

Edge AI Closes the IT/OT Gap

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Today’s factories suffer from a deep disconnect. Machines collect terabytes of data about operations, and corporate IT collects hordes of data about what customers want. But because the two systems aren’t connected, manufacturers can’t keep up with buying trends and machine operators struggle to interpret the tide of information flowing in.

Modern technology has a solution for these problems: Connect factory machines (OT) with the corporate system (IT) using industrial edge computers—transferring the data people need between the two. That way, IT has the information it needs from the plant and can send the latest customer data to production managers—allowing them to create the goods people want faster. At the same time, AI software running at the edge makes machine data intelligible to operators, allowing them to fix problems in real time and prevent maintenance issues from snowballing.

“Edge computing is the gateway between OT and IT,” says Kenji Ogura, a product marketing manager at [Schneider Electric Holdings, Ltd.](#), [a global leader in digital transformation](#). “By connecting them, manufacturers can optimize production, improve quality control, reduce downtime, and align production to demand.”

“#Edge #AI makes #manufacturers more competitive. In the near future, it will become an industry standard for #DigitalTransformation.”—Kenji Ogura, @SchneiderElec via @insightdottech

OT/IT Integration Leads to an Agile Factory

When enterprise resource planning (ERP) data is connected to factory Manufacturing Execution Systems (MES), businesses can act upon the latest sales trends and forecasts for various regional markets. Just-in-time manufacturing becomes a reality as plants use incoming information to make quick turns on the production line.

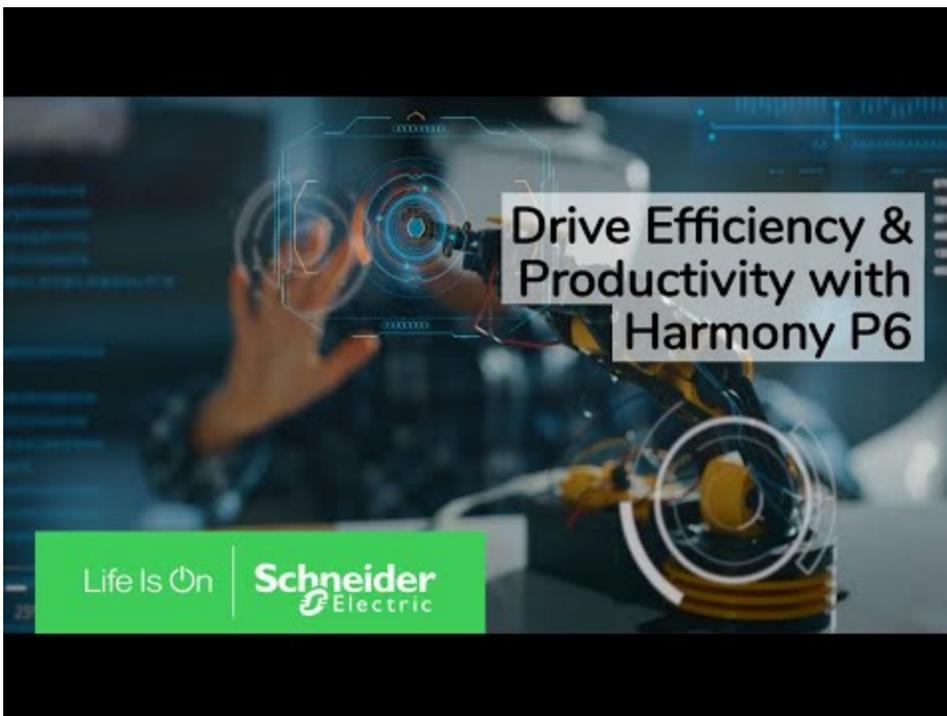
“A factory has many product lines, and demand changes frequently,” says Ogura. “With information from IT, the factory can make the right products at the right time.”

For example, a refrigerator company may learn that customers in the U.S. Midwest like white side-by-side refrigerator-freezers, while those in California prefer stainless-steel models with the freezer on the bottom. The factory can then adjust product design, forecasting, and supply chain management to suit current demand, changing the parameters as updated demand information streams in.

Factories can also use IT sales data to improve customized deliveries. For example, what if an auto factory sees a new order for a red car with white leather interiors, heated seats, and mag wheels? It can make the necessary adjustments on the production line to assemble and ship it right away, instead of making the customer wait weeks or months.

Powerful Edge Computing Supports Global Operations

Powerful industrial edge computers, such as Schneider’s Harmony P6 solution, make IT/OT integration possible (**Video 1**).



[Watch Video At:](#)

<https://youtu.be/rWilpgy68Dg>

Video 1. The Harmony P6 PC solution enables factories to manage operations more efficiently.
(Source: [Schneider Electric](#))

In addition to helping factories meet demand, the streaming data allows executives and managers far from the factory floor to see information from plants scattered across the globe and manage operations in real time. “They can get data from factories in Europe and the U.S. They can manage local edge computers on a single IT server,” Ogura says.

Manufacturers also analyze the factory machine data in the cloud to discover trends for predictive maintenance, gaining insights that help them solve problems and boost operational efficiency. One of their most effective tactics is developing new AI algorithms for factory edge applications through machine learning.

Running on the Intel® processor-based computing power of the Harmony P6, Schneider’s EcoStruxure software platform can perform many of these complex AI applications simultaneously. Edge applications connect to factory machines to collect and preprocess data for IT. Other applications analyze data on-site, providing a host of capabilities to improve operations in real time.

For example, machine vision applications recognize defects and cull poor-quality products from the line before they can be sent to customers. To help factory-floor machine operators, edge applications parse machine sensor data and send real-time alerts, showing workers on a user-friendly dashboard how to fix problems, instead of bombarding them with information they don’t need to see.

“If there is an error, the edge computer shows what kind of error it is and brings up a video or a PDF maintenance guide to help the operator resolve it quickly,” Ogura says.

Edge AI also enables predictive maintenance, allowing factory managers to fix machine problems during scheduled downtime, before they cause a costly shutdown. Some factories duplicate data coming from suppliers’ devices, ensuring that none of it gets lost. There’s practically no limit to what edge applications can do to solve particular problems with machines or processes.

But with so much data traveling among systems, factories must make sure it is kept private and secure. “Our products are designed based on international cybersecurity standards, with hardware encryption, a secured operating system, and secured remote connections,” Ogura says.

An Edge AI Future

Sharing information between OT and IT gives manufacturers a better understanding of operations and allows them to develop solutions to make improvements in real time. Factories become more efficient, saving time and money. They also become more agile, respond better to shifting customer demand, and ultimately improve their productivity.

Today, edge computers and AI applications are mainly used at large factories, but as their value becomes apparent, they are bound to catch on everywhere, Ogura says: “Edge AI makes manufacturers more competitive. In the near future, it will become an industry standard for digital transformation.”