

GE  
Intelligent Platforms

# Operational Excellence



imagination at work

# Drive Operational Excellence in manufacturing

Continuous improvements in key areas of your operations can help you reduce manufacturing costs, protect profit margins, and increase yield while maintaining product quality.

## PROVEN, MEASURABLE RESULTS

Our successful track record helping leading companies around the world achieve Operational Excellence includes measurable results such as:

- 15% improved overall equipment effectiveness (OEE)
- 30% faster new product introductions
- 40% reduced engineering effort
- 30% reduced inventory
- 20% decreased rework

The volatile nature of today's consumer markets impacts manufacturing companies in many different ways. Some are squeezed on margins and must find ways to take cost out, while others need to increase throughput and yield to meet demand. To succeed in this competitive environment, manufacturers need to improve their operations for greater efficiency without the cost burden of large capital investments.

GE Intelligent Platforms understands the challenges you face. Combining deep industry experience and expertise with the latest technologies, we are helping companies around the world gain a critical competitive advantage through Operational Excellence. Our unique and proven approach focuses on better, faster and more cost effective results across your plant and your business.

## Fast return on investment, scalability, and flexibility

Our Operational Excellence journey provides a roadmap for making incremental improvements over time—starting with process visibility for quick wins and scaling up to enterprise-wide integration for a long-term competitive edge. With our phased approach to Operational Excellence, you can apply a continuous improvement regimen, delivering value-added results, including:

- Enhanced manufacturing process visibility
- Improved efficiency, flexibility and responsiveness
- Increased productivity and quality
- Maximized profitability
- Optimized supply chain

To start your Operational Excellence journey, we can help you understand where your business is today and where to focus moving forward, putting you on a journey that generates the greatest return on investment. Our Onsite Operational Discovery (OOD) process identifies key operational issues within your current production operations and provides a solution roadmap to address those issues.



# Experience the GE difference

For a sustainable competitive advantage, you need a partner that offers the most advanced technology solutions, deep expertise, and unwavering commitment. GE's the right choice.

### Proficy software: Open, layered, and integrated

The cornerstone of GE's Operational Excellence journey is our tightly integrated suite of Proficy® software solutions, which enable the critical capabilities needed to meet your improvement goals. It encompasses powerful solutions for HMI/SCADA, Batch Execution, Historian, and Operations Management—connecting your production and enterprise systems and driving supply chain excellence.

Built with an open and layered architecture, Proficy seamlessly integrates with your existing automation infrastructure to help you leverage your current investments—translating into real value—while providing an open and scalable framework for future growth.

Like never before, you can gain increased visibility into your operations for better decision making and extend Operational Excellence into new areas of your plant. Proficy enables you to build upon core Operational Excellence information to develop new strategies such as sustainable manufacturing, leveraging sustainable metrics that focus on areas such as energy, water, gas, and carbon emissions.

### Global customer support

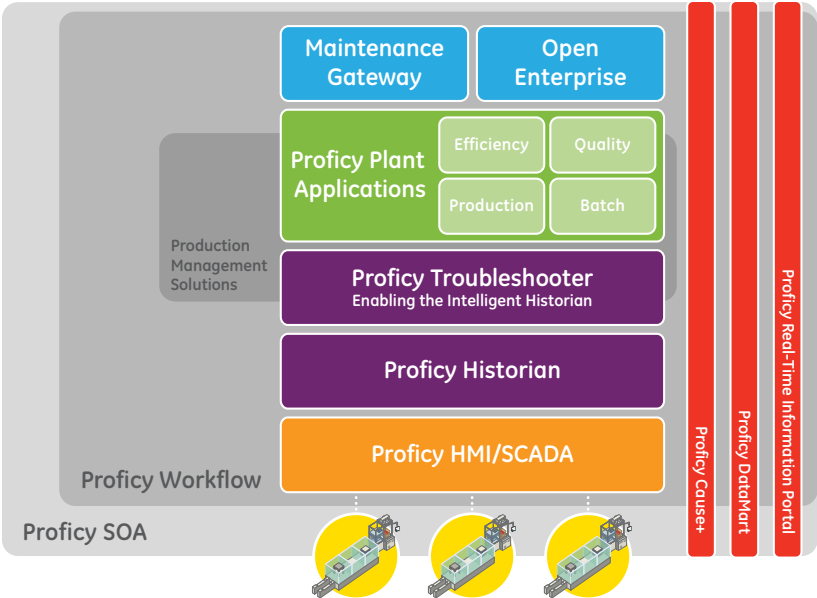
We offer a consistent worldwide backbone of professionals that offer business hours and 24x7 emergency support. So no matter where you are or when you need help, you can rely on prompt support by web, phone, and email to address your needs.

### Trusted GE brand

As part of GE, one of the most trusted brands in the world, we are committed to high standards of integrity in all that we do. We understand your business, and you can leverage our unique combination of in-depth industry and technology expertise that many providers cannot offer.

### Partnerships around the world

You can expect repeatable success and local access to the expertise you need—globally. We actively work with technology and services partners around the world—enabling you to tap into powerful innovations from across the company as well as industry best practices.



**The Power of Proficy**

Providing the depth and breadth of capabilities to fit your business needs, Proficy is proven in all areas of the process—from raw material receiving and production, to packaging and utilities—delivering measurable results and maximum return on investment. It enables you to transform your operations and position your business for a competitive advantage that sustains over time.

# Protect margins and deliver quality

Regardless of where you are in your Operational Excellence journey, you can incrementally add value to your bottom line with our flexible and modular approach.

GE has helped many companies develop a solid understanding of potential Operational Excellence improvements that exist within their operations today, and where additional value can be found in the future. Our Operational Excellence journey offers a continual process for capturing data, analyzing information, making process changes, and validating the improvements to meet expectations. It includes five key steps:

- [Process Visibility](#)
- [OEE Regimen](#)
- [Process Reliability](#)
- [Deep, Local OpEx](#)
- [Enterprise Operational Excellence](#)

## Process Visibility

The journey begins at the machine or line level, where there is typically a disparate mix of legacy and newer control systems. Process visibility into the data supplied by the controllers helps drive process improvements and centralized control and analysis.

Proficy helps you gain visibility into your process by automating real-time data collection for visualization—delivering the level of insight required for intelligent decision making. Its open communications enables you to connect with many different vendor systems and seamlessly integrate processes for batching and packaging across your plant.

### Process Visibility drives improvements in:

- Productivity of complex operations
- Consistency of recipe management
- Advanced analytics across multiple machines/lines
- Establishment of an objective baseline of machine and process performance
- Machine efficiency

### Products:

- **Proficy HMI/SCADA**
- **Proficy Historian**
- **Proficy Batch Execution & Analysis**
- **Proficy Pulse**
- **Proficy Real-Time Information Portal**

## OEE Regimen

The second step focuses on maximizing the utilization of equipment, one of the fastest return-on-investment areas in the Operational Excellence journey. It can directly improve production capacity, reduce running costs, and offset capital expenditures for new equipment.

Our Overall Equipment Effectiveness (OEE) regimen helps you shift the focus from runtime efficiency to throughput efficiency. By contextualizing data from several dimensions such as equipment availability, performance, and product quality, and performing trending and correlation analysis, you can gain deeper insight at all levels of the business, as well as critical process parameters.

### An OEE Regimen drives improvements in:

- Analyzing yield to performance
- Measuring throughput, rather than runtime
- Connecting islands of automation to manufacturing data network and repositories
- Profiling critical process parameters related to throughput and quality

### Products:

- **Proficy Plant Applications Efficiency**
- **Proficy Plant Applications Quality**

## Process Reliability

As the third step in the journey, Process Reliability builds upon the OEE regimen and focuses on manual processes and scheduling—two areas that have the greatest impact on consistency and repeatability.

Built on a service oriented architecture (SOA) platform, Proficy addresses the mix of both manual and automated processes by digitizing manual work tasks—ensuring reliable, repeatable, and accurate execution as well as visibility into how efficiently these tasks are being executed. It also enables demand-driven supply chain agility around schedules and materials. You can plan around real-time production changes and optimize the utilization of assets and consumption of raw materials.



#### GLOBAL PARTNERSHIPS FOR THE LONG TERM

- System Integrators (1500+)
- Multi Language Support
- Sales Distributors and Reps
- Training and Professional Services

#### Process Reliability drives improvements in:

- Real-time asset/material definition and scheduling
- Repeatability in the execution of manual work tasks
- Integration of work practices and material flows to minimize impact on quality
- Overall process efficiency

#### Products:

- **Proficy Cause+**
- **Proficy Workflow**
- **Plant Applications  
Production Management**

#### Deep, Local OpEx

The next step involves understanding and controlling the impact that different suppliers of raw materials have on process quality and yield, the main drivers for local Operational Excellence. Being able to predict and react to changing materials and process dynamics ensures first-pass quality every time, and helps determine the ideal conditions from which to generate maximum yield.

Proficy provides end-to-end batch traceability—from raw material receiving

to finished goods—and automatically associates process quality, efficiency, and production dates to these batches. Furthermore, you can easily leverage standard and custom reports for critical analysis and process improvements.

#### Deep, Local OpEx drives improvements in:

- Delivering more yield per batch
- Shrinking local inventory buffers
- Correlating processing quality and process performance to packaging
- Analyzing the effects of raw materials and their impact on asset performance and performance to specification

#### Products:

- **Proficy Troubleshooter**
- **Proficy Plant Applications  
Batch Analysis**
- **Proficy DataMart**

#### Enterprise Operational Excellence

The final step in the journey is Operational Excellence across your enterprise with seamless integration from the plant floor to the ERP system, including Warehouse Management, Production Planning and

Maintenance. It is critical to drive supply chain excellence by coordinating the real-time status of orders, inventory changes, and overall process performance.

With Proficy, you can leverage actual process information by optimizing maintenance costs for physical assets, refining capacity planning for raw materials and real-time process orders, and integrating accurate reporting. It enables you to fully support your business processes across organizational and systematic boundaries.

#### Enterprise Operational Excellence drives improvements in:

- Reduced inventories across the value chain
- Coordination of short-term material and logistics plans based on real-time production data
- Use of manufacturing effectiveness data to support supply chain optimization and production planning

#### Products:

- **Proficy Maintenance Gateway**
- **Proficy Open Enterprise**

For more information on how GE Intelligent Platforms can help you, visit [www.ge-ip.com/operational\\_excellence](http://www.ge-ip.com/operational_excellence) or contact your local sales representative.

# GE Intelligent Platforms— Your trusted partner

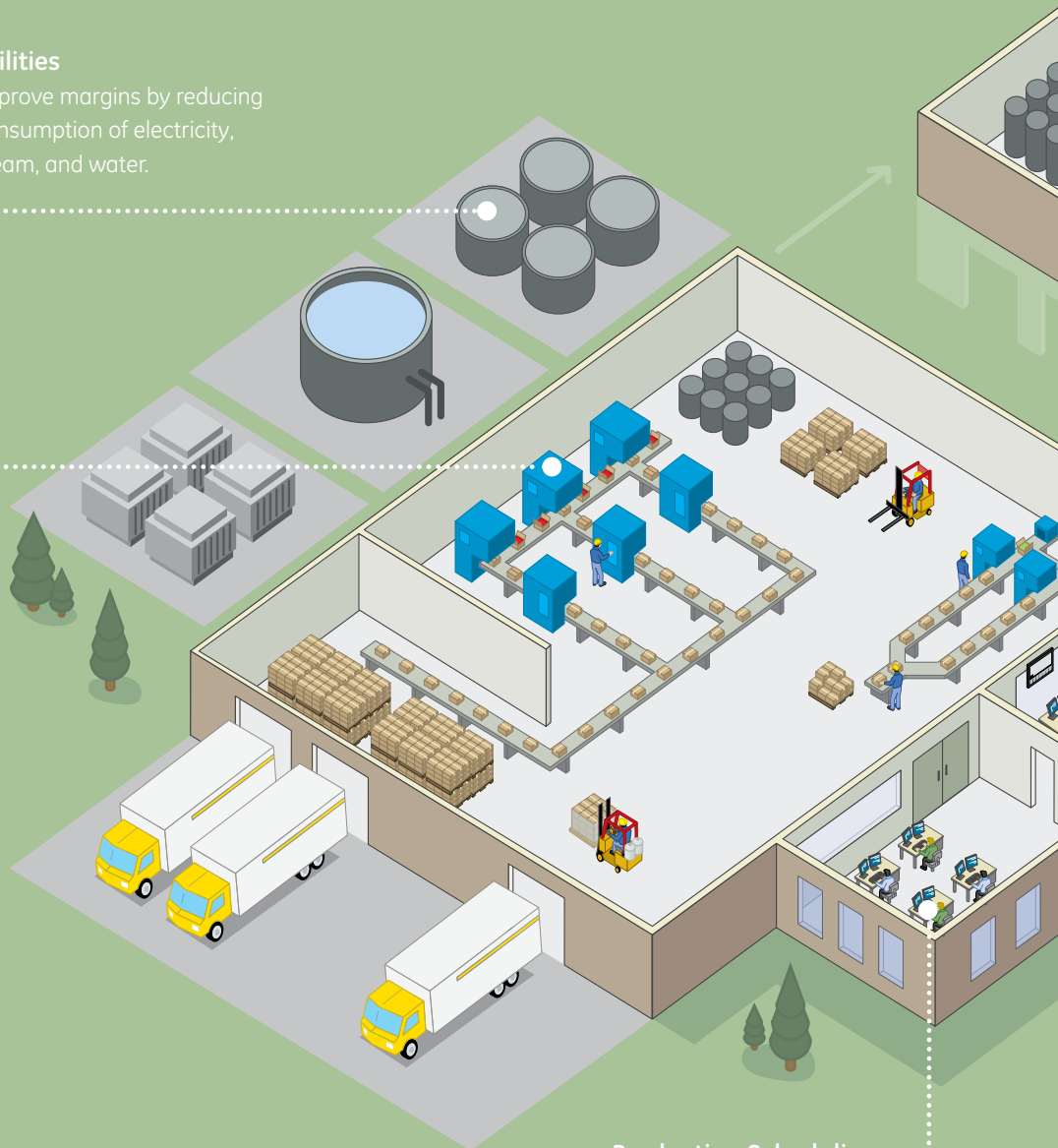
No matter where you are in your Operational Excellence journey, we can help you maximize the value of your existing automation infrastructure while leveraging flexibility and scalability for future growth. You can rely on our integrated, scalable technology solutions for continuous improvements to achieve and sustain Operational Excellence.

## Utilities

Improve margins by reducing consumption of electricity, steam, and water.

## Packaging Operations

Improve throughput and reduce changeover times to enable better efficiency.



## Production Scheduling

Optimize assets, people, and materials to maximize production capacity.

### Material Management

Improve yields and reduce inventory costs of raw materials and finished goods.

### Maintenance Operations

Reduce maintenance costs by moving from a reactive to a proactive, condition-based monitoring solution.

### Processing Operations

Improve quality and maintain consistency of primary batching and mixing processes.

### Information Management

Leverage manufacturing information to drive continuous improvement programs.

### Quality Management

Improve first-pass quality of production, optimizing raw material consumptions and minimizing product waste.

## Powered by Proficy SOA

Proficy Service Oriented Architecture (SOA) provides a critical infrastructure for collecting and connecting all plant floor data in an auditable, traceable manner. The SOA backbone supports cost-focused continuous improvement initiatives and provides a full set of product quality, material performance, and HACCP data for exchange between trading partners, in addition to regulators—for increased accountability and compliance.



### GE Intelligent Platforms Contact Information

Americas: **1 800 433 2682** or **1 434 978 5100**

Global regional phone numbers are listed by location on our web site at [www.ge-ip.com/contact](http://www.ge-ip.com/contact)

[www.ge-ip.com/operational\\_excellence](http://www.ge-ip.com/operational_excellence)

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03.10 10M GFA-1679