iFIX from GE Digital—
Enabling the Smart Operator

Optimized for Active Decision Support

Expect More from Your HMI/SCADA

Is your HMI/SCADA more than a passive partner, collecting information, monitoring performance, and generating alarms? Your HMI/SCADA should anticipate your operators' needs, delivering the precise information they need quickly and intuitively to support the best possible decision-making.

That's our vision for fourth-generation iFIX from GE Digital – featuring the latest HMI/SCADA technologies that leverage the power of the Industrial Internet. With just a glance at their iFIX screens, your operators will be able to pinpoint issues that undermine your productivity and determine the optimal action to resolve them.

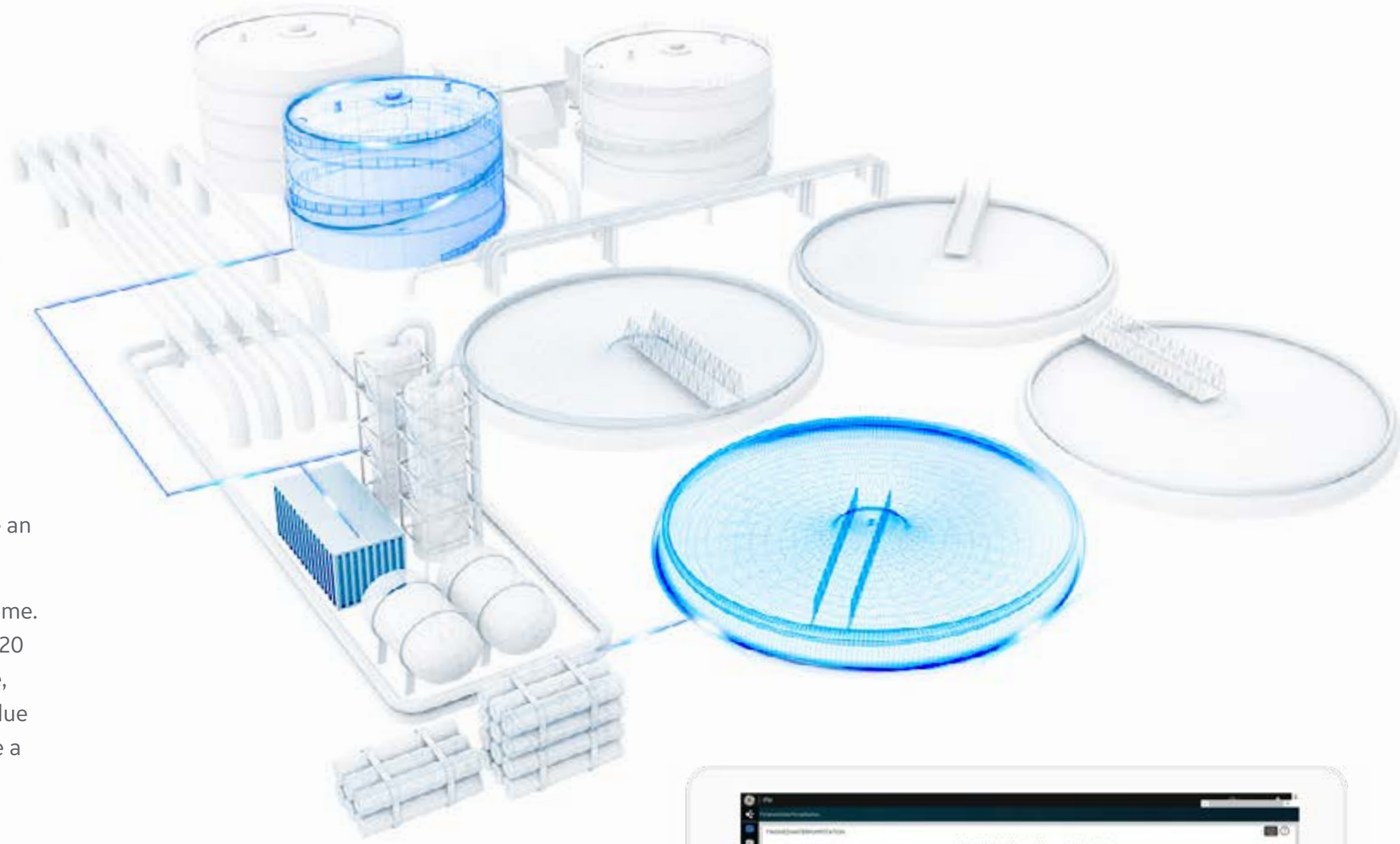
It's the ability to provide active decision support that distinguishes fourth-generation iFIX from traditional HMI/SCADA, opening new doors to ever-higher efficiency, reduced waste, and significantly higher performance.

HMI/SCADA Built for Your Operator

Over the last 40 years, HMI/SCADA has gained steadily in power and sophistication. It progressed from the inflexible proprietary systems of the 1980s and the LAN-based, I/O-centric systems of the 1990s to the network-based, equipment-centric systems of the 2000s.

Now with fourth-generation iFIX, GE Digital is combining a series of new approaches, including efficient HMI design, structured asset-based modeling, advanced analytics, and latest web standards, to build an HMI/SCADA that acts like an extension of your operator.

Operator-centric HMI/SCADA is an idea whose time has come. Unscheduled downtime and poor quality cost more than $20 billion a year in the North American process industry alone, according to ARC Advisory Group. Forty percent of that is due to preventable operator error. Reduce these errors and see a significant gain in productivity and reliability.



> *"With high performance HMI/SCADA, operators are able to quickly determine an abnormal situation and get to the root causes of many issues. We help operators visualize a process and make alarms very visible. We're shaving the time it takes for operators to act on a situation."*
>
> **Sergio Chavez, Automation Engineer, Los Angeles Department of Water and Power**

Efficient HMI

Smarter Visualization Makes It Easier for Operators to Identify Problems and Causes

More is better—that used to be the rule for HMI/SCADA screens. Earlier generations of HMI/SCADA solutions were loaded with three-dimensional renderings and extensive color palettes, encouraging users to build elaborate screens that were impressive in their realism.

The latest findings from cognitive science point in the opposite direction. Complexity slows reaction time, diminishes situational awareness, and increases the likelihood of error.

At GE Digital, we approach this challenge in a number of ways. We simplified the HMI, adopting flatter objects and limiting the color palette to make the HMI/SCADA screen easier to read. We also created predefined templates for processes, trends, and alarms that embody best practices in efficient HMI. These can be combined in a variety of layouts to provide operators with different perspectives.

And because screens are tied to a structured asset model mapped to the SCADA database, the HMI changes as the user moves through the system. With iFIX, operators have the situational awareness that's crucial for reacting quickly and making the best decisions.

> *"Ever since the introduction of GE Digital's iFIX at Pirelli, the system has been great to work with, which has encouraged us to expand the system further and further to include new machines over time."*
>
> **Bernhard Munzert, Automation and Control Systems, Pirelli**

Benefits of Efficient HMI

According to findings from research GE conducted that tracked eye movements and operator response, efficient HMI improves operator performance in a number of ways:

- Less time spent navigating
- Faster finding critical data
- Improvements in alarm resolution success
- Faster identification of relevant screens for an alarm
- Increases in usability

Real-Time Information Anywhere Anytime

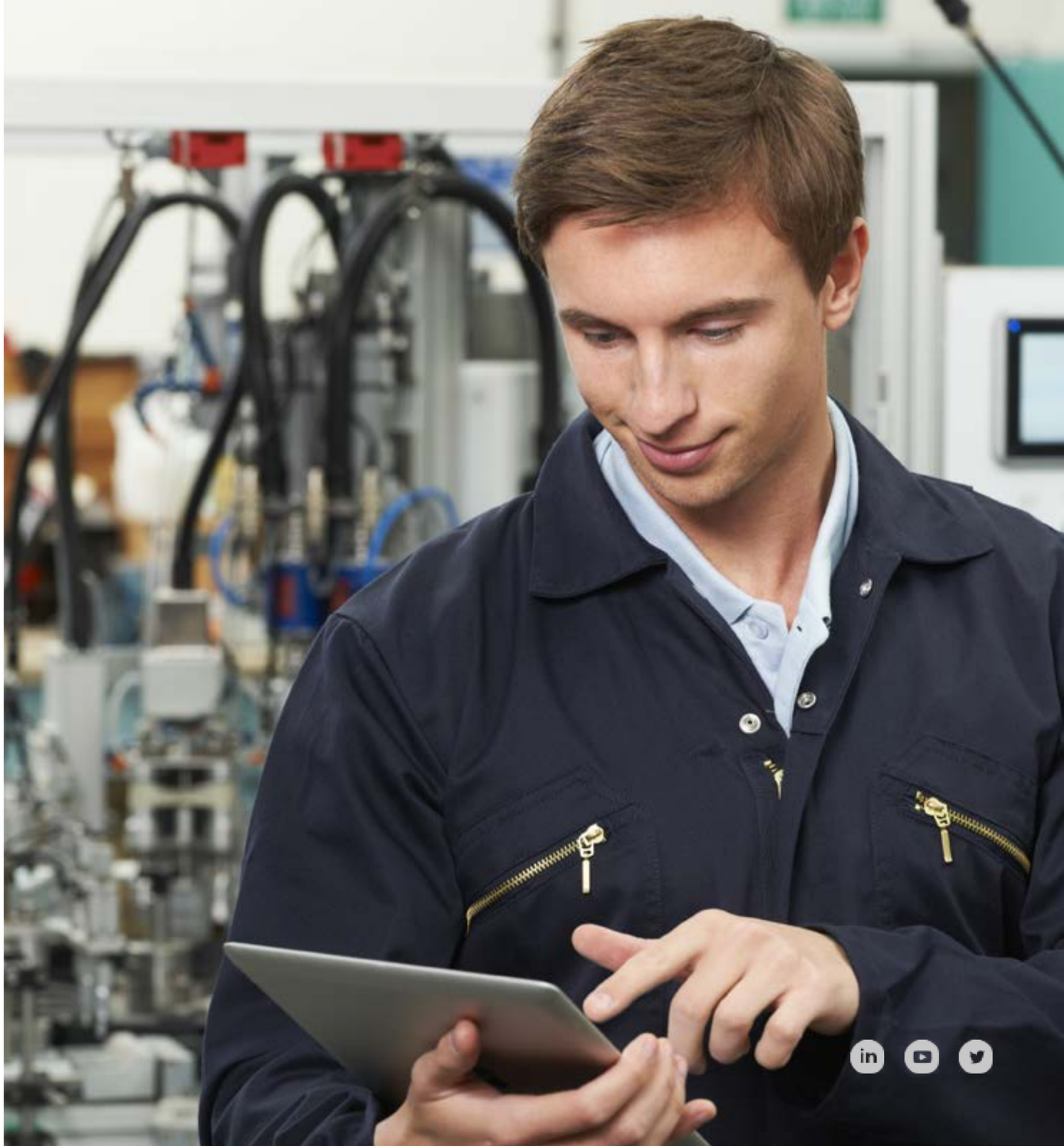
HTML5 Implementation Gives Operators On-Demand Support Wherever They Go

Today's operators are more mobile than ever before. Their work often takes them out of the control room, onto the plant floor, and to remote locations. But wherever they go, iFIX has them covered, thanks to a native-web HMI based on the HTML5 standard.

HTML5 is compatible with most common browsers and supports multi-touch applications. Thanks to its responsive design, it can scale to adapt to the form factors, orientations, and capabilities of displays that operators might use, from iPads and iPhones to terminals and HTML-compliant panel boxes.

The advantages of native-web HMI go beyond the operator interface. With iFIX, there is no need for client-side installation. Configuration, development, and deployment are all centralized, and any updates or changes are automatically reflected in the clients.

With iFIX, you also have the system design flexibility to produce your own HTML-based content that can be used to provide additional information to the operator using our model context. This extendable capability allows you to host information from other systems, such as business applications and external web content, in the same client layout, based on the equipment or process on the display to further enable the operator.



Operational Analytics

Delivering Intelligent Warnings, Not Just Alarms

When equipment fails, industrial processes can slow or grind to a halt. In the past, avoiding these failures meant observing recommended maintenance schedules, a trade-off between safety based on hypothetical norms and real-world efficiency. Even though systems generated thousands of data points, there was no way to use those points to determine the status of system components.

Automation software from GE Digital approaches this challenge from multiple perspectives. It employs real-time multivariable analysis, rather than single-sensor equipment protection, to filter out false alarms and to provide more accurate and timely alerts.

With its analytic plug-ins for components like air handlers, chillers and other equipment, our software brings to HMI/SCADA the benefits of predictive real-time analytics—algorithms that mine historical system data to guide operators to the right preventive actions. Because it is based on actual system performance, predictive maintenance is more efficient than planned maintenance in reducing downtime due to equipment failure or unnecessary maintenance, while giving operators the insight they need to optimize system performance.

The result: iFIX users have seen as much as a 33% increase in operations capacity and 40% faster troubleshooting.

Integrated Work Processes

Step-by-Step Instructions Make It Easier for Operators to Avoid Mistakes

Operators—as well as contractors and engineers—need guidance, structured documents and common references, at their fingertips, to ensure consistency, repeatability, conformance to standards, and accountability.

> *"iFIX has done an excellent job over the years and continues to be one of the most solid and flexible SCADA platforms on the market."*
>
> **Lars Peter Larsen, System Specialist, Copenhagen Airport**

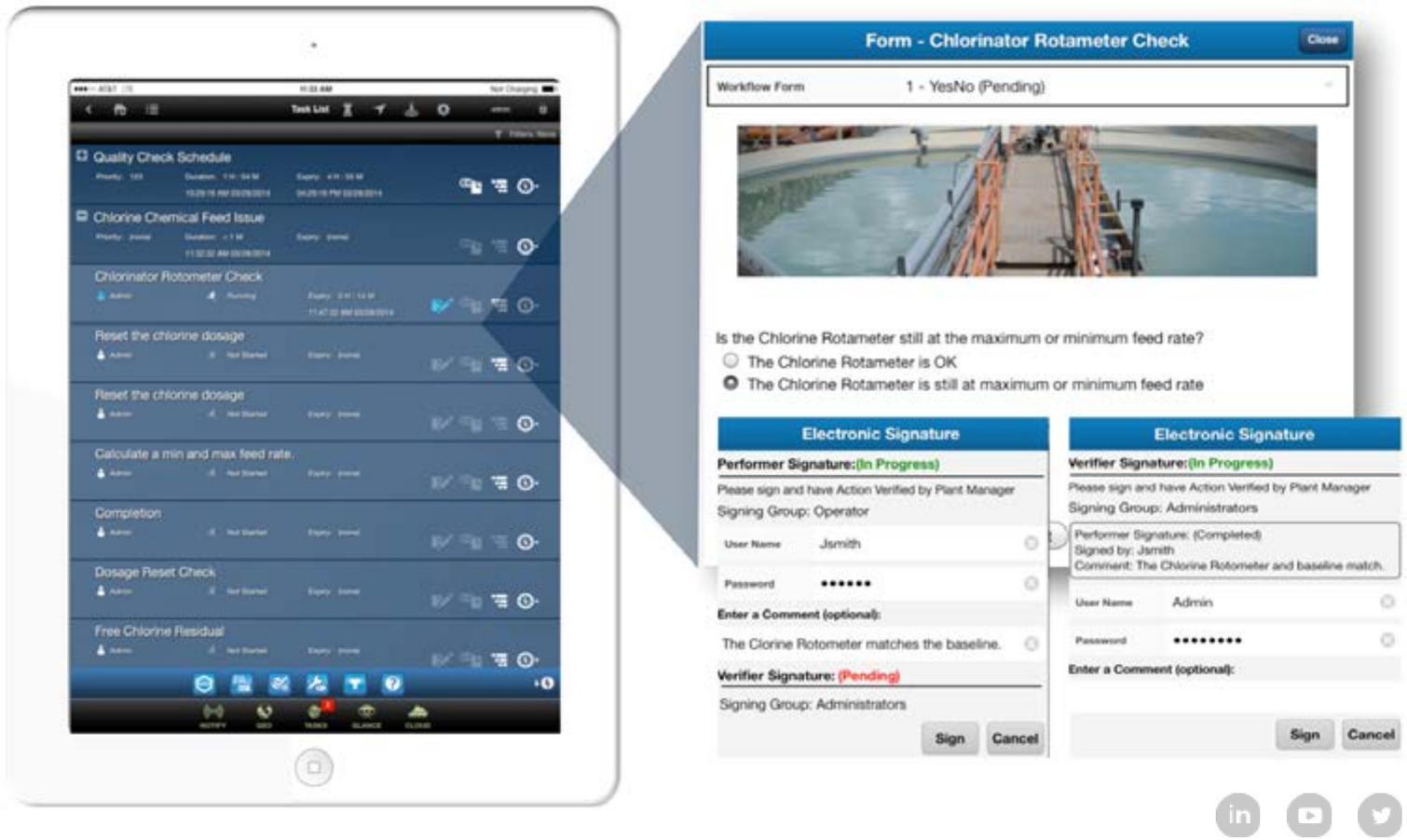
> *"When new operators come in, they are able to know how the system works – to be able to adjust the treatment process for swings without impacting quality."*
>
> **Fred Haffty, Wastewater Facility Manager, City of Haverhill Water and Wastewater Division**

With integrated work processes and electronic Standard Operating Procedures (eSOPs) delivered in iFIX through Workflow from GE Digital, you can drive the right actions globally every time. The benefits are substantial, helping you to:

- Reduce troubleshooting time and risk of making errors
- Decrease downtime, maintenance, and costs
- Capture knowledge of your best operators and reduce training time
- Record and track work processes for compliance

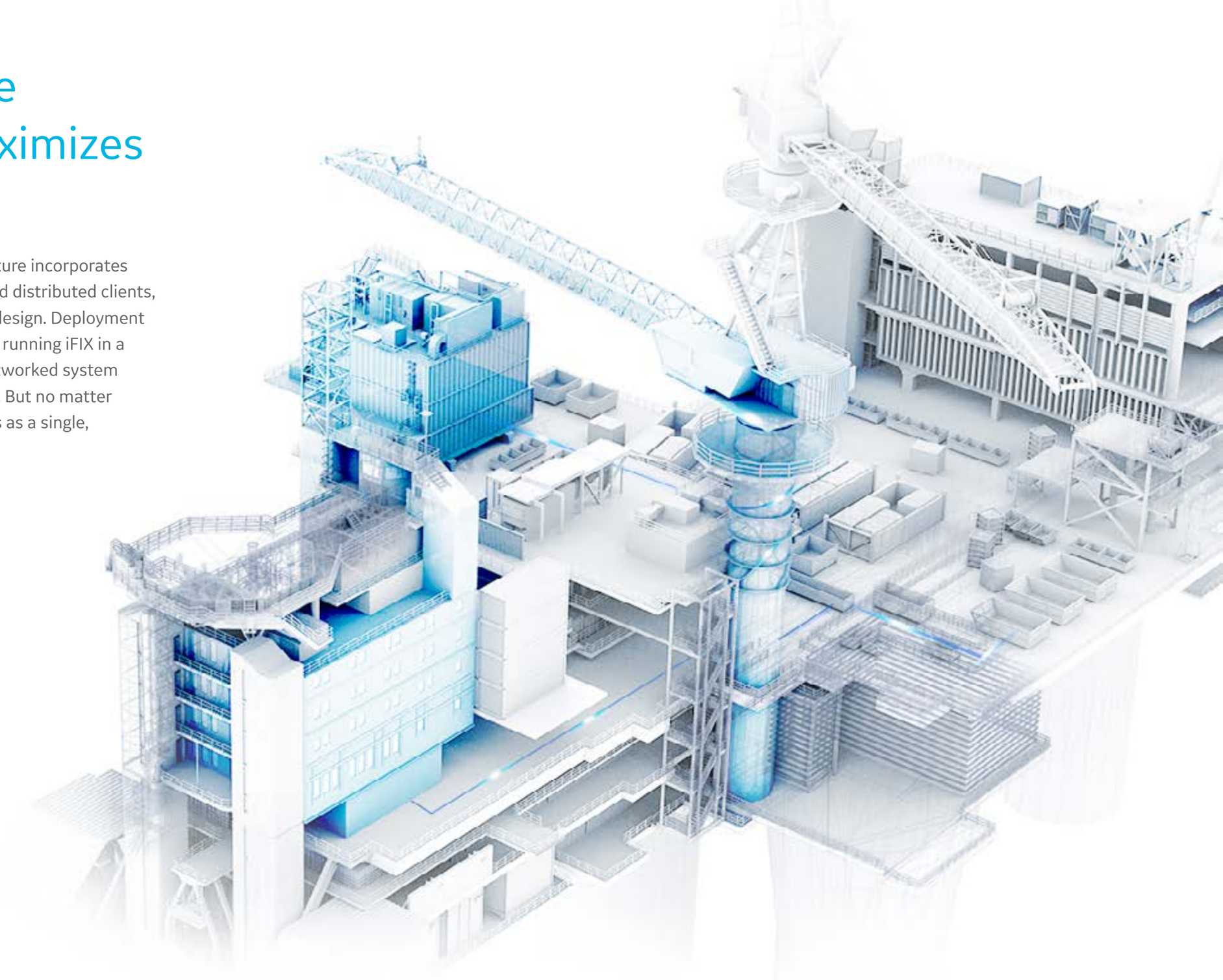
Fourth-generation HMI/SCADA also bridges the gap between operations and maintenance. When an out-of-spec event takes place in the SCADA, operators can trigger a work process to interface with the CMMS/EAM system, secure a work order number, send specific instructions including GIS location, and facilitate corrective action to remediate the problem.

The result: real-time, condition-based asset performance management.



Highly Extensible Architecture Maximizes Your Options

The iFIX distributed client/server architecture incorporates any combination of distributed servers and distributed clients, providing maximum flexibility for system design. Deployment possibilities range from a single computer running iFIX in a stand-alone HMI application to a large networked system with many distributed clients and servers. But no matter how complex the application, iFIX appears as a single, high-performance integrated system.



iFIX 5.8 R2

Our latest release—iFIX 5.8 R2—captures all the benefits of fourth-generation HMI/SCADA: efficient HMI, structured asset model, operational analytics, and on-demand support.

To Learn More

Visit www.ge.com/digital/products/ifix

©2016 General Electric. All rights reserved. *Trademark of General Electric. All other brands or names are property of their respective holders.
Specifications are subject to change without notice. 08 2016