

Plant Digitalization With IIoT Optimizes Factory Operations

Achieve your next stage of digital transformation with industrial PC-based architecture, secure connectivity, visualization, and secure remote monitoring.

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While many of the products we've come to rely on are modern marvels, manufacturers that produce them are often operating under a timeworn model. Machines collect reams of data from the factory floor, and IT uses terabytes of data for business operations. But because OT (operational technology) and IT systems aren't integrated, manufacturers can't make decisions in real time, and machine operators struggle to manage the sheer volume of information.

The solution, of course, is to share information between OT and IT—which gives manufacturers a clear picture of what's happening on the factory floor and allows them to develop solutions to problems before they occur. As a result, factories become more efficient, saving time and money. But they also become more agile, respond better to shifting market conditions, and ultimately increase their productivity.

When OT and IT communicate with each other, manufacturers can analyze machine data in the cloud to uncover trends for predictive maintenance, rather than risk losing precious production time due to unexpected failures. Operations engineers also see information from plants scattered across the globe and securely manage machines without setting foot inside the factories themselves.

Smart Factories Reach Production Potential

This level of integration is crucial to a manufacturer's ability to keep up with evolving trends and grow its business. But getting there requires the right technology. Because machines on most factory floors represent a huge capital investment, new systems must work seamlessly with the old.

Fortunately, industrial edge computing systems from companies like [Schneider Electric Holdings, Ltd.](#), a [global leader in digital transformation](#), are the gateway that manufacturers need to reach their

production potential. Schneider solutions automatically connect legacy machines and their data to the people who need it, eliminating manual data collection and errors that come with it.

In fact, one company—a manufacturer of liquid and gas analyzers—deployed the Schneider Harmony P6 to do just that. The customer has three factories in Poland, where it builds analyzers used to check the quality of various liquids such as sewage treatment water and gases—including testing air quality in cities or smoke from chimneys.

To build these liquid and gas analyzers, the company produces some of its own parts, which it combines with third-party components in the final product. But some of the systems it was using in the production process were inefficient and costly. Specifically, the manufacturer had three significant problems:

- Machine data collection was done manually. Operators entered data from the HMI into a SQL database via Excel spreadsheets. Sometimes they added an external PC and installed SCADA software for collecting and reporting. And this route was expensive as it involved hiring a subcontractor each time.
- There was no way to securely connect factory OT data to IT systems, which created serious security risks.
- Secure remote systems management was impossible because operators were unable to centrally visualize data from their multiple locations.

EcoStruxure for Industry helps manufacturers:

Optimize investment costs up to

50%

Optimize time-to-market up to

20%

Increase productivity up to

50%

Secure Connectivity and Remote Monitoring

With Schneider solutions, the manufacturer was able to achieve the connectivity, visualization, secure remote monitoring, and expandability it needed.

The Schneider Harmony P6 iPC (industrial PC) and EcoStruxure software platform are at the heart of the solution. Edge applications connect to factory machines to collect and preprocess data for IT, while other applications analyze data on-site, allowing the customer to streamline operations (**Figure 1**).

The Harmony P6—powered by Intel® processors—is a fanless, ruggedized iPC designed and built for harsh environments. The platform has a proven reliability record with reduced failure rates, high availability, and long life cycles.

It securely connects the manufacturer's PLC over Ethernet and its “dust counter,” Gasmet analyzer, and other devices connect via serial communications. All the data collected from these devices are shown on a user-friendly dashboard and automatically saved to the SQL database, using two SSD drives for redundant security.

This information can also be sent to other software applications such as a distributed control system (DCS) or SCADA, depending on customer needs. Redundant drives are essential to the manufacturer. Losing historical data such as chimney smoke analysis, for example, may result in fines.

The EcoStruxure Machine SCADA Expert software combines data visualization with additional SCADA features, providing major operational improvements compared to using HMIs. To help factory-floor machine operators, edge applications parse machine sensor data, sending real-time alerts and showing workers on the dashboard how to fix problems—instead of bombarding them with information they don't need to see (**Video 1**). And manufacturers can analyze machine data in the cloud to uncover trends for predictive maintenance, allowing them to solve problems as soon as, or even before, they occur.

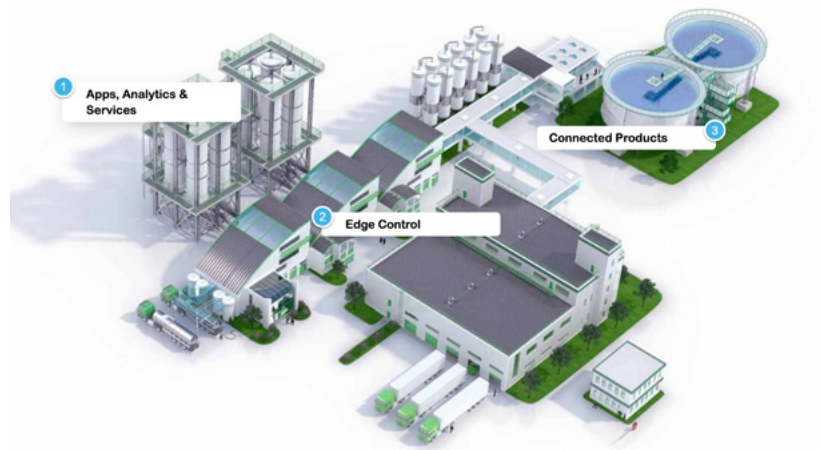


Figure 1. An IoT-enabled open architecture and platform connects, controls, and enables real-time data analytics. (Source: [Schneider Electric](#))



Video 1. The Harmony P6 iPC solution uses Plant Digitalization with IIoT to deliver improved data management, secure remote monitoring, end-to-end cybersecurity, and predictive maintenance. (Source: [Schneider Electric](#))

Digital Transformation Yields Measurable Results

After implementing the Schneider solution, the manufacturer achieved significant improvements on several fronts. First, switching from manual to automatic data collection improved data management efficiency by 20%.

In addition, having this data accessible all the time means more timely maintenance. Factory managers can now fix machine problems during scheduled downtime. And they can connect to the system remotely at any time, allowing them to evaluate problems before sending technicians to the site to investigate. As a result, the customer spends 25% less time on maintenance.

Finally, scaling these results, and expanding the Harmony P6 system with new functionality, is easy. Because the solution has already been installed company-wide, when the customer wants to add new features, it will take 30% less time to implement them.

With solutions like the Harmony P6 and EcoStruxure Machine SCADA Expert, just-in-time manufacturing becomes a reality. In this way, Schneider Electric and Intel® are helping manufacturers transform their operations, lower costs, and better serve their customers.

“It’s so much easier, and faster, to manage data when you already have everything in the SQL database—rather than uploading it manually from CSV files. Then you can do whatever you want with it: generate reports and graphs or analyze system data.”

- Krzysztof Aleksandrowicz
Senior Sales Engineer OEM
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