When the going gets tough, the factory gets smart

Helping an aerospace manufacturer build planes more efficiently despite some really strong headwinds.
First orders were suspended. Then came COVID. Now what?

The Situation

Familiar with this old chestnut? The Chinese word for crisis is a combination of characters signifying danger and opportunity. Turns out that’s not true, but it’s still a good way to describe how leadership at one of the world’s largest manufacturers of aerostructures for commercial airplanes, defense platforms, and business jets approached business setbacks that might have crippled a different organization.

The company’s main production facility dates back to World War II, and to stay competitive it knew it needed to invest in infrastructure. With an assist from Deloitte, the plan was to create a smart factory—meaning a highly responsive, adaptive, and connected system of technologies that together would engineer a continuous flow of information between the physical and digital worlds. With a smart factory, advantages the company would gain include tracking materials, removing bottlenecks, and overcoming inefficiencies. It could optimize throughput. Improve on-time delivery.

The project was moving along nicely. But then...

Then orders were put on hold for one of the company’s mainstay clients, leading to a steep revenue decline. Then COVID-19 struck, bringing further disruptions—not just to the manufacturer’s workforce, but the global supply chain.

Still, leadership chose to double down on digitizing the company’s operations, positioning it for future growth by harnessing the power of next-generation technology. After all, what better time to fundamentally change how the facility operated than during a period of reduced business?
Despite the churn, the overall goal remained the same: build airplanes more efficiently. With this North Star in mind, the project team methodically worked its way through each step of the process, applying technology solutions where they'd have the most impact. The transformation would unfold in three modules powered by Smart Factory Accelerator, a preconfigured suite of cloud-based IoT applications run in collaboration with AWS.

The first module—Floorsight™—maximizes machine utilization. Together, we developed a process for using RFID tags to track part location and progress through the production facility. Then, we put sensors on the machines so that floor managers know not only what each machine is working on but when it will next be available. Handlers could then stage new material in the right place, at the right time.

The second module—OptiCrew—maximizes labor efficiency. This involved combining disparate enterprise resource data to form a complete (and dynamic) picture of workforce utilization. Data from the master work schedule was overlaid with data on what jobs were underway, as well as the status of those jobs. Detailed workflow data for these jobs was added, including data on how many hours each should take, along with who had the relevant skills. The result: a detailed visual management dashboard on the shop floor that serves as a prescriptive work queue for line workers and as a real-time status indicator for managers.

The third module—the Constraint Command Center—maximizes support organizations. With the Command Center, constraints to the manufacturing process (such as a malfunctioning machine or a build quality issue) could be ranked, tracked, and managed to resolution. Insight into which constraint should be addressed first, and how long a particular constraint should take to resolve, not only supports throughput speed but offers a means by which managers can make data-driven business decisions. At what point does the time it takes to resolve a constraint justify hiring an additional worker? With the Constraint Command Center, the answer is clear.
Several years into its transformation, the company has found its stride with the smart factory. The orders that had been put on hold are back in the queue, and the line is progressing back to full utilization.

The company will continue to lock in bottom-line results from the solutions engineered with the Smart Factory Fabric modules, including expanding into new geographies.

The company’s long-term plan marks a new way of doing business through a globally connected ecosystem—a goal that might have previously been unachievable.
LET’S CONNECT.

Do these challenges sound familiar?

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