

Case Study

GETTING PROCESS IMPROVEMENT DOWN TO A SCIENCE

Major steel processor optimizes process by combining analytical and statistical methods with sophisticated simulation tools

The Story

A major steel processor in the United States, whose products are used in a wide range of industries—from hardware and office-furniture manufacturing to electrical control, construction, agriculture, and a host of others. The largest segment of its customers operates in the automotive sector.

Ron Proper is the Senior Quality Engineer at the steel processing facility. A former ISO lead auditor, Proper has extensive practical knowledge of the relationship between process and productivity.

It's no surprise, then, that Proper was the driving force behind the processing facility's adoption of the iGrafx tool as a process-improvement methodology.

"We needed an approach for dealing with process issues analytically and statistically," Proper explains. "iGrafx solutions fit well with the way we already look at things."

The Challenge

Competitiveness in the steel-processing industry is critical on many fronts. Quality is a key issue. So is the timing of delivery—helping customers meet their own demanding production schedules.

"We have to be innovative," says Proper. "We have to be cost competitive. We have to constantly demonstrate our expertise in steel processing—by delivering the right solution for a customer's particular requirements with absolute efficiency."

As a disciplined, data-driven methodology, the iGrafx solutions are designed to help organizations meet such goals.

For this steel processor, collecting the necessary data is relatively easy. Much of the equipment at the processing facility is automated and self-monitoring; detailed reports can be generated at the push of a button. The challenge instead is to analyze that data and develop a clear picture of operational efficiency—with the ultimate aim of making better-informed decisions that save time and money.

"We needed a tool to help us model our processes," Proper says.

"And from my experience with iGrafx training, I knew that iGrafx was that tool."

The Solution

As a Quality Engineer, Proper had seen various flowcharting applications in the past, but had never been particularly impressed.

"They make maps, but that's about it," he explains. "They don't do simulations. And they're not always easy to use. At the other end of the spectrum, of course, you've got highly sophisticated simulation software. But you pretty well need to be a programmer to make it work."

When he encountered iGrafx for the first time Proper was intrigued. He and a team of fellow classmates were asked to simulate a pre-defined manufacturing process and then to improve the process using iGrafx. They ended up boosting production by 855%, reducing overall cycle time from nearly ten minutes to a mere 62 seconds.

"Suddenly, I realized there's a tool that not only maps processes," he recalls, "but also lets you plug in equations, cycle times, variables, and real data to run detailed simulations. So you can work out improvements to your operations without making any capital investments. The only costs relate to the time it takes to gather data and develop your model."

Another key benefit of iGrafx for Proper and his colleagues is its seamless integration of MINITAB data. MINITAB is the leading statistical software used by Six Sigma practitioners.

Test Run

Proper recently had an opportunity to put iGrafx to work at his facility. His task was to analyze the coil-per-hour productivity of processor's Tandem Mill. He met with operators to gather their front-line observations, then broke the mill's process down into its component parts.

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“What’s great about using iGrafx,” says Proper, “is that you can model different stages of your process in different degrees of detail. You can be very high level where all the variables are obvious, and very granular where you really want to see what’s at work.”

Proper then built his process map, incorporating real monthly data extracted from Tandem Mill equipment. He was even able to build in random, periodic failures of varying duration—again, based on the real-world frequency of such failures according to the facility’s reports.

“When the simulation was finished,” Proper says, “we were able to view our entire Tandem Mill process in action, simulating an entire month of production in roughly 30 seconds.”

The results were illuminating. And surprising.

It had long been supposed that a new coil car—a vehicle used to load steel coils into the mill—would help boost productivity. In fact, a requisition had been issued to acquire one. Proper ran two versions of his simulation, one showing the process as-is; the other increasing the efficiency of the coil car by 50 percent. There was absolutely no change in net output.”

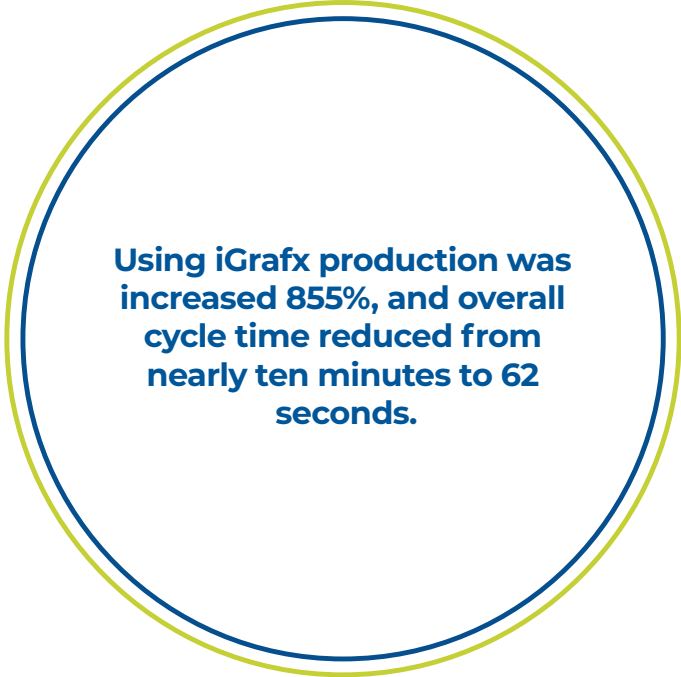
We considered purchasing equipment for enhanced coil loading, but the simulation showed us that the cost—about \$185,000—wouldn’t give us the results we’d hoped for.” Proper says.

“The simulation model shifted our focus” says Proper. “Instead of buying equipment to improve efficiency, we examined the operator processing sequence and the way we handled raw material.” Combined, the smaller-scale improvements had a greater impact on productivity, with the potential to increase production at the facility by some 10,000 tons a month. Over the course of a year, depending on market prices, this could translate to \$50 million in sales.

The Benefits

For Ron Proper, the benefits of iGrafx are perfectly clear. The software boasts a wealth of sophisticated features—but makes them extremely easy to use. Its seamless compatibility with MINITAB allows Six Sigma practitioners to take what they know and build on it.

As well, he adds, the software is backed by strong training, consulting, and technical support. Working with the iGrafx team, he’s been able to improve his skills and engage in higher-end modeling. Finally, he points out the power of iGrafx to help an organization fully understand its own processes.



Using iGrafx production was increased 855%, and overall cycle time reduced from nearly ten minutes to 62 seconds.

iGrafx

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