

# MANUFACTURING INFORMATION SOLUTIONS

Transforming data into intelligence



**You need an  
information strategy,  
built using a  
combination of  
information systems  
and services,  
that's right for you.**

## **Creating a new infrastructure for IIoT**

Industrial companies can now pull data from almost any point in their operations and transform it into useful information. That information, known as manufacturing intelligence, can then be seamlessly shared with nearly anyone or anything in the manufacturing enterprise. This is redefining how companies monitor and manage their operations. It's also helping them become smarter, leaner and more productive.

However, just as every company is different, so are the means through which they access, analyze and act on their own data.

## CONTEXTUALIZING DATA INTO MEANINGFUL INFORMATION

Billions of devices are connected to the internet today – hundreds of millions of them are within industrial control systems. This proliferation of connected devices is known as the Industrial Internet of Things (IIoT). IIoT assets, from sensors to smart machines, can track an almost endless number of data points – from machine performance and product quality to worker behaviors. This technology holds enormous promise. Applications where companies see the most ROI potential include:<sup>1</sup>

- **Smart assets** that provide insights into their health, status and usage
- **Maintenance analytics** to diagnose issues and enable predictive maintenance
- **Worker-management data** and tools that drive employee productivity, compliance and collaboration
- **Operational visibility** to track products across the supply chain and detect security issues

But the IIoT also presents challenges. The sheer amount of data available can be overwhelming if not properly managed. And the data itself holds little value until it is contextualized and translated into useful information.

This is where manufacturing information systems and services come in. They can help you collect and organize your data, contextualize it into meaningful information, and scale applications or analytics to fit your most pressing needs.

<sup>1</sup>Data Management and Analytics Opportunity Assessment and Strategy Development, Harbor Research



“We believe that utilizing a proactive or predictive maintenance solution could provide a savings of about **9-10 percent.**”

*Source: Maintenance coordinator, Food & Beverage*

## TRANSFORMING DATA INTO INTELLIGENCE

Manufacturing information systems can turn your wealth of business and production data into manufacturing intelligence. This intelligence can be put to work in many ways in a Connected Enterprise. Some examples include:

- **Analyzing asset optimization** to make sure they're operating at peak performance and maximize uptime
- **Creating predictive maintenance strategies** to spot and address asset failures before they happen
- **Digitizing quality control**, such as through sensors and analytics, to help enhance product safety and compliance
- **Automating manual processes** by enforcing standardized workflows to improve productivity, maximize quality, and lower variability and production costs
- **Monitoring employee activities** to help optimize schedules and be sure they're located where they're most needed
- **Implementing track-and-trace capabilities** to help comply with new regulations and meet a growing public desire for greater visibility

Three categories of information systems that every organization should consider implementing in its Connected Enterprise include:

- **Manufacturing execution systems**
- **Analytics applications, machine learning & artificial intelligence**
- **Augmented reality & digital work instructions**

## LARGE ASIA-BASED PHARMACEUTICAL COMPANY

Drug manufacturer goes paperless and streamlines production.

To achieve this, the company implemented the PlantPax<sup>®</sup> distributed control system (DCS) and FactoryTalk<sup>®</sup> PharmaSuite<sup>®</sup> manufacturing execution system (MES) from Rockwell Automation. The new architecture combines the plant's Quality by Design (QbD) and control functions, creating a common view into operations and new opportunities to optimize production.

Since implementing, the company has improved OEE, increased the number of batches it can produce, reduced manual entries by 70 percent, and lowered its manufacturing costs.

# Addressing specific manufacturing challenges of all sizes and complexities

Manufacturing execution system software can connect, manage, validate and optimize all aspects of production. When implementing an MES solution, you have options.

A comprehensive MES – which can be purchased as a single-plant, multiplant or industry-specific solution – can help you meet a range of productivity, quality, compliance and cost-saving goals. Sometimes, however, a comprehensive MES solution delivers more than you initially need.

In these instances, individual MES applications can address your specific challenges while building toward an eventual full-scale MES deployment. These applications can start with a single use case at the machine or work-area level, and then scale up to a larger MES solution over time as ROI is realized.

MES applications can run as thin-client applications on desktops and other devices. **This can help reduce complexity.**



MES applications include the following:



#### **Production-management applications**

Organize your production activities and improve work-instruction deliveries to personnel in complex operations.



#### **Quality-management applications**

Model and enforce in-process quality regimens. This can help ensure you deliver quality products and quickly react to quality issues.



#### **Performance-management applications**

Offer deeper visibility into your operations. These new insights can help you drive continuous improvement, enable preventive maintenance and improve asset utilization.

## IMPROVING DECISION-MAKING AT ALL LEVELS

Analytics tools convert your raw data into descriptive, diagnostic, predictive and prescriptive analytics. This information can then be delivered to workers through dashboards to help improve decision-making in their specific tasks.

Flexible analytics tools can meet your needs, from simple monitoring to complex event processing:

- **Simple:** Local maintenance analytics can provide visibility into an asset's performance to optimize its uptime. Solutions can tap into device data to produce real-time alerts about critical device and machine health.
- **Moderate:** Multi-plant analytics can help drive throughput and yield, tapping plant-level data to deliver real-time updates to operators and analyze machine or facility trends. These analytics also enable OEM-based remote monitoring, which can identify asset maintenance needs and even predict failures before they happen.
- **Complex:** Global analytics can help ensure operational conformity and compliance worldwide by integrating production analytics with business-intelligence tools to bring new context to production data and to analyze big data.

### DESCRIPTIVE

What happened?

### DIAGNOSTIC

Why did it happen?

### PREDICTIVE

What will happen?

### PRESCRIPTIVE

What action to take?

## Information system cuts 2,500 hours of manual data collection

A leader in dairy processing, wanted real-time access to actionable information at its Ontario plant. Existing systems required manual data collection and were nearing obsolescence.

The company decided to move to an integrated control and information system. This included using FactoryTalk® InnovationSuite, powered by PTC, software from Rockwell Automation, which provided a new level of access to data from across the plant.

The modernized system eliminated 2,500 hours of manual data collection in the plant each year. It also helped uncover more than 33 hours of additional production time annually.

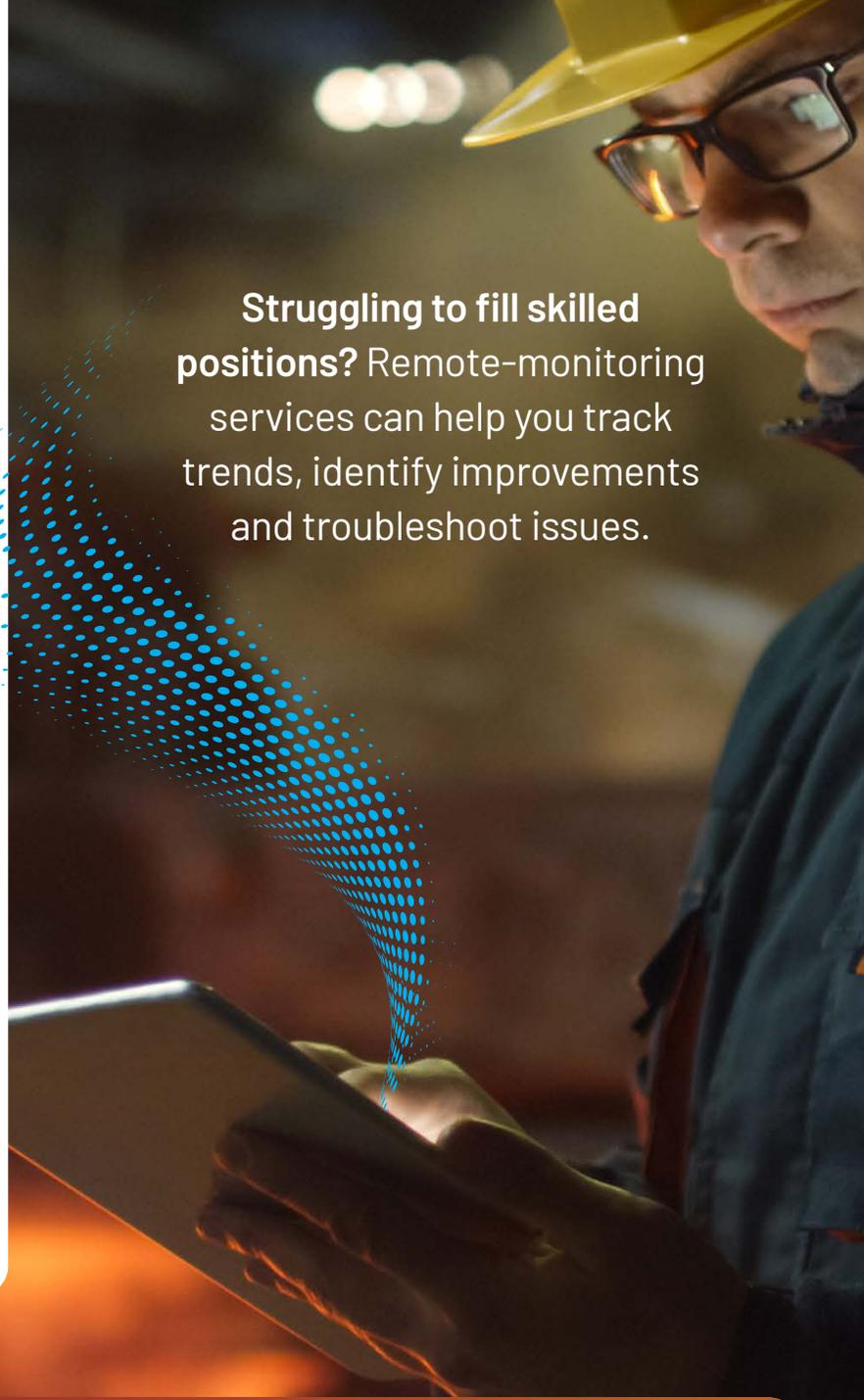
## UTILIZING OPERATIONS DATA TO FILL KNOWLEDGE AND SKILL GAPS

Industrial companies often rely on vendors to support all aspects of a machine's lifecycle. Now, an even greater need exists for vendor support for information systems, which are new to much of the existing industrial workforce.

Third-party information services can help you make the most of the data that exists in your operations. They also can help fill knowledge or skills gaps resulting from swift technology changes and global skills shortages.

### Key information services include the following:

- **Asset reliability services**  
These services turn raw maintenance data from across your operations into actionable information. This gives you better visibility into asset health and helps improve overall asset management.
- **Remote monitoring and analytics**  
Remote specialists can help manage the growing amount of data and connected devices in your operations. They can also monitor your dispersed or hard-to-reach assets, reducing transportation costs and risks.
- **Network and information security**  
Information-enabled operations require a comprehensive security approach. Network and information security services help to protect your people, plants and intellectual property.
- **Cloud analytics**  
There's a growing need for a deep understanding of analytics strategies at a time when skilled talent is increasingly hard to find. You can alleviate this challenge by moving data monitoring, storage and visualization to the cloud.



Struggling to fill skilled positions? Remote-monitoring services can help you track trends, identify improvements and troubleshoot issues.

# Start drawing up your information strategy today

## TAILORING YOUR SOLUTION TO YOUR SPECIFIC NEEDS

Manufacturing information systems and services can help you meet whatever information-related goals or challenges you're facing. But it's crucial that you first choose the systems and services that are right for your operation, and then apply them in a way that addresses your needs.

For help in crafting your information strategy, call a Rockwell Automation representative or visit the [Information Solutions webpage](#).

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