Why Does My Production Schedule Go Off Course?

How to diagnose the cause of a bad shop floor (and not just treat the symptoms)

When production schedules go off track, you don't have a choice but to fight fires. In this guide, we'll talk about why it's important to make time to diagnose the root cause of a problematic shop floor schedule—as opposed to just treating the symptoms. Hear from ERP implementation specialists about what the #1 cause typically is, and what you can do about it.

Introduction

There are almost 34,000 metal fabricator businesses in the U.S., serving multiple sectors including construction, automotive and other manufacturers.

Having weathered several years of uncertainty and disruption, the industry is now on track for growth. Experts say that those who ramped up their business development strategies during the recent slowdowns are now in a good place to take advantage of renewed demand for their products—the big stumbling block is whether they have the capacity to meet it.

Manufacturers are already weighed down with backlogs, with some shops averaging nearly four months while almost 18% of work is currently on hold.

A good shop floor schedule enables you to keep production on track, so you can avoid backlogs like these and take on new orders with confidence. It underpins everything you do, allowing you to deliver quality products that meet customer expectations as you scale up.

However, with so many moving parts, it's easy for shop floor schedules to go off course.

Operational challenges will quickly derail a traditional schedule, resulting in delays, wastage, over/under utilization of resources. Over time, these setbacks can erode both your margins and customer satisfaction levels.

When production schedules frequently go off track, it's easy to treat the symptoms first even if it's damaging your business. You might draft in (expensive) temporary staff, outsource production, or have to apologize more often that you'd like to customers when their order hasn't been delivered on time.

This is why it's important to address the root cause of a bad shop floor, not just the symptoms. That way, you're no longer fighting fires but can instead focus on taking on new contracts and growing your business.

In this guide, we'll look at some of the reasons why your shop floor schedule might be letting you down, and what you can do to keep it on track every time.

Back to the drawing board

Problems with your shop floor can quickly derail your production schedule and have a knock-on effect across your entire business.

Of course, you'll always encounter operational challenges, whether it be staff calling in sick, a machine breakdown, or simply needing to reprioritize tasks to meet a deadline. However, those who rely on manual processes are going to be hardest hit by last-minute changes.

A static schedule, produced using spreadsheets or on paper, is time-consuming to create, and makes it extremely difficult to manage demand and resources effectively. You'll also struggle to get to the root cause of the problems you're facing because you don't have complete oversight of what's happening. The only option is to work backwards, unpicking each process—which is another arduous and error-prone way of working.

Manufacturing technologies, including ERP (enterprise resource planning), MRP (material requirements planning), and APS (advanced planning and scheduling) systems, might have been around for decades but large numbers of SME manufacturers in the U.S. continue to manage their production schedules manually.

Some are put off from investing in software by perceived high costs, potential disruption, and lack of IT skills within their team. Others have been stung by generic ERP software providers who don't cater to the nuances of their industry—so they avoid scheduling tools and go back to the drawing board.

Another issue is tribal knowledge, made worse by an aging workforce retiring from the industry. A lack of clear, transparent and standardized processes is ill-suited to the complex demands of modern manufacturing because it's almost impossible for others to pick up the reins when they leave.

Not only that, it means you have no real idea of how long a job would take someone else to do, and therefore what it costs. A new hire, who doesn't have the same knowledge or experience as long-standing employees, may take longer to perform certain tasks so the costs could be higher than you've quoted.

"You might have Employee No.1, who's been with the company for 20 years and has performed the same task repeatedly over time. Then you hire a new person, Employee No.2, and expect them to perform at the same level as Employee No.1 right away. This creates a potential issue with efficiency. The question is: how do you manage that? How do you ensure proper training and qualifications to get the new employee up to speed? This is definitely part of the challenge—figuring out how to plan for that transition and ensure new employees can perform at the required level."

- BRAD STRINGFELLOW, SOLUTIONS CONSULTANT, MIE SOLUTIONS

Signs your schedule is damaging your business

Before we explore what's causing your shop floor schedule to go off track, let's look at the key symptoms.

- ✓ **Missed deadlines:** You're regularly falling behind on orders and missing deadlines, causing customers to become increasingly dissatisfied.
- ✓ **Lost business/opportunities:** Frequent and serious delays may lead to customers not renewing their contracts, and reputational damage within your industry.
- ✓ **High costs and tighter margins:** If your only way to deliver on time is to pull in temporary staff or outsource elements of production, you'll likely take a hit on your margins. A reliance on temporary staff not only pushes up wage bills, it can also dampen productivity since, as one commentator puts it, they require training and may be less invested in the business.
- ✓ **Excessive waste:** Rushing through orders to meet deadlines can lead to production errors, which impact the safety and quality of products. This can result in more costly reworks, and potential recalls of defective products.
- ✓ **Staff overworked:** In a tight labor market, you cannot afford to lose valuable team members, and morale will suffer if they're frequently asked to work long hours to meet deadlines or rectify problems. Even if they welcome the chance for paid overtime, higher wage bills will reduce profit margins.
- ✓ **Too much downtime:** On the other hand, staff and machines standing idle is just as costly for your business. When your schedule is off, you'll probably have people waiting for materials to arrive, or get approvals from managers or customers before starting work.

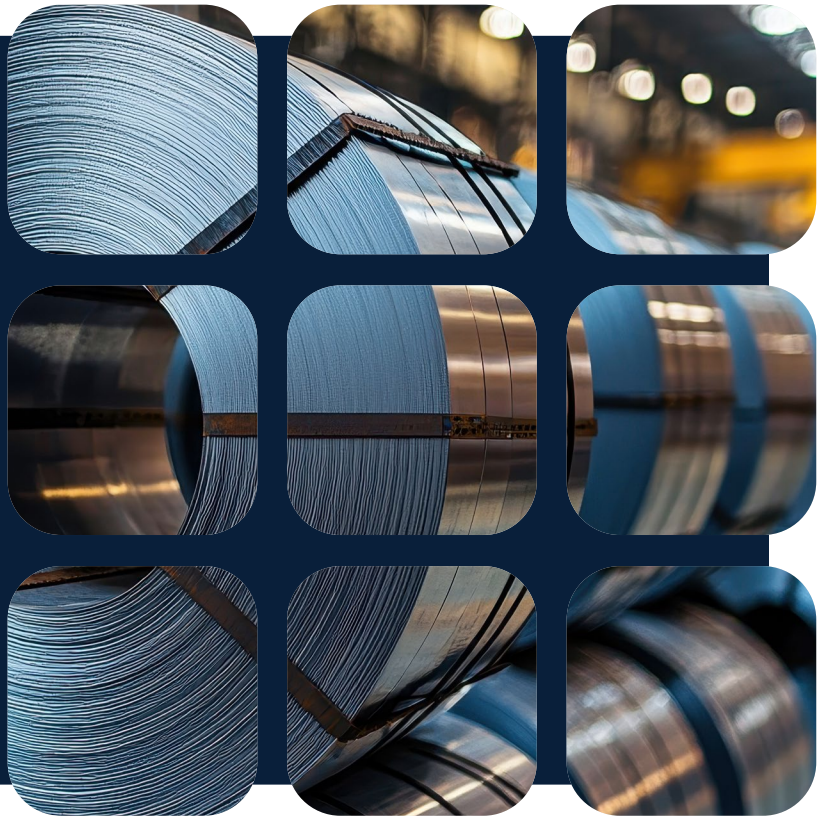
Getting to the root of the problem

A good shop floor schedule depends on your ability to estimate the cost of every part of each job with accuracy, so you can allocate resources to the right areas, monitor any changes, and manage customer expectations. It means your quote aligns with the true cost of production.

So, even if estimating isn't the only cause of a bad shop floor, it's usually the main one.

"When you're experiencing problems, it's difficult to know where to start. You recognize the symptoms—like missed delivery dates—but it could be the result of many different factors. When I work with customers, we take it right back to quoting, so they can understand exactly how much they estimated for the job—the costs, time, and resources that go into the product. This means they can be far more accurate with their production planning, keeping their schedule on track and maintaining profitability."

- BRAD STRINGFELLOW



From estimating to scheduling

Being able to provide fast and accurate quotes is critical, no matter the size of your operation.

Typically, you'd start by analyzing your costs, such as employee wages and overhead expenses related to running a specific machine. Once you have an accurate number, you might add a small buffer for unexpected costs. For example, if it costs $60 per hour to cover labor, machine operation, and overheads, you might sell that hour of production at $80. When creating a quote, you would charge $80 for the operation, knowing that $60 covers the actual cost, and the remaining $20 is your profit margin.

For example, if an employee is laser cutting materials for a product, you might estimate 15 minutes for setup and 60 minutes of actual cutting time. Then you might go a step further by using formulas that factor in variables like labor rates, material thickness, and number of cuts or piercings, to make their estimates more accurate and consistent.

Material costs also play a big role—especially when only part of the material is used for an operation. By knowing how much material will be consumed, you can more accurately determine the cost of production and set the right price when quoting customers.

Trying to do this manually, especially as your operations become more complex, is a huge challenge, with the potential for something to be missed. This is why you need good estimating tools which allow you to personalize formulas, track win/loss, and create quotes based on true costing data.

The starting point for this is an ERP – but, as we saw in the previous section, not all providers understand the specifics of your industry, so the effectiveness of their software is limited.

On the other hand, if you partner with a provider who's embedded in your industry, you'll be able to move from traditional manual scheduling to automatic dynamic methods.

> "If an estimator is using some raw material that might be stocked, or ordered in different standard dimensions, the ability to view yields of the different dimensions to see what size might be more cost effective is powerful. This could include some remnant dimensions/ parts that may have been bought and paid for from a previous job that is sitting in inventory at zero cost. In this case, using this zero cost material could result in better pricing to the customer and more competitive pricing overall."
>
> **- BRAD STRINGFELLOW**

With all of your data in one place, you'll start to automate and improve many tasks that—today—seem either time-consuming or just plain impossible. With a robust ERP, you can precisely forecast material and labor requirements, as well as calculate the actual cost of delivery. From this, you're able to create a production schedule directly from your work orders, so there are no surprises later on. And because the schedule is flexible and dynamic, you can also quickly update it in line with last-minute changes to staffing, materials and machine availability, as well as customer deadlines.

A big part of estimating software is that it allows you to plan for different scenarios, both now and in the future with greater confidence. This opens the door for estimators to not only drive consistency and efficiency but also be more competitive on pricing.

Bottom line? Getting your estimates right are critical to running an efficient shop floor.

6 ways your ERP could improve your scheduling

- Generate a real-time schedule that allows you to monitor activity, and quickly make changes on the shop floor. By linking multiple work orders together, you're able to utilize machine time more efficiently
- Create and manage schedules across different divisions and/or sites
- Deploy different production scheduling methods – backward, forward, advanced planning, and drag-and-drop.
- Schedule for multiple divisions or locations
- Create a schedule directly from a work order
- Split work orders to schedule on multiple stations and/or locations to guarantee on-time delivery.

Conclusion

Many U.S. metal fabricators have their eyes set on growth – taking advantage of opportunities in sectors like engineering and construction. But, of course, you need to be confident that you can fulfil the orders you do receive, before taking on new ones.

Without knowing how much it's costing you—both in terms of time and resources—it's difficult to determine whether a product is profitable or not. If you don't track these details using your ERP, you can't accurately assess your margins or make informed quotes. When you rely on guesswork, and tribal knowledge, there's every chance your schedule will either go off course, or at least, not help you to operate efficiently. Often, it's only when you start to build your team and take on new orders that you discover the inefficiencies holding you back.

Your software vendor isn't there to tell you how to schedule but to help you use the technology to standardize your processes and promote best practices.

We've seen that sound estimating processes are key to understanding time and resource requirements are accurately factored into the shop floor schedule. An ERP, with an APS, not only allows you to optimize your estimating, it also enables you to link it directly to a flexible and easy-to-update production schedule, keeping your shop floor working efficiently and productively.

"Our own approach to ERP implementation is to first understand what the customer is currently doing and then learn what they're aiming to achieve in the future. From there, we offer advice on the best strategies to move forward. It's a combination of both consulting and supporting their goals. As well as the technology itself, they have access to our consultants who work with their estimators to develop formulas that support their business requirements. We're not looking to completely overhaul their entire business right from the start; instead, we want to help them improve gradually and effectively."

- BRAD STRINGFELLOW

About MIE Solutions

MIE Solutions is a leading provider of ERP and production control software for the entire manufacturing sector. The software, MIE Trak Pro, incorporates estimating, RFQs, work orders, purchasing, MRP, stock control, costing, scheduling, reporting, shop floor data capture, shipping and logistical control, and a full accounting module, which can replace or work alongside many third-party accounting packages.

MIE Trak Pro is a market-leading software for sheet metal fabricators, precision engineers, and discrete manufacturers. The software can be adapted to incorporate any manufacturing process while offering an end-to-end, integrated ERP a solution for the entire business. MIE Solutions' services include on-site and online training, full product support, professional consultative services, and custom development work. To learn more, visit www.mie-solutions.com.