Executive Brief

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Wearables Keep Workers Connected, Improve Operations

When Airbus wanted to reduce complexity and increase accuracy in assembling cabin seats on its aircraft, it worked with Accenture and Intel® to develop industrial-grade smart glasses for workers. With information from the glasses guiding their hands, workers mount seats on the cabin floor with pinpoint accuracy. They also use the technology to check the seats for quality.

Wearing the glasses, workers can scan component barcodes hands-free. They also can watch augmented-reality videos and access other information from the cloud. Using voice commands, they can quickly find the information they need for a particular step without having to divert their attention to page through a manual.

The result has been a 500 percent increase in productivity and an error rate that has declined to zero.

Reducing Safety Hazards

Industrial workers – in the factory and the field – often operate in rugged environments. Outfitting personnel with wearables and tablets can significantly reduce risks. Connecting workers not only improves efficiency and lowers costs, "it has a massive impact on safety," said David Parry, Senior Principal, Accenture Industry X.0.

Location-tracking devices let factory managers know where workers are at all times. If an evacuation is needed, the devices provide information to emergency responders, direct workers to safety, and inform them when it's safe to return.

Oil and gas workers also wear monitors to warn them of dangerous gases. Embedded sensors will raise an alarm to indicate trouble if a worker is motionless, in a horizontal position, or unresponsive.

Increasingly, the makers of hard hats, safety goggles, and breathing devices are adding RFID tags to their equipment. The tags record workers' responses to a safety checklist, ensuring that their equipment is right for the job and up to date on inspections.

Communications technology also improves safety by eliminating guesswork. "Workers have easy access to experts. Instead of saying, 'I think this is the right thing to do,' they can connect with a specialist on Skype or have them ping a picture in an instant message," said Parry.

Connecting the Dots

These are just a few of the ways that solutions like the Accenture Connected Industrial Worker can help factory and field workers do their jobs more effectively.

This multi-value solution is designed to link industrial workers with their machines and assets. Sensors are fitted to workplace equipment to collect data about daily operations. Workers are then equipped with wearable and mobile devices to respond to this information and perform vital tasks, in the factory or out in the field (see **Figure 1** below).

Intel® IoT Gateway Technology can store this information and route the data between connected devices and the cloud. In the cloud, this data is transformed into insights that optimize business processes and increase enterprise value. Supported cloud platforms include Amazon AWS, Microsoft Azure, SAP Leonardo, and Accenture's own Connected Platforms-as-a-Service (CPaaS).

Making Fieldwork More Efficient

Before the advent of the IIoT and connected workers, a typical challenge might look like this: The field engineer gets a problem call where the information provided is cryptic. It often turns out that additional equipment is needed, requiring the time, cost, and hassle of additional truck rolls.

The Accenture solution turns this challenge around. Now connected workers can have direct access to equipment data and problem diagnoses. This enables them to be prepared with the right information and tools before heading out to the field—saving time and reducing the number of trips.

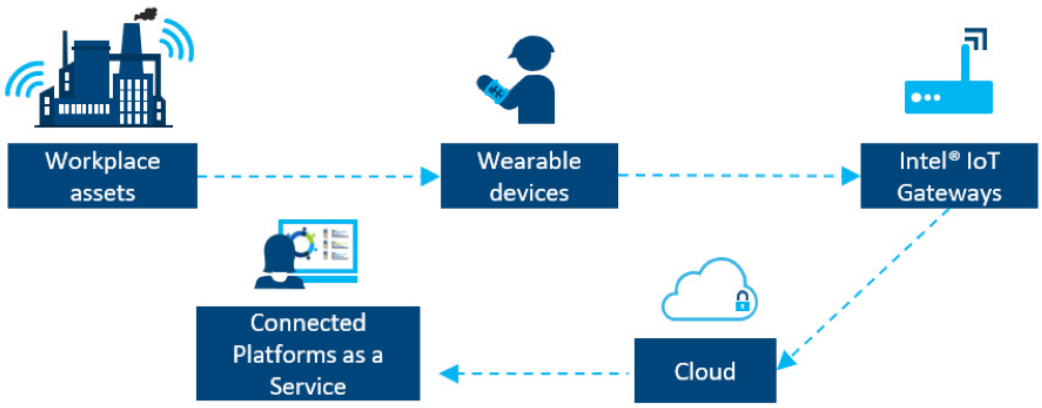

Figure 1. Connected workers use technology to receive instructions and pass data to the cloud for future analysis.

Because online instructions are automatically updated, connected workers always have access to the latest information. Using out-of-date, hard-copy documentation can lead to costly and time-consuming rework to correct errors.

"If they have to pull out specs and procedures at the office, take notes and then fill out forms at the factory—it's not efficient," Parry said. But driving efficiencies from digital should be a company's first step toward what Accenture calls Industry X.0, the digital reinvention of industry.

> **Connecting workers "has a massive impact on safety"**
>
> **David Parry, Senior Principal, Accenture Industry X.0**

Providing Fresh Insights

Connecting workers also allows industrial managers to view their operations through a microscope—or a telescope. Instead of receiving reports only when a project begins or ends, they can get feedback on progress down to the task and sub-task level.

Before engineers leave the office, they can connect to live equipment in the factory and get data about its status. Once on-site, they can take pictures, mark up drawings, and collaborate with experts anywhere in the world. Instead of having to make several visits, engineers can solve the problem then and there.

"A factory manager's senior workers have phenomenal knowledge, but when they walk out the door, they take it with them. By providing them with tools that make it easy to capture what they're doing, managers preserve that knowledge for the future," Parry said.

As information from multiple systems accumulates, it can produce unexpected insights. At one plant where pipes became corroded, workers examined additives, temperature, pressure, and other variables, but remained stumped by the problem. By crunching a year's worth of historical data, including workers' photos taken for other purposes, the factory learned that the problem was caused by poorly installed insulation.

"Without data analysis, no one would have picked that up," Parry said.

Algorithms also help when managers need to make decisions under pressure. If a critical piece of equipment suddenly fails, rather than wasting time contacting supervisors by radio, a manager can use analytic tools that quickly suggest which crew is best suited and available to stop the work they're doing and move on to the more urgent problem.

A Look Ahead

From boosting productivity and safety to improving operations, from saving money to preserving valuable knowledge, connected workers are transforming the plant into an intelligent, interconnected hub. The factory is becoming a blended workforce of humans and intelligent machines working side by side, and we are still at the dawn of the digital reinvention of industry. As new technologies emerge, they will bring even more innovative transformations.

Connecting workers with hands-free wearables enabled Airbus to increase productivity by

500%

and reduce the error rate to zero

Learn more about Industry X.0 and other Accenture IoT solutions.