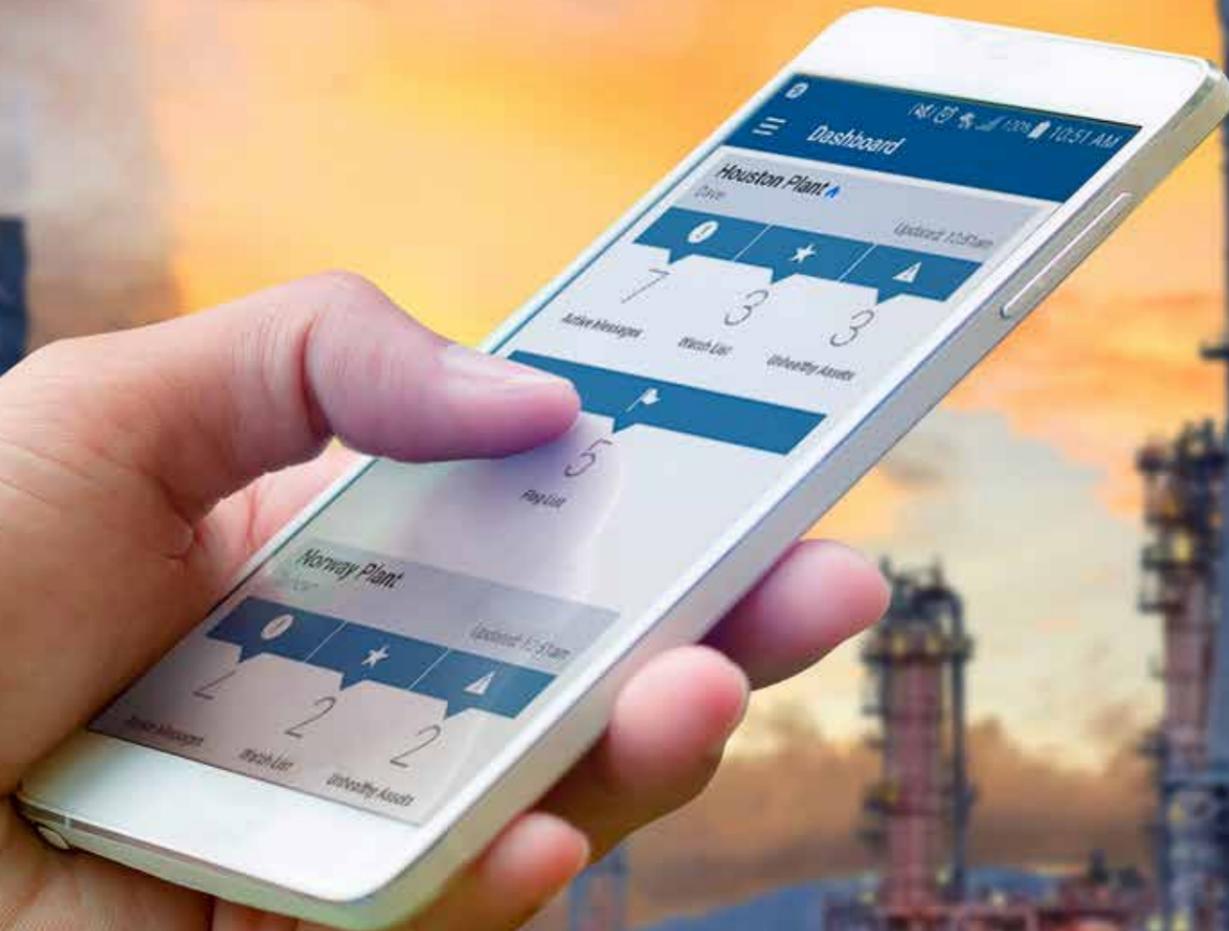# DIGITAL TECHNOLOGIES
improve maintenance efficiency and asset performance

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A wealth of additional plant and equipment data is now available to help process companies make operational improvements, but managing data can be time-consuming, preventing maintenance staff from focusing on analysis, decision-making and remedial actions.

THE LATEST ASSET performance platforms aggregate predictive intelligence and deliver concise information to the appropriate people, wherever they are located. Greater opportunities for collaboration and improved decision-making are further enhancing operational certainty.

Greater visibility into the health of equipment is essential for improving operational efficiency, increasing plant and worker safety, and supporting predictive maintenance strategies. That means obtaining relevant and important data from assets such as compressors, pumps, turbomachinery, valves and sensors and providing this data to maintenance staff to enable them to perform proactive actions.

Digital communications and smart sensing are providing access to a huge amount of new data from these assets that offer this improved visibility. However, for maintenance teams, all this extra data can become a hindrance rather than a benefit. For example, in a typical processing plant with 4000 field devices, an asset management system can deliver more than 2000 alerts a day to a maintenance manager due to equipment anomalies. Knowing which of these alerts are critical and which can wait can be a challenge and too much time is spent managing the data, rather than using it productively. Instead of drowning in data, there needs to be a way to prioritise assets, with a focus on the real troublemakers.

Turning "big data" into smart decision-making

With staffing and time limitations being an issue for maintenance departments, it is important that often-complex information is filtered to quickly determine asset health and identify what is critical and needs immediate attention. This "refined" information needs to be delivered to the appropriate people responsible for the equipment and with the expertise to make the right decisions.

To get ahead of potential problems, information is required immediately, wherever workers are located, be that out in the field, at a different site or even when they are offsite. There is also a need to ensure information is available on demand and for it to be presented in a concise and simple format to support quick decision-making.

Maintenance teams responsible for multiple sites require access to data about all the assets, and it is critical that information can be easily shared with other members of the team, to ensure the right decisions are made about the next steps. Failure to accurately predict equipment failures leads to lost profits, production and even confidence in your maintenance programme. There is also a need to enable plant management to see critical data from various siloed systems and its impact on broader operations.

Existing solution

A typical company within the processing industry may use software to help determine the health of the plant. This includes asset management, device management, machinery health and system performance tools. Should abnormal conditions exist, various analysis tools and historic information may be available to troubleshoot and determine the next course of action. The daily routine of a maintenance team would normally necessitate different software being accessed in the control room and time spent identifying the most critical issues. This methodical process can be time-consuming and prevents maintenance teams from being out in the field performing repairs.

New solutions

The latest technology is making it easier than ever to stay on top of asset health. New software, such as Plantweb™ Optics asset performance platform from Emerson, help reduce the thousands of alerts to just critical ones for the assets that need immediate attention. Getting

members. There is also the opportunity to attach and access photos, documents or reports to an asset. These tools support well-informed and faster decisions that contribute towards greater availability.

This was certainly the case when the control room operator of a refinery in the US identified an underperforming pump. Based on the process data available, it was clear that the pump was a bad actor. Immediate repair was essential, because the pump's performance significantly impacted plant production. Historically it may have taken days or even weeks for this essential information to be passed back and forth as key players traded notes and performed their roles. However, having implemented Emerson's Plantweb Optics, essential data was immediately placed into the hands of the right people.

the right data into the hands of the right people is paramount and these platforms aggregate asset health information from various sources and not only prioritise the most important and relevant data, but easily target actionable data to the people responsible for acting on it. With greater insight, real-time, informed decisions can be made that are necessary to maximise availability and reduce unexpected interruptions. This is transforming how companies manage data and digitally enable their workforces.

To achieve this, data about assets such as rotating equipment, instruments and valves is aggregated from wired and wireless field-based sensors, asset management and predictive intelligence applications. Information on the most critical situations is then delivered to the appropriate personnel, which could be to a vibration analyst, instrument engineer or indeed a group of relevant people throughout the organisation. Asset performance platforms overcome the issue of siloed information about assets and makes it securely available throughout the organisation. This provides management the opportunity to understand how assets affect production efficiency, supporting long-term decisions that lead to operational improvements.

Modern communication tools deliver the alerts to desktop PCs and laptops, tablets and smart phones. On mobile

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devices, personnel can quickly access equipment health scores any time, from anywhere, and can combine multiple views for easier monitoring of facilities across multiple locations. Providing remote accessibility to alerts in a secure environment means reliability, production and maintenance personnel are always aware of the status of critical production assets, wherever they are located. Intuitive visualisation and customised alerts reduce or eliminate irrelevant data. Personalised dashboards showing asset health-related KPIs ensure different members of the organization see exactly the information they need to make decisions. There is also the opportunity to "drill down" on individual alerts to get more details and launch diagnostic applications for asset heath diagnostics.

Collaboration

When troubleshooting issues, the opportunity for real-time collaboration with other members of the organisation ensures greater accuracy and better decisions. Asset performance platforms enable broadcasted messages to team

The operator notified the plant's process engineer, who used the asset performance platform to immediately flag the pump, and include all relevant information such as screenshots, documentation and historical data. The operator had also notified the reliability team simply by tagging the reliability engineer while flagging the asset; this avoided the need to scour the plant to track the engineer down. The reliability engineer, having received the notification on his mobile phone, inspected the health of the pump on the same phone. With the pump displayed in an "unhealthy asset" list, the engineer accessed additional process, vibration, and oil data, again from his phone and quickly diagnosed the problem.

Plantweb Optics allowed the different personnel to work as a seamless, integrated unit. Instead of spending time finding stakeholders and collecting critical data from various siloed systems, operations, reliability and maintenance workers enjoyed instant notification of problems and solutions, as well as one-touch access to the critical data necessary for diagnosis and mobilisation. ∎