Plant Services
SPECIAL REPORT

Six ways the IIoT is redefining asset management success

Better mobility + Better collaboration = Improved Asset Management

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Better mobility + Better collaboration = Improved asset management

By Sheila Kennedy, CMRP, contributing editor

Back in the day, when plant work and record keeping were largely manual and sequential processes, the risks of miscommunication and long gaps between crucial activities were high. Since then, industrial software and technology has developed to a point where knowledge sharing is virtually instantaneous; collaboration is highly simplified; and assets are performing longer, more reliably, and more efficiently than ever before.

The influence of the industrial internet of things (IIoT) on mobility, collaboration, and asset management effectiveness cannot be understated. Its benefits ripple plantwide in ways that could not have previously been conceived, and the degree of interaction and cooperation between diverse stakeholders is growing to unprecedented levels.

Here are six ways that IIoT-powered mobile collaboration is energizing asset management:

1 SHINE LIGHT ON DARK ASSETS AND DATA

Too many machines and devices still operate in isolation. Besides improving the productivity and service capability of technicians, IIoT-enabled mobile collaboration pushes an enterprise to get its foundational technology in order, says Kevin Prouty, group vice president of energy and manufacturing at IDC (www.idc.com).

It sets the stage for other transformational activity such as putting condition monitoring sensors on "dark" assets and displaying instructions and other information on augmented reality (AR) devices. It also makes the operator more productive and valuable by getting the information directly to the point of activity, he adds.

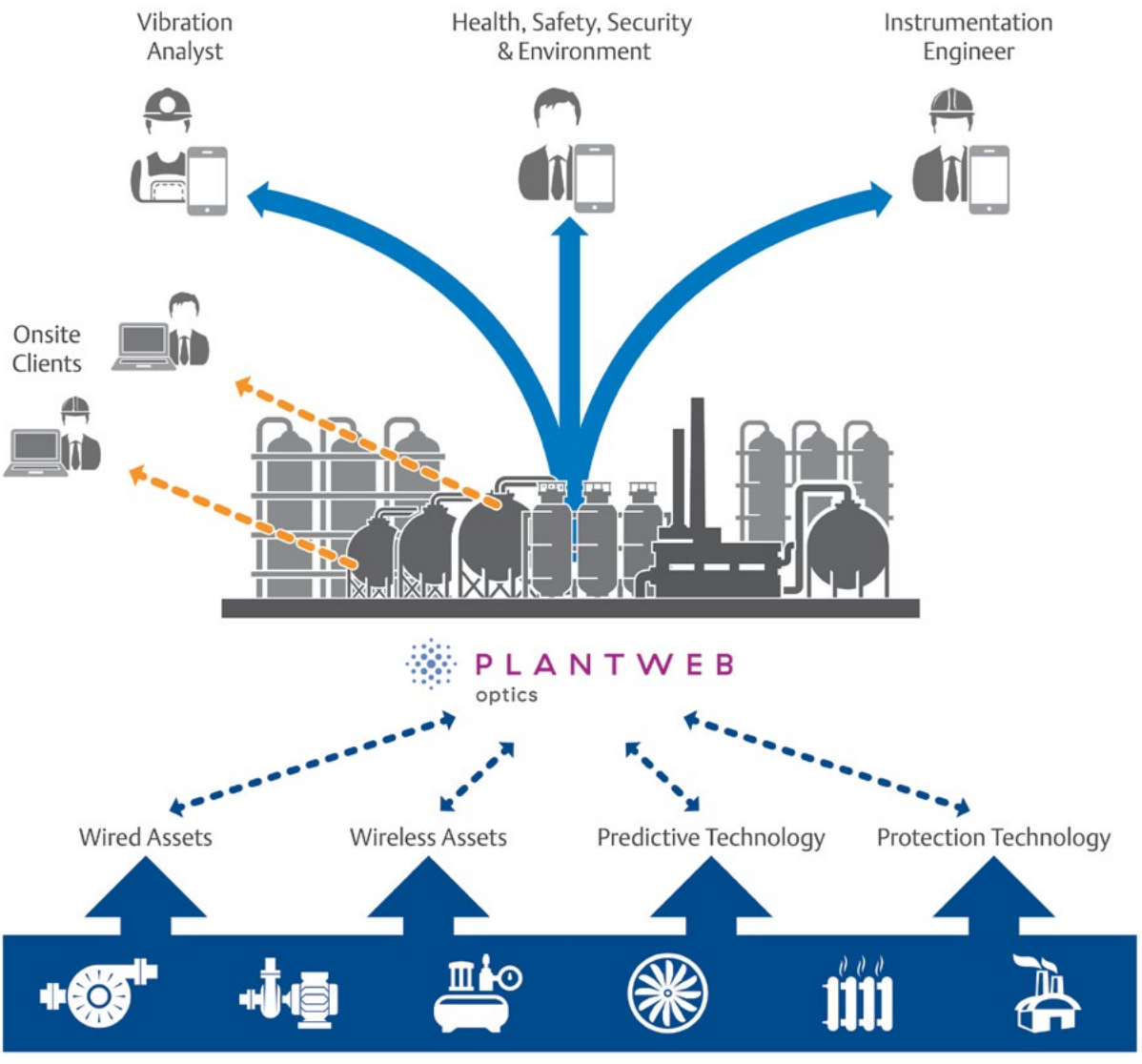
Attaching sensors to critical, remote, hazardous, and hard-to-reach assets automates oversight and enables predictive and prescriptive maintenance. The result is fewer and shorter unplanned outages, longer asset life, extended mean time between failures (MTBF), and greater overall equipment effectiveness (OEE).

For example, a manufacturer can use vibration monitoring with an integrated collaboration software platform to monitor its facilities around the world from a central location. When a certain vibration pattern develops, the software will automatically notify the appropriate personnel of the type of pending failure and suggest corrective actions.

2 IMPROVE COMMUNICATION COMPANY WIDE

The IIoT is providing new ways to integrate and deliver information. This is important, for one, because newer personnel are much more comfortable using hand-held devices than paperwork and clunky terminals.

Prouty witnessed this first-hand when a relatively young assembly plant operator shut down a line due to a problem, pulled out a personal smartphone and began texting with someone, and then shared a picture of the condition. Soon a technician arrived, and following some discussion the technician fixed the problem while the operator entered a work order at a nearby workstation. Minutes later, the technician



Source: Emerson

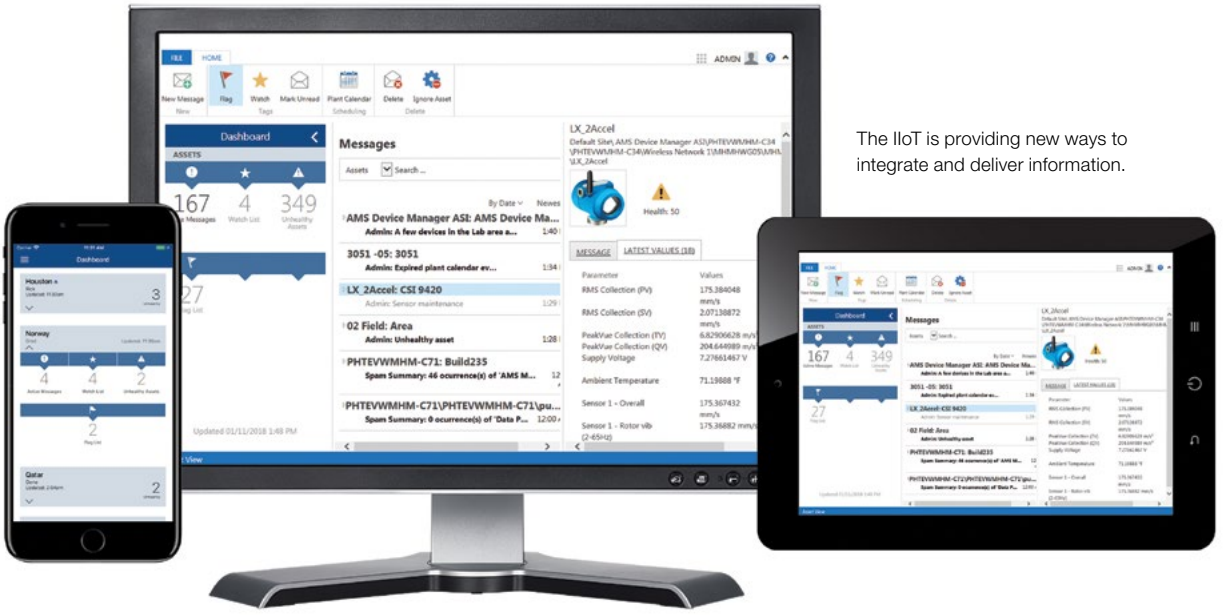
It is time to rethink how to do maintenance and communicate with the employees on the floor.

closed out the work order at the same workstation.

"All the details of this interaction were lost because the operator and technician used their own consumer-grade devices to communicate," observes Prouty. "The only thing recorded was that something happened and it got fixed." The experience convinced the plant manager that it was time to rethink how to do maintenance and communicate with the employees on the floor.

Mobile collaboration is heightened with persona-focused software that provides each individual with intuitive access to a unique set of pertinent information. It makes sure the right people get the right information and nothing more – right when it is needed.

One refinery was experiencing about five costly valve failures per month before it installed a persona-based collaboration platform. Now it is catching problems early and maintaining the valves before



The IIoT is providing new ways to integrate and deliver information.

Source: Emerson

failure because the software keeps each instrument technician focused on the health of the exact valves that are most important in their own area, and weeds out irrelevant information. When a certain type of alert pops up, they know to create a maintenance work order.

Following are more examples of the scope of communication improvements:

a) Operators can instantly report conditions such as a spill or suspicious noise and discuss them with in-plant or remote experts through their mobile devices. Sensors can automate delivery of notifications before an operator is even aware of changing conditions.

b) Maintenance technicians, engineers, and analysts with mobile devices can access, input, and discuss asset information in near real time from any location at any time of day, saving countless hours of travel time daily. Because they can efficiently capture the fact of a condition, how it was fixed, and any lessons learned, the maintenance procedures can be changed to inspect for that condition more often, and if it occurs again, the technician knows where to look first.

c) Reliability leaders can implement, oversee, and measure targeted condition-based maintenance programs from anywhere.

d) Planners can receive automated, early notice of failure conditions and schedule more timely and efficient outages.

e) OEMs and third-party experts can keep up with major problems such as high-vibration alarms and proactively assign a local service technician to assist by phone or on-site.

f) Health, safety, and environment (HSE) professionals can instantaneously receive more informative alarms and alerts and expedite the proper response.

g) Plant and executive management can have deeper insights into asset and plant statuses locally, regionally, or globally and make more effective decisions.

h) R&D and engineering teams can refine existing assets and develop new ones based on global electronic feedback about reliability and maintenance in real-world conditions.

i) HR can improve workforce training and retention when virtual and augmented reality and Facetime-like capabilities are available to link novices with experts.

3 RESPOND FASTER AND MORE EFFECTIVELY TO ALERTS

Modern safety and alarm management solutions provide more intuitive alerts. Rolling all alerts and events for an asset into a conversation view with rich accompanying information allows for more educated decisions. For example, an abnormal condition alert such as a valve travel deviation includes the parameter going into the alarm as well as information on how to potentially diagnose the problem.

These capabilities are particularly important for HSE personnel, who immediately need the best information possible when conditions such as a fire, arc flash, or a chemical spill arise. A high temperature alert can prompt fire suppression personnel to instantly mobilize and the safety manager to initiate evacuation procedures even before the fire is visible to the operator.

4 PROVIDE DEEPER INSIGHTS TO MANAGEMENT

Executives, managers, and reliability leaders all want a finger on the pulse but often lack necessary information. The availability of informative alerts, persona-focused dashboards, and intuitive reporting tools hands them exactly what they need to make better business, process, and technology decisions. Now, they can very quickly use a smartphone, tablet, or desktop computer to assess the health of any or all assets using filters such as criticality, priority, location, time frame, and health condition.

5 STRENGTHEN DATA-SUPPORTED DECISIONS

Mobile devices and sensors are able to collect an immense amount of unstructured information, which is essential to decision optimization. "For the first time, we are collecting unstructured and structured data almost in real time and centrally monitoring and managing it," says Prouty.

With integrated sensors and systems monitoring a myriad of asset condition and process variables, modern tools such as pattern recognition, machine learning (ML), and artificial intelligence (AI) are making sense of the Big Data being collected by organizations, and enabling longer-term analytics and decision-making.

Prouty views AR as probably the next big leap in mobile collaboration. "As more and more of these remote expert systems get put online, you'll begin to see more AR-enabled devices," he predicts. He has already seen several implementations where someone holds up a tablet or phone and it overlays a diagram of what is being worked on with supporting information, and simultaneously the person is communicating through their phone or tablet with an expert on the other end who is providing instructional guidance.

6 MAKE BETTER USE OF TALENT

There is an urgent need to better leverage technicians with 30-35 years of experience before they are lost to retirement. IDC has begun seeing a slow trend over the last 5-6 years where senior technicians stay in a central office and support newer, younger technicians in the field in real time through their mobile devices.

"This allows the veterans to spread their wisdom and experience on something that is really important rather than driving around and doing standard, mundane work in the field," explains Prouty.

SOFTWARE INNOVATIONS PULL IT ALL TOGETHER

Industrial hardware and software providers are rolling out solutions to consolidate available but siloed information, foster mobility and collaboration, and cause reliability and operational performance improvements. For example:

- Emerson's Plantweb Optics mobile-ready collaboration software aggregates and centralizes

information from across the enterprise and authorized external sources – including equipment from any manufacturer – and delivers alerts and KPIs based on individual personas. The platform comes with natively-built connections to Emerson's AMS Device Manager and AMS Machinery Manager software to simplify implementation, and the whole data path is encrypted for security.

- Asset management software (EAM/CMMS) providers are partnering with complementary industrial technology and software providers to enable a more powerful knowledge base and support maintenance and process optimization.

When mobilizing your team, Prouty cautions against forgetting about the content. "People get too concerned about the device, the software, and the workflow when the inputs are scattered over multiple databases in multiple formats," he says. "Pay attention to the content and data that the technicians will need and make sure it is organized and current."

Doing it right means you'll spend less maintenance and energy while getting better results. That's what IIoT-enabled mobile collaboration brings to the table. ◻

Additional Resources