



Case Study: Manufacturing

How an operational analytics project helped uncover \$3 million in savings

An equipment maker lacked the algorithms to plan and sequence part of its manufacturing process. Now, it could save millions.

Sometimes you just know there is a problem with your business, but you don't have any means of knowing how big it is. Take the manufacturing line of a well-known US-based equipment manufacturer. The company's manufacturing process was quite simple. Parts would be manufactured and then passed onto a paint shop unit for painting before assembly into products such as tractors and diggers. The problem was that the paint shop was relying on 30 separate enterprise resource planning (ERP) reports to plan its painting schedules.

In practice, the people in the paint shop had almost no idea which items they should deal with first. They would just pick up whichever component was nearest and load it onto a conveyor belt for spraying. If the assembly workers were lucky, it might correspond to a piece that was needed for an urgent order. But with a planning accuracy of just 47%, most of the time it did not. Unsurprisingly, only around 9% of orders were assembled on schedule.

At a Glance

A well-known equipment manufacturing company was experiencing undue losses and order delays because of a paint shop bottleneck preceding its assembly line. Using advanced algorithms along with ERP system integration and complex data extraction and analytics techniques, we were able to quantify the loss and provide a plan of how to deal with it.

Outcomes

- Raised assembly schedule adherence from 9% to approximately 100%.
- Boosted paint shop planning accuracy from 47% to almost 100%.
- Eliminated order backlogs within 120 days.
- Identified up to \$3 million a year in savings.

Solving a business problem with operational analytics

We broke the problem into two parts: planning and sequencing.

The paint shop challenge was just one, albeit glaring, example of the issues the company faced due to a lack of system integration and optimization. When Cognizant was brought in as part of a wider global engagement, it was clear we would have to help automate and structure the existing paint line scheduling process so the assembly section of the manufacturer's plant could get the components it needed in good time.

Our solution

To deal with the problem, we broke it down into two parts: planning and sequencing. In the planning phase, we needed to identify which parts had to be painted first, based on assembly plans. For this, we applied data transformation techniques to information such as the inventory of already painted parts, the demand for parts for assembly and upstream work in progress.

The company needed to significantly reduce the number of critical alerts escalated to technicians, automating how different types of alerts are handled. The desired outcome was an integrated, efficient remote building management platform that allowed the company to proactively manage in-store operating systems.

For sequencing, we applied an algorithm to optimize the sequence of parts being painted, taking into account variables such as the time of day and work shift, cycle time for an item on the paint line and assembly rate of production. Quantifying the workings of the paint shop was not easy, but it was essential. For instance, painting a large component would obviously take longer than a small one. But how much longer? What kind of delay would it result in? How many people would be needed?

End results

Nevertheless, we were able to extract the information from the ERP systems and analyze it. The results were startling: By optimizing the paint shop process, our client could save up to \$3 million a year while reducing order backlogs. (Realizing these savings is reliant on the client's ability to transform related IT systems to support a fully optimized and automated workflow process.)

Cognizant is helping the manufacturer get to that stage. Once the company gets there, it will know exactly where to look for immediate returns.

About Cognizant Manufacturing

Cognizant's Manufacturing business unit operates as a trusted partner to global manufacturing leaders, helping them accelerate business performance in the digital world. The unit is recognized for its forward-looking approach by industry gurus such as IDC MarketScape, which bestowed on it a "Leader" rating for service lifecycle management. Our business consulting professionals ensure that manufacturing and logistics clients receive exceptional business results from their technology investments and sourcing programs. Our domain solutions leverage digital technologies to build smart products, connect with digital consumers, provide real-time visibility into manufacturing operations and automate knowledge work with cognitive computing. Learn more at <https://www.cognizant.com/manufacturing-technology-solutions>.

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About Cognizant

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