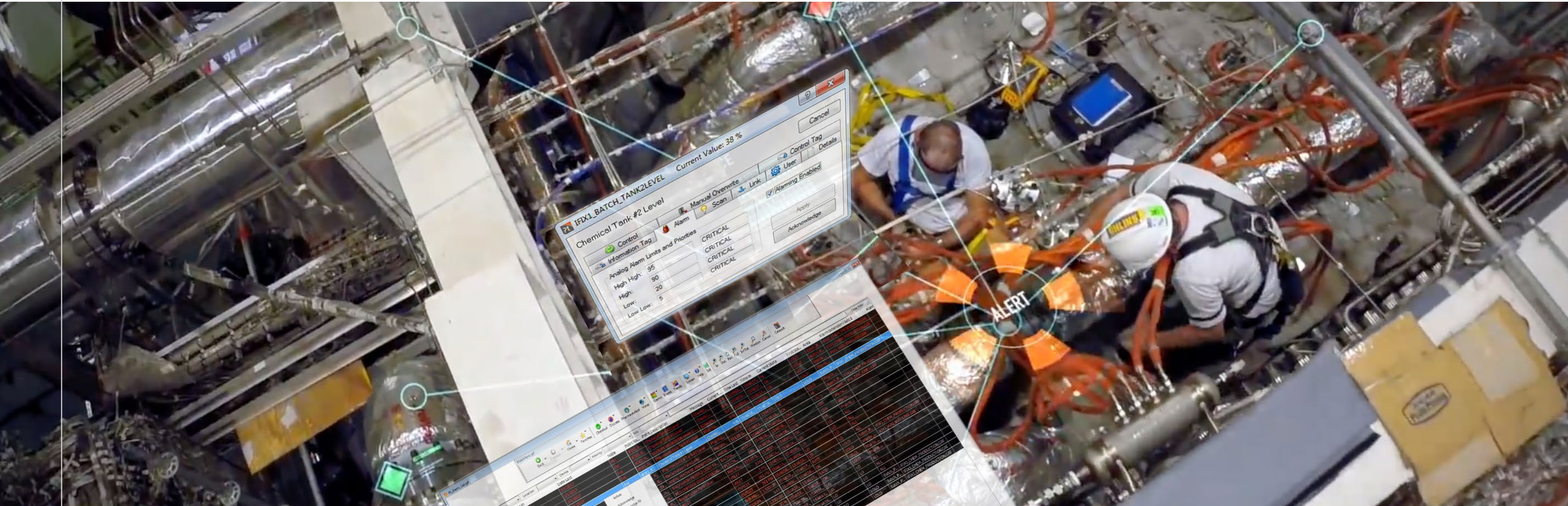
Intelligent Alarming Leverages Industrial Internet of Things to Reduce Risks and Costs



From proactive analysis to guiding operator response, modern alarming technologies use the IIoT's connected systems, layered with new apps, to help eliminate alarm noise and confusion while driving the right corrective actions.

What's the biggest challenge on the plant floor? According to a recent GE survey, managing alarms is still the biggest challenge.

But, in today's digital age, every organization can manage alarms. With intelligent alarming and the Industrial Internet, companies can send the alarms that matter, when they matter, to the right person. Engineers and operators can receive prioritized alerts with instructions, helping them react to and resolve alarms quickly.

An alarming situation

According to HMI/SCADA experts at GE Digital, about 75% of all alarms are noise. Many companies want to examine its systems and reduce the number of alarms to improve operator effectiveness. However, this is often an endless cycle. Integrators and in-house engineers typically find new alarms that must be added, while looking to reduce the number of alarms and flags in the system.

Too often, companies are forced to accept that there is a level of noise from alarms, and operators must know what to pay attention to and what does not require action. A problem arises with temporary staff operating machines or new operators coming on board. The temporary or new personnel usually don't have the experience to filter through the alarm noise and make sense of it.

Additionally, one problem can cause a flood of alarms hitting an operator. Recently working with a major metropolitan area's transportation team, a proof-of-concept showed how one problem on a train line triggered an initial alarm, followed by another alarm, followed by ten more alarms, then twenty, and the situation continued. The operators on the trains were inundated with alarms and, in this confusion, unable to identify the real problem.

Reduce noise with machine learning

In the Industrial Internet world, today's HMI/SCADA can filter alarms better to increase efficiency. Now, we can use machine learning to look at all the raw alarms in underlying systems, determine a root cause, and guide operators through the right corrective actions. This can take place in a control room or in the field—with instructions going to a mobile device of choice—and deriving intelligence from the raw data.

Machine learning puts traditional alarm rationalization on steroids. HMI/SCADA today, based on the IIoT connected enterprise, can provide full-scope alarm management and optimization, facilitating alarm rationalization by providing visibility to all alarms, its respective alarm priority or tier, frequency of occurrence (for a specified period of time), and more, delivering on an alarm philosophy that improves efficiency, reduces unscheduled downtime, and decreases risk.

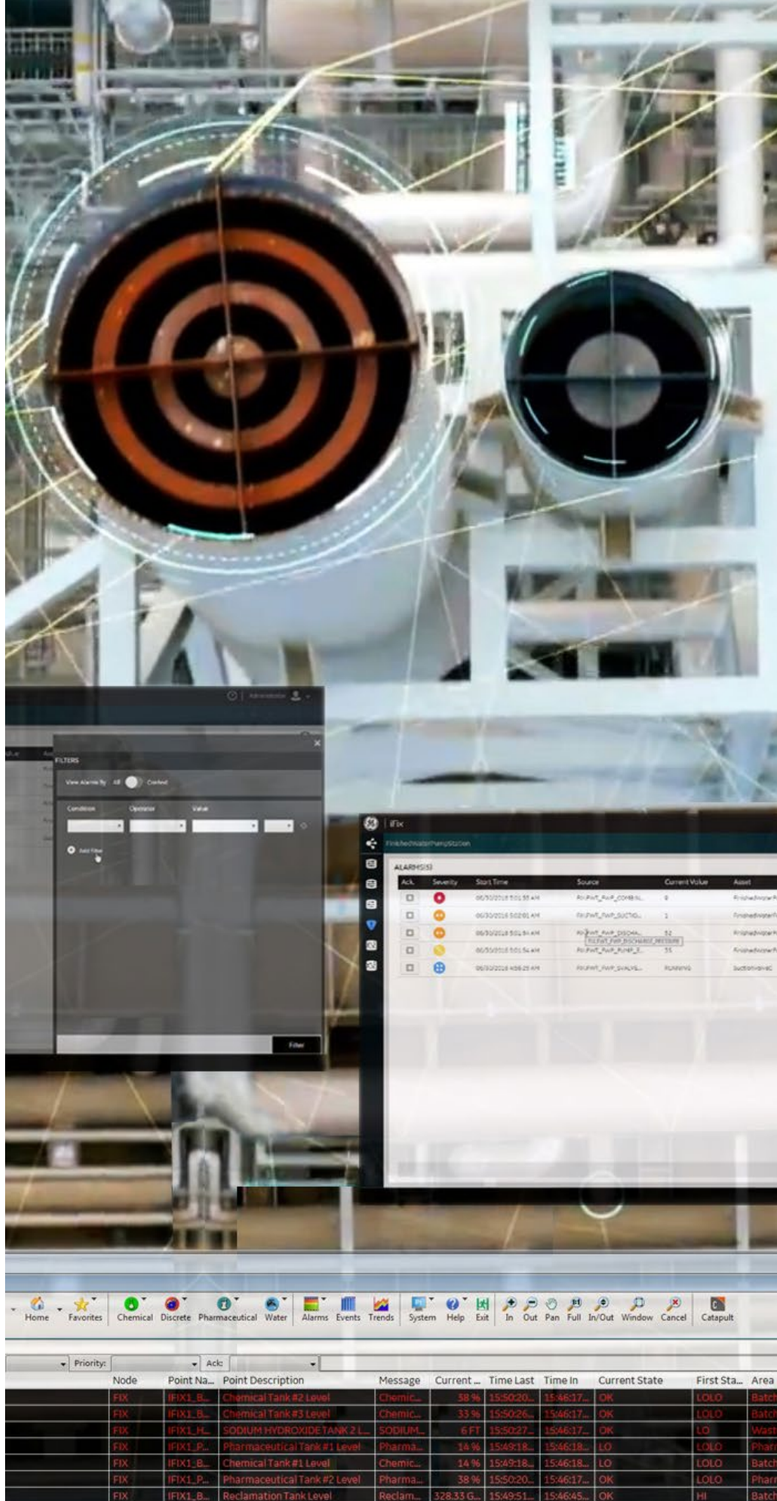
Be proactive with analytics

Furthermore, fourth generation HMI/SCADA can add a layer of proactive analysis to deliver predictive intelligent alarming. Today's technology isn't just about delivering the right information after an event has happened, it is also about delivering information before a catastrophic issue occurs and preventing it from taking place.

Consider if a plant monitors a temperature, which exceeds the upper control limit and an alarm goes off. Traditionally, an operator would now react to the alarm. Analytics have made it possible to evolve from being reactionary to now predicting when the event will occur and taking proactive steps.

As an example, a food manufacturer can monitor the temperature data point, put an analytic on it, and predict the temperature based on a statistical model. The company can push an alarm to an operator to ensure that action is taken faster, before a batch is ruined.

This applies to other industries as well, such as pharmaceutical with multi-million dollar batches of product, as well as maintenance events on discrete equipment. The application of predictive knowledge, delivered as an intelligent alarm, is far reaching across all industries and offers new possibilities for consistently optimized operations.



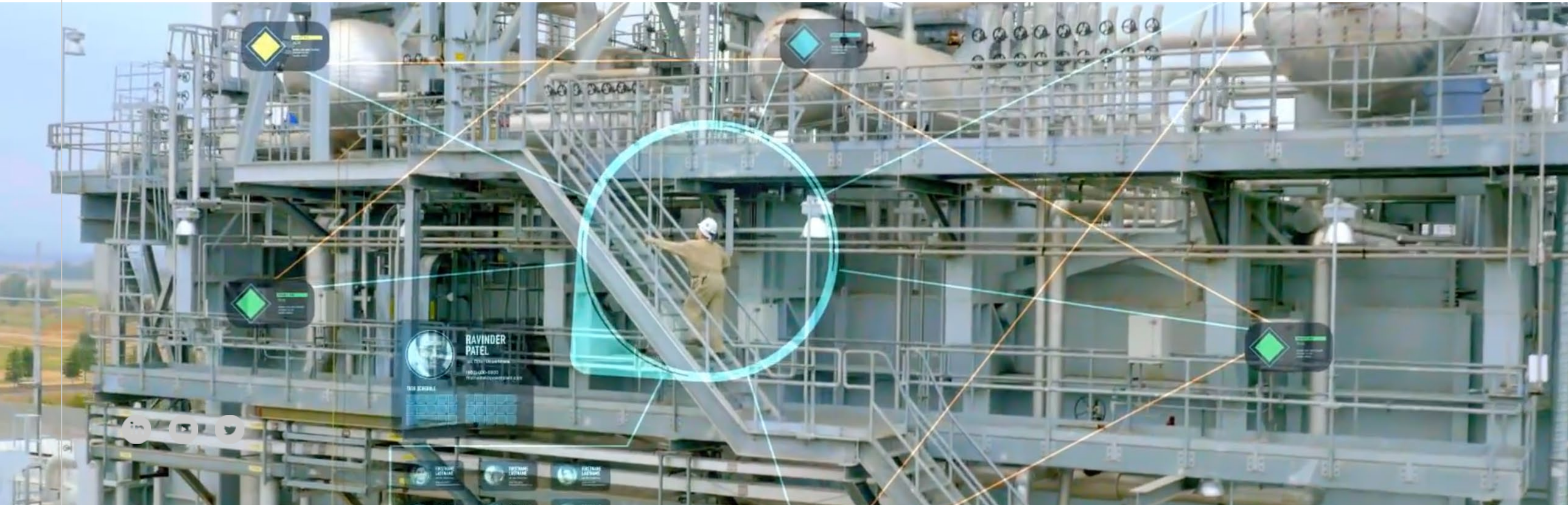
Alarms to the right person, at the right place—in context

Furthermore, our IIoT world helps us send alarms in context. This means, once an alarm fires, an operator should be able to understand contextually, not just where in the plant the issue is occurring (from a location standpoint), but more directly, where and when in the process there is an issue occurring.

Operators need to be able to understand the corrective action required to resolve an alarm. As such, seeing that alarm in context is important. In the past, operations teams relied on years of experience for that context—the so called "machine whisperer" who understood that if "x alarm" occurred under "y circumstances," then it meant a conveyor, for example, was moving too fast and they knew exactly how to tweak a dial. With our changing workforce, those days are gone—and digitization must be the foundation for providing the context to newer, inexperienced workers.

Lastly, fourth generation HMI/SCADA gets the alarm, in context, to the right person in the right place. Organizations can deploy alarms to an operator, engineer, or manager based on role and physical location. As an example, an engineer is standing on Floor 4 in front of a mixer and an alarm triggers related to a machine on Floor 1, which is 25 minutes away. Does it make sense to deploy the alarm to that engineer? Today's HMI/SCADA system can determine that a colleague is standing 100 feet away from the machine in alarm—and instead send the signal to the closest engineer for faster, more efficient response.

The right information, in context, finds the right person in the right location, which is drastically different from the traditional SCADA world and drives faster action.



Smarter operators with intelligent alarming

Today's HMI/SCADA is not just monitoring and visualization, with alarms rolling in. For operators, HMI/SCADA is their decision support system, and intelligent alarm management is critical. Here are two golden rules to think about:

Don't allow technology to complicate the operator experience.

Use technology to improve the operator experience and manage alarms for greater efficiency.

With just a glance, operators should be able to recognize which information requires their attention and what it indicates. You can enable smarter operators with intelligent alarming for faster alarm detection, greater understanding, and improved business outcomes.

Take operations to the next level with GE Digital's proven HMI/SCADA solutions.

JOIN US TODAY

About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive, and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure, and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology, and scale, GE delivers better outcomes for customers by speaking the language of industry.

Contact Information

Americas: 1-855-YOUR1GE (1-855-968-7143)
gedigital@ge.com

www.ge.com/digital