business into all of the production operations—interconnecting your people, systems and processes.

Proficy Workflow enables you to create information-rich, circumstance-based workflows that teams can follow to better understand what’s happening around them and react in a sequenced and procedural manner – that is repeatable every single day.

Built on a Service Oriented Architecture (SOA) platform, Workflow is a user-configurable, dynamic decision making engine for integrating automated and manual business and production processes across system and departmental boundaries—ensuring reliable, repeatable process execution.

As an industrial Work Process Management solution, Workflow takes a production “flowchart” and digitizes it, connecting the people, materials, equipment and systems...
Workflow can make every operator an expert by helping you:

→ Guide operators interactively and orchestrate processes

→ Standardize best practices to reduce costs and improve quality

→ Replicate processes across your organization for unparalleled consistency

involved in the work process. By digitizing processes with industrial workflow, you can capture process, traceability and quality data, and drive lean initiatives based on factual information.

Additionally, the workflow system and its reporting can touch almost all production personnel, including quality managers and quality technicians, maintenance, operations supervisors and industrial engineers.

**Example Use Cases**

Proficy Workflow integrates information and services on a Plant2Enterprise basis, adding value to existing HMI, MES and ERP systems. You can configure Proficy Workflow for:

**Lean Production.** Document and execute processes, digitizing workflow to improve, eliminate and automate steps. Workflow records date/time and who performed the work, closing the loop for process improvement with factual data.

**Managing Production Specifications.** Changes to specifications can trigger a workflow that will route the changes through a number of approvers, from the quality control manager to the production manager for final approval and notification.

**Sample Requests.** When a certain condition arises such as a combination of variables outside a limit or a lapsed time window, Workflow can send a request to QA to perform tests or take samples. You can also trigger a workflow through any alarming capabilities of connected plant applications or systems.

**Corrective Action.** A “Proof of Effectiveness” loop in ISO-900x can be digitized with Workflow to respond to problems and events; you can also capture and store all the execution data and data entry for later analysis.
Downtime Reasons
On-the-Fly. As your plant systems generate downtime events, Workflow can evaluate conditions at that moment in time, infer downtime reason codes and write the downtime reasons back to those systems.

OTHER EXAMPLES:
> Orchestrating high-level processes and managing the data between systems
> Digitizing GMP tasks
> Digitizing SOPs and work instructions
> Implementing HACCP monitoring procedures and corrective action
> Enabling alarm and event response, corrective action

AN INDUSTRIAL SERVICE ORIENTED ARCHITECTURE
> Centralized configuration and management environment
> Diverse client and third-party hosting container
> Real-time services bus
> Service provider interface for third-party and legacy system integration
> Global data and services repository
> Role-based security
> Event services
> Diagnostic services
> Object-relational persistence engine
> S88/S95 data models
> Application development foundation

The combination of Proficy Workflow and the Proficy SOA architecture can help you respond to changing business needs with composite applications that leverage existing production systems through the SOA data and services repository.

Industrial SOA technology also provides the real-time platform to achieve a centralized production configuration and management environment, including a messaging backbone with a plant-wide data asset model and activity model.
Proficy Tracker

Empowering operators with real-time information and control of their operations, Proficy Tracker enables lean production by managing inventory, production orders and routing materials.

**Key Technical Benefits**

- Easy-to-implement business rules for routing control, order management, sequence management and substitution management
- User-configurable Tracker Attribute Database for adaptability to different product lines and production environments
- Configuration wizards to facilitate fast project startup
- Layered on Proficy CIMPLICITY to provide visualization and integration into the physical process

Proficy Tracker is a comprehensive tracking and order execution management system for complex manufacturing applications that require real-time, finite capacity scheduling.

Tracker can accommodate a variety of production flow adjustments, from minor modifications to major system redesign. It tracks the real-time location of jobs on the production floor and can also be configured to perform routing logic on the movement of jobs and materials throughout the facility. With it, you can manage the manufacturing routing and delivery of multiple product components into complex product assemblies.

**Features and Functions**

*Routing control* helps you manage the flow of products and materials through the production facility, including carriers and product containers. You can use it effectively in discrete operations such as container management, automated conveyor control, ASRS storage systems, baggage handling and AGV systems.

*Product genealogy* enables you to trace a product throughout every step of the manufacturing process so you know the origin and destination of all incoming materials and outgoing finished goods, and can identify exactly what materials and quality characteristics a product contains.

*Error proofing* ensures that all the proper steps are followed at each assembly station through the use of displays and a configurable workflow; it supports part bar coding, pick-to-light, integration with torque controls and material handling equipment, along with other devices.
Faulty process conditions are alarmed to facilitate the appropriate action—resulting in products that are built right the first time, contain warranty exposure and avoid contract penalties due to poor quality.

**Plant Order Management and Broadcast Management** help manage incoming orders, whereby Plant Order Management receives orders from a higher level ordering system and adjusts them to the plant requirements and capabilities; and Broadcast Management receives a build schedule from a higher level system and sends the information to the plant floor, indicating what products need to be built and the sequence in which they need to be built. Option build data can be provided to operators, process equipment, and suppliers, and printed to produce paper travelers.

**Sequence Management** helps manage changes on your production floor—providing the ability to manage the build sequence to a pre-established order and helping to ensure that production takes place in the correct sequence to meet customer orders.

**Substitution Management and Hold Management** work with Sequence Management to swap orders on the production line for those instances where sequence cannot be maintained, and it provides the ability to mark items with reasons why they should not move forward in the manufacturing process.
Proficy Open Enterprise

As a single integration point, Proficy Open Enterprise communicates real-time information between your enterprise and execution systems—delivering visibility from the top floor to the shop floor for improved decision making.

Key Technical Benefits

- Real-time synchronization between plant and business systems
- Integration with the Proficy Information Architecture to empower order execution and visualization
- Support for ISA-95 B2MML schemas
- Single point of integration between enterprise-level systems and the Proficy software suite
- Built on Proficy Workflow—Powered by SOA
- Service Providers available to connect to ERP systems

Proficy Open Enterprise serves as a bi-directional transport of data between your ERP system and MES solutions for increased visibility into production data and plant asset availability. As a single point of connectivity, it allows decision makers at the enterprise level to leverage real-time production information for better business decisions, and for plant operators to leverage business information to improve fulfillment and operational efficiency.

Connecting your ERP system to the Proficy software suite, Open Enterprise leverages ISA-95 and B2MML standards to communicate valuable information between the two systems, as well as to route to other applications across the business. It can greatly improve visibility and efficiency while reducing costs related to factors such as excess inventory or waste—driving truly lean manufacturing and operational excellence.

Features and Functions

- Schedule Download Message is sent from ERP to the plant floor. It provides the information required to fulfill scheduled production such as the process order, time range, equipment and materials. The following defines the production schedule schema:

  - Production Schedule contains the context information for the schedule, including location, publication date, time range and list of production requests.
  - Production Request defines a request for production and contains information required by manufacturing to execute the request.

- Segment Requirement references the segment capability to which the associated personnel, equipment, materials, and production parameter correspond.

- Personnel Requirement defines the number, type, duration, and scheduling of specific certifications and job classifications needed to support the current production request.

- Equipment Requirement defines the equipment that should be used for a segment requirement.

- Material Requirement defines a requirement for material to be produced, material that will be consumed, or the expected amount of consumable material.
Production Performance Message to ERP provides real-time production performance information to the business systems, including order confirmation and material consumption. The following defines the production performance schema:

- **Production Performance** contains a definition of a report on performance.
- **Production Response** identifies an associated production request, the product produced, duration of the report, and segments of the production response.
- **Segment Response** contains information on production data, personnel actual, equipment actual, materials consumed actual, materials produced actual, and consumables actual.
- **Personnel Actual** identifies a personnel resource used during the specified segment of production.
- **Equipment Actual** identifies equipment used during the specified segment of production.
- **Material Actual** identifies the material produced, material consumed, or consumable material consumed.

In addition to the out-of-the-box schemas listed above, Open Enterprise supports all messages within B2MML schemas.

Activities/Templates for upload/download. Download parses Production Schedule message and either routes to appropriate product or stores within the ISA-95 model; upload creates Production Performance message to be sent to ERP.

Standards based. Utilizes the ISA-95 and B2MML standards to allow easy communication between the enterprise and production layer.

Guaranteed delivery of messages. Immediate notification of failures, enabling fast issue resolution.

Error checking. Checks upload and download messages for possible errors and issues immediate warnings to users; also allows users to review and approve transactions before they are committed.

As a single point of connectivity, Open Enterprise can flexibly communicate with disparate systems.

Users can leverage available Service Providers to easily connect ERP systems with plant floor systems within the Proficy suite.

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Proficy Shop Floor SPC

Providing a complete statistical process control solution for the collection, monitoring and analysis of plant floor quality data, Proficy Shop Floor SPC provides critical production information.

**Key Technical Benefits**
- Open device connectivity
- Robust e-Signature and electronic record capabilities
- Six Sigma charts and analysis tools
- Seamless integration with Proficy Portal and standard web pages

Proficy Shop Floor SPC enables you to collect real-time information from virtually any source and delivers a diverse array of powerful analysis and visualization tools—providing you with a clear and instantaneous understanding of what is happening with any process.

By helping you identify areas of improvement and eliminating quality issues within your production environment, Shop Floor SPC can help you improve product quality and consistency, reduce waste and streamline operations.

**Features and Functions**

**Data Collection** enables you to input and capture data from the plant floor in a simple, easy-to-use format, and provides the analyses you need to make real-time decisions. For example, you can:

- Tag and associate data with multiple forms of process information to extract contextualized information
- Quickly and easily track multiple categories of defects, mixing variable and attribute data within the same visualization
- Evaluate variations in your measuring system before and during data collection

**Monitor** is an online reporting tool that summarizes all active processes and provides an enterprise-wide, automatically updated summary picture of everything that is happening on the production floor. You can customize your view by selecting the products, information groupings and displays to easily monitor and identify performance issues.
Administration includes a number of modules to manage and control your plant floor information. With a wide selection of charts, histograms and other visualization tools—in addition to a query feature—you can precisely select the data you want to analyze.

You can also view data grouped by a process category across a number of data fields; and with built-in templates, you can control the design of the report and the presentation of information.

Other administration capabilities include:

- The ability to import data from other measuring systems and analyze data from multiple sources in multiple formats
- A full set of standard reports, which are customizable, that track production performance by data groupings of your choice
- A wizard tool that simplifies setup and configuration
- Secure log-in and an eSignature option to help you move toward validation and compliance
- An audit trail capability to track and capture activities

Proficy Shop Floor SPC’s audit trail prompt appears when changing specs on the shop floor.
A key application for process analytical technology (PAT), Proficy RX helps life sciences manufacturers deliver quick time-to-solution by providing the process insight needed to increase capacity utilization, reduce manufacturing cycle times and improve product quality.

**Key Technical Benefits**

- Standardized control and networking of multiple instruments
- Preprocessing of captured analytical data
- Robust plant data archiving and repository
- Extensive methods development
- Interfaces to third-party chemometrics packages
- Designed for 21 CFR Part 11 Compliance

Proficy RX can be deployed as a standalone application used for small proof-of-concept projects, or it can be integrated into a larger PAT solution across an entire production operation. RX helps you gain the insight you need to begin improving your operations and achieving process understanding—integrating multiple types of instruments, hardware and software to collect, consolidate and analyze data for a complete and holistic view of your process.

RX can be applied in many manufacturing applications such as crystallization, reaction monitoring, drying and blending. A complete, integrated solution built on RX can rapidly deliver time to value with solutions like End Point Detection or Blend Uniformity.

Applications deployed on unit operations are an excellent starting point into a PAT solution. Whether testing the viability of a technical solution or executing an actual production deployment, a Proficy RX-based architecture is the ideal solution.

**Features and Functions**

- **Closed Loop Control.** RX can acquire and analyze complex spectral data, store that data in Proficy Historian (or other plant historians) and interface with traditional DCS- or PLC-based control systems to provide closed loop control of the production process. It can also provide a real-time feedback control loop.

- **Visual Script Wizard.** RX provides an intuitive way to use the software, using logic in a visual manner for ease of use to simplify complex problems.

**PAT-Specific User Interface.** RX’s diverse capabilities correspond to the solution’s four main windows, which are designed to streamline the performance of the tasks typically encountered in process analysis.

**PAT-Specific Command Structure.** Based on a modular and hierarchical command syntax, it requires only a relatively small number of easily understood, standardized commands to meet the majority of both laboratory and process requirements.

**Standardized Instrument and Software Interfacing.** Specific RX drivers meet the unique requirements of individual instruments, sampling systems, chemometrics routines and enterprise-wide data systems.
**Menu-Driven Method Development.** The composer utility includes pop-up script composers for all standard commands, which enable you to design any analytical method by selecting items from pull-down menus and filling in blanks.

**Historian Data Storage.** RX leverages the power of Proficy Historian and other historians for storage of all spectral data—providing efficiency and security and allowing for a single, true “system of record” for all manufacturing data.

**Advanced Process Analytics.** You can use RX to develop the process logic you need to control your process, using capabilities such as mean center and unit scale variance, cubic spline interpolation, transmittance and absorbance.

**Virtualization Support.** RX supports virtual deployment on VMWare’s ESX server platform, reducing implementation and ongoing maintenance costs and speeding time-to-solution.

**Integrated Proficy RX With Change Management Server.** This feature enables you to systematically manage changes in your process by tracking who and when changes were made—supporting compliance requirements.
For companies in continuous, batch or hybrid process industries, the demand to improve business operations, increase profitability and comply with a growing list of internal and external requirements has never been greater—all while reducing costs and operating at peak levels of efficiency.

Our process solutions leverage proven technologies and domain expertise to provide you with the precise control and information you need to make better, more informed decisions. As a result, you can optimize your operational performance, improve the quality and consistency of your production, and maximize your uptime and productivity.
Proficy Process Systems

Proficy Process Systems is a state-of-the-art DCS and process control system that leverages GE Intelligent Platforms’ latest hardware and software technologies to provide a complete control solution—closing the loop between automation and information.

With Proficy Process Systems, you can improve quality, flexibility, productivity and uptime—throughout your process and your business.

The foundation of Proficy Process Systems is a contemporary hardware and software infrastructure that offers the benefits of both traditional DCS and PLC/HMI systems, without the historic limitations of those approaches.

With Proficy Process Systems, you have unprecedented freedom. You can choose your visualization solution – Proficy HMI/SCADA: iFIX or CINPLCITY. You can choose your controller – PACSystems controllers, which can handle process, discrete, and motion control applications, or PAC8000 controllers for an advanced DCS for continuous process applications.

The Proficy software technologies in the system empower you with unprecedented visibility, analytics, and connectivity throughout your enterprise. Our HMI/SCADA and Historian technologies, coupled with the options of Batch and a complete Operations Management suite, can help improve quality, flexibility and productivity.

The Proficy Process Systems Architecture

Leverage a modular and expandable system, which can range from a small one-computer architecture to a large, multi-computer architecture. The system consists of several layers:

Control Layer includes the ability to choose PACSystems RX3i or RX7i controllers or PAC8000 Controllers based on your application. PAC8000 SafetyNet is a TUV SIL 2 functional safety system that can be added on for Emergency
Shutdown, Fire and Gas, and Burner Management Systems.

**Fieldbus and I/O Layer** is based on an Open Field bus approach and offers a comprehensive portfolio of I/O, so you can choose the right strategy for your needs.

**Continually Investing In Process Solutions**

GE is investing heavily in Process—from the introduction of Proficy Process Systems in 2007, to the acquisition of MTL Open Systems Technologies, and other strategic technology partnerships with process industry leaders—to provide you with a complete process solution.

You can now expand your Proficy Process Systems with our line of rugged 8000 Process I/O, including Intrinsically Safe I/O, which is capable of withstanding the most extreme process environments.

GE’s commitment to the process segment markets has driven us to deepen our domain expertise and expand our solution portfolio.
Proficy Batch Execution

Through a robust set of tools, open architecture and easy-to-use graphical user interface, Proficy Batch Execution can help you create a more efficient and more consistent production environment.

Key Technical Benefits

- ISA S88.01 batch control systems models and terminology
- IEC 61131-3 sequential function chart language support
- Optional operator workflow components to enhance 21 CFR Part 11 capabilities
- OPC data access support

Proficy Batch Execution features a fully graphical and straightforward application development environment—delivering complete data collection, robust batch management, clear process visualization and powerful supervisory control capabilities.

It defines recipes for products as formulations, procedures and equipment requirements; schedules and executes the recipe; and stores information on the recipe execution features. You can execute batches to produce a specified quantity of end product on any chosen line according to the specifications you define for minimized variance and maximized yields.

Furthermore, Batch Execution can communicate with any OPC-compliant server, facilitating the exchange of data between the Proficy Batch Execution server engine and other plant floor systems.

Features and Functions

S88 Batch Manufacturing Standards. Batch Execution separates the operation of equipment (equipment phase) from the procedure used to make a product (recipe); therefore, the process used for any product is defined within Batch Execution, and changes to the process do not change the control system.

Graphic Modeling. With our ISA S88.01 compliant modeling of manufacturing operations, you define your areas, process cells, units and phases in the Batch Execution workspace—a simple, graphical, class-based development environment that allows you to browse directly...
to the process control system; no database is required.

**Campaign Manager.** An easy-to-use server and client optional add-on that accelerates time to action and reduces errors, this feature simplifies the operator experience for large process orders by accepting a process order and scheduling a list of batches.

**Recipe Editors.** With our Tabular Editor, you can create your recipes in a simple spreadsheet style format; with one click, the system can automatically convert them into IEC 61131-3 sequential function charts. Class-based recipes allow you to re-use recipe components, and you can scale your recipes to tie them to equipment capacity at runtime.

**ActiveX Library.** You can view and interact with your batch processes, including a Batch List, Sequential Function Chart View, Unit Binding, Operator Prompts, Batch Add, Manual Phase Control, Recipe List, Active Phases, and Batch Alarm List—providing your operators with visibility into your batch operations.

**Patented Active Binding.** Batch Execution can dynamically select units based on capacity, status, priority and flow path. With forced binding, you can bind a recipe to a unit at the creation of the recipe, at batch start or on-the-fly during execution for maximized productivity.

**Designed for 21 CFR Part 11.** With point-of-entry verification through electronic signatures, you have equipment and recipe auditing and version control. The Batch Execution system provides centralized storage of e-records with encrypted store-and-forward technology that automatically provides you with a runtime and configuration audit trail; password and user management is centrally administered through Windows-based security.

**Soft Phase Server.** This capability provides a true client/server solution for distributing soft phase logic in the computer that then interfaces to the controller.

**With transition break-points, engineers can define temporary pause points in batch execution—enabling operators to perform on demand intervention of the process at predefined points. This unique feature is particularly useful in order to perform maintenance mid batch and product quality analysis, increasing the overall flexibility of your system.**
Proficy Batch Analysis

Tightly integrating with Proficy Batch Execution, Proficy Batch Analysis helps increase the overall quality and consistency of your production while enabling a better understanding and more control of variation in your batches.

**Key Technical Benefits**

- Integrated module of the Proficy Plant Applications suite
- Trend, report and summary batch information
- Tight integration with Proficy Batch Execution
- Interface to existing ISA S88 batch control systems

Proficy Batch Analysis allows you to track independent batches as prescribed by ISA S88 Standards by procedure, operation or phases, and you can extract and analyze relevant data in context by crew, batch, or schedule. Batch Analysis provides a sophisticated yet easy way to visualize results through reports, timelines and trending comparisons. As a result, you can achieve better batch-to-batch consistency, exceed schedules and improve productivity.

**Features and Functions**

- **Batch Listing** shows the results of a batch query, including the batch name, status, conformance, time frame, unit and other descriptive data. It allows you to select, compare, and analyze batches, and you can even set a reference or base batch as the “golden batch” for future comparisons.

- **Batch Production Timeline** displays events for a given batch and overlays time on the x-axis. The interactive timeline allows you to drill down into a given event and examine the details behind it.

- **Batch Event Detail** provides a detailed summary of a given batch, including start time, end time, initial and final weights (or other attributes), parameter summaries, specifications.

Proficy Batch Analysis provides visibility into your batch operation—allowing you to better understand and control variation in your batch production environment.
and limits, and time trending across variables.

**Cycle Time Analysis** offers a detailed summary and comparative analysis over a selected set of batches. This analysis provides a comprehensive statistical breakdown of each “step,” including detailed information such as average, standard deviation, and minimum and maximum.

By comparing procedures, operations, and phases across different batch runs or campaigns, you can easily identify variation in the process. Additionally, you can view charts showing process capability and time series trends.

**Multi Batch Timeline** provides a time-centric overview of the batch and batch operations for each of the selected production runs. The timeline provides batch-centric time perspectives for each batch and its corresponding procedures, unit procedures and operations.

**Batch Trending** allows you to create and save comprehensive batch trends that provide context-based trending—plotting variables against one another at different stages of batch operations. Batch trends can accommodate and overlay many different batches on a single display. Batch variables and even data points from historians can be dynamically added to each chart, providing a powerful set of analytical capabilities.

Easy-to-use dialogs allow you to quickly and easily modify the trends. There are contextual display elements for highlighting and analyzing trends—including markers denoting where significant events occurred and confidence bands placing a plot “silhouette” around each line.

**Batch Analysis Summary** provides tremendous value for a wide range of applications and industries. With Batch Analysis, you can increase the quality and consistency of batch operations and reduce variability in your batch processes.
GlobalCare Support Services

GlobalCare Support Services offer a full complement of award-winning web and telephone-based services that provide the valuable information you need every step of the way to ensure rapid deployment and provide ongoing support of your solution.

**GLOBALCARE COMPLETE**

GlobalCare Complete is the best and most comprehensive way to optimize your investment in a GE Intelligent Platforms software solution.

With GlobalCare Complete, you can be sure that your software is always up to date, and that you have access to the tools, applications and support to be successful. The program includes:

- Access to a network of local and corporate support professionals
- Support consultation, including live telephone or web-based communications
- 24/7 emergency support for critical issues
- Fast access to support in plant-down situations
- Cost-effective access to the latest software feature enhancements, including software version upgrades, service packs, SIMs and other product fixes
- Around-the-clock access to our support web site and online knowledge center

**GLOBALCARE ASSIST**

GlobalCare Assist is designed for customers who need GE Intelligent Platforms’ highly trained technical expertise but do not require product upgrades or 24-hour emergency support. The program includes:

- Access to a network of local and corporate support professionals
- Support consultation, including telephone call-back or web-based communications
- Around-the-clock access to our support web site and online knowledge center
24/7 Access to Our Support Web Site

All GlobalCare customers can leverage our award-winning website, www.ge-ip.com/support, where you will find a broad range of information sources developed by our technical teams to reduce your time-to-solution, including:

- Top Support Links
- Articles and White Papers
- Error Messages
- Sample Code
- RSS-Enabled User Forums
- SIMs, Service Packs, Firmware
- Productivity Downloads
- Driver Fact Sheets
- Documentation and Manuals
- Hardware Utilities and Files
- And more
Combining in-depth domain expertise and broad industry experience, GE Intelligent Platforms offers the advanced technologies and directional leadership needed for the success of your operations.

We understand the critical issues specific to your industry, and we’re committed to helping you leverage our leading-edge solutions and expertise to achieve a sustainable advantage for the long term.

**WATER**

For the water industry, we provide best-of-breed technologies and in-depth industry experience to help municipalities maximize their water operations. As a market leader of visualization software, we also offer robust historian capabilities and analytics as well as workflow and wireless solutions to help you seamlessly integrate your critical water data. Our focused areas of expertise include information management, treatment, conveyance and specialized water processing for more effective decision making and enhanced production performance.

**FOOD & BEVERAGE**

For the food and beverage industry, we provide a fully integrated suite of hardware and software applications and deep industry expertise to help manufacturers solve their most pressing issues and deliver world-class operating results. Our advanced process controls systems, coupled with leading-edge collaborative operations management software, maintenance systems and workflow tools provide you with the enabling technology needed to achieve operational excellence and supply chain safety and effectiveness—while supporting your ability to continually innovate and produce new products.
Proven Leadership

We provide the biofuels industry with advanced solutions and industry expertise to maximize plant operations and yield. Our advanced process control solutions deliver the foundation needed to effectively run the daily operations of your plant for measurable results. Through our operations management systems, robust data historian and portal, operations and executives can effectively manage the entire operation—from raw material receiving through denaturing in real time—while visualizing the KPIs needed for plant-to-plant benchmarking and optimization.

We are dedicated to helping life sciences companies around the world manage their regulated manufacturing operations through world-class automation solutions and domain expertise. A pioneer in the industry with our “Designed for 21 CFR Part 11” campaign, we continue to drive innovative solutions in the industry today. Customers rely on our solutions to help reduce operator errors and lost batches, perform online quality analysis, drive greater packaging efficiency, enable EBR generation and enhance production and KPI reporting.

Our software technologies enable three key pillars for CPG manufacturers: operations excellence, profitable and safe supply chain execution, and product and process innovation. We provide powerful, integrated capabilities to help you manage daily operations—from individual lines to the farthest plants in the supply network. And our open and layered architecture leverages existing investments to support both real-time decision making and the deeper analytics that provide the foundation for continuous improvement as products and processes evolve.
For the automotive industry, we provide comprehensive automation and operations management solutions for original equipment manufacturers (OEMs), tier suppliers and machine builders. Delivering industry-leading solutions, our focused areas of expertise include manufacturing intelligence, execution, awareness and discrete automation control solutions. We are dedicated to helping you maximize productivity through schedule execution and control, error proofing, production monitoring, quality analysis, production reporting, maintenance dispatching and equipment utilization.

Much of today’s global energy-generating capacity relies on our automation technology for day-to-day operations. Advanced operator control software combined with high-performance process historians and web-based management portals allow you to visualize, operate and optimize your plant. From integrated alarm management and operational workflow for streamlined operations to secure and connected solutions for the electrical transmission and distribution market, we can help you control, manage and optimize your renewable energy assets—while addressing standards for regulatory security compliance.

Leveraging decades of oil and gas domain expertise, we provide the enabling technology for operational excellence and supply chain safety and effectiveness. From end-to-end pipeline SCADA and automation to production platforms, FPSOs, LNG and downstream refining units, our SOA-based operations management solutions enable a real-time view—including automated workflow management with digitized manual and automated processes, key performance indicators, overall equipment efficiency, and integration with business systems—for decision support and increased availability and reliability of processes and procedures.
To learn more about Proficy Software, please contact your local GE Intelligent Platforms sales representative or visit www.ge-ip.com