

Epicor White Paper

How Smart Factories Drive Remote Work Capabilities

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Introduction

2020 saw a surge in remote work with companies experiencing shutdowns and business disruptions. But thanks to Industry 4.0 and smart factory technologies, many resilient businesses were able to adapt. Manufacturer Hytera reassigned a few of its production lines to produce disposable face masks. Baoshan Iron and Steel kept its facility in Shanghai running with automated production. According to a [news report](#), “The two major production lines in Baoshan are fully unmanned. Each line needs two to three workers for inspections.”

Companies have had to reevaluate their operations to meet social distancing requirements. They created virtual workspaces and leveraged new skills for their employees, [Gartner](#) reports. Hytera and Baoshan maintained production with new health guidelines to keep employees safe. With the sudden global changes, many businesses expected a change in production. Close to 80% of U.S. companies surveyed by the National Association of Manufacturers anticipated a financial impact. More than half anticipated a change in operations.

Shift to the Smart Factory

Businesses want to gain insights into their customers, suppliers, and products. To meet this level of growth, manufacturers need to embrace the principles of [Industry 4.0](#).

As Hytera and Baoshan show, workers are still required to supervise operations. They continued autonomous production because of one important reason: Their factories are smart.

A smart factory goes beyond compartmentalized automated processes. As [Deloitte defines](#) it, a smart factory is a connected and flexible system. It uses data from connected operations and production systems to adapt to new demands.

The smart factory anchors Industry 4.0, the next Industrial Revolution. This time around, the revolution is fed by data that can be aggregated and analyzed.

A smart factory that uses data is:

- **Connected:** Data flows across from the supply chain down to production and distribution.
- **Optimized:** Idle machines can take on new workloads to increase productivity.
- **Transparent:** All stakeholders can access real-time data.
- **Proactive:** Use data analytics to solve problems before they cascade into larger bottlenecks.
- **Agile:** Can shift production according to market demands.

But what does a smart factory look like? The Nokia production facility in Oulu, Finland, which is 99% automated, is one example.

Management conducted a dry run using a 'digital twin' to see how change affects production processes. The outcomes allow management to test the risk of change and move forward.

They use cloud technology to keep an eye on processes with connected mobile robots.

The World Economic Forum [labeled](#) Nokia an "Advanced Fourth Industrial Revolution Lighthouse." A "lighthouse" integrates the principles of Industry 4.0 to its entire operation. As of 2020, there are 44 lighthouses in manufacturing. Nokia's smart principles automate inventory management for vendors to ship new materials.

The key takeaway is that the principles of a smart factory can apply to all businesses large and small. Near-total automation requires an evaluation on how to best revolutionize outdated processes.

The Building Blocks of a Smart Factory

The following are examples of how smart factories use technologies as building blocks.

The principles of a smart factory can apply to all businesses large and small.



IloT

Industrial Internet of Things (IloT) improves decision making and infrastructure control, [Gartner Reports](#). Schneider Electric, a lighthouse smart factory, uses [IloT](#) to relay information about production variations. Vendors that access this data can adjust their inventory and ship supplies. [Tesla](#) uses IloT to allow customers to check their vehicles via their smartphones. The IT data improves product performance and software efficiency. [See how](#) IloT can help your manufacturing business reduce common operational frustrations.

Cloud Technology

In case of a sudden labor disruption, it's ideal to move to another location or track production offsite. Cloud technology provides those capabilities. As reported by [Deloitte](#), Cloud technology enables deeper, more sophisticated insights and analytics. [Volkswagen is investing in a cloud platform](#) that will send data to its vehicles for better customer experiences. With data from constant machine monitoring fed into the Manufacturing Execution System, cloud technology enables remote oversight into the production line. [Discover how](#) Cloud technology allows your IT to focus on critical tech decisions.

Automation

Lately, robots have moved beyond the caged giants seen in automotive manufacturing. Today's robots are collaborative (cobots) working alongside humans. A vision-guided cobot, The Hulk, helps with heavy load lifting at the Johnson & Johnson facility in Jacksonville, Florida. Robots are also used for visual inspection of goods and pick-and-place operations. This increases efficiency and allows humans to attend to less repetitive tasks.

Augmented Reality

When parts break and experts are not onsite, augmented reality (AR) helps workers access remote help.

ThyssenKrupp uses [HoloLens](#) to collaborate with experts in real-time during routine elevator repairs. The experts see exactly what the engineers are working on and can provide appropriate instructions.

Working Alone—or in Tandem

Companies can choose which technology to put in place. It all depends on the key performance indicators (KPIs) they want to realize first. KPIs that measure adaptability to change include shortening change-over times and productivity increase.

Almost all manufacturers can integrate these technologies into their practices and realize efficiencies. Many technologies depend on others, but sometimes it becomes difficult to only install one. Effective predictive maintenance needs IloT and cloud technology to forecast machine failure.

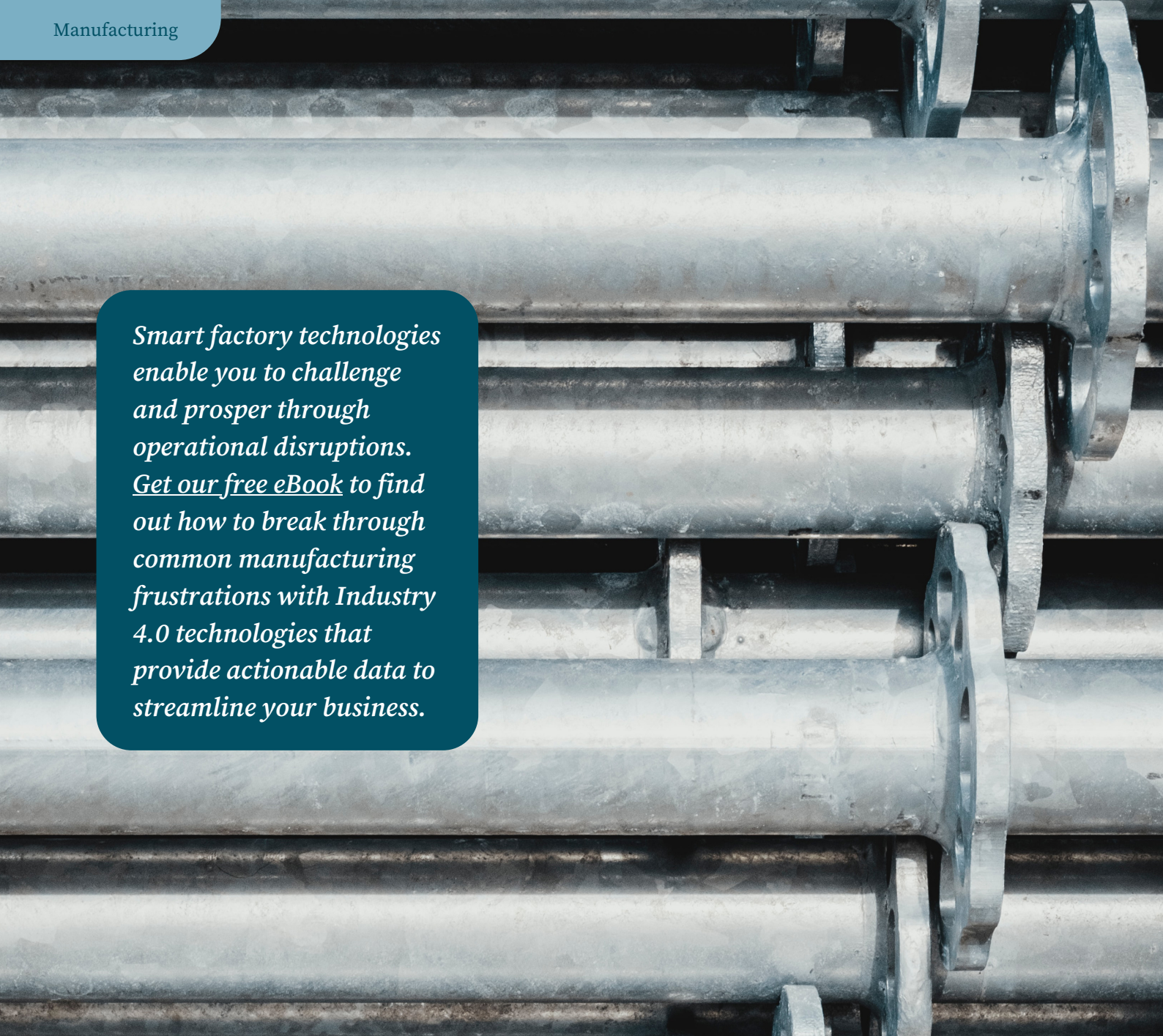
What's Next?

To adapt to new realities, manufacturers are managing staff offline or rotating workers in shifts to adhere to CDC protocols.

Industry 4.0 gives manufacturers the ability to adapt to change faster. Hytera reassigned one of its production lines to create disposable face masks, a product outside of its wheelhouse. A system that reacts to real-time data from changing markets facilitated the pivot.

Before the economic challenges brought on by Covid-19, Industry 4.0 was expected to create [\\$3.7 trillion in value by 2025](#).

Manufacturers can learn and put in place many lessons from smart manufacturing. Weaving these technologies into the fabric of processes can increase adaptability now—and build a more resilient future.



Smart factory technologies enable you to challenge and prosper through operational disruptions. Get our free eBook to find out how to break through common manufacturing frustrations with Industry 4.0 technologies that provide actionable data to streamline your business.

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