

Problem Solving in Manufacturing— It Takes More than Troubleshooting

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We do a lot of what many would call troubleshooting here at Corporate Project Services. That is indeed an important role we play—but I feel the word “troubleshooting” oversimplifies the complexities in addressing issues with manufacturing processes.

I like to think of us as **problem solvers**.

When clients come to us with problems, it typically begins with the manager describing the problem to us over the phone and maybe even speculating on the cause.

We could just ask a few questions and use their responses to make a recommendation sight unseen. And, if we’re lucky it could fix the problem.

More than likely, however, this kind of best-guessing and troubleshooting will not result in a sustainable solution. The issue brought to our attention rarely turns out to be the core problem. Reality may get skewed in translation, and details may be overlooked—or the details may be invisible to the client.

There’s too much at stake to take a chance on what’s probable; you need to KNOW. Call us old school, but CPS knows there’s great value in assessing the problem with our own eyes and ears.

Addressing any issue associated with a manufacturing operation is complicated, and

the biggest challenge is achieving that delicate balance of preventing downtime while finding and resolving the problem. One thing leads to another, literally, on the production line, so the slightest disruption can trigger a cascade of issues. Before interrupting anything in your

process, you want to be 100% certain you’ve identified the right solution, but you also need to be 100% certain you’ve identified the right PROBLEM.

How to Be a Problem Solver

Superficial knowledge leads to superficial solutions. To really find a remedy that

works, you have to dig deeper. What’s visible at the surface may be evidence of something problematic deeper in the manufacturing process.

CPS believes in a patient but diligent approach to problem solving. We will not jump to conclusions after the first clue and we won’t stop searching until we’re sure we’ve looked at the situation from every angle.

Here is how we solve problems while keeping our clients’ best interests in mind:

We never rely on assumptions.

Making assumptions without fully investigating the situation can be disastrous. You could be missing the real source of the problem and end up fixing something that



isn't even broken, which is both costly and a waste of time.

We had a client with a line that wasn't producing at the rate they wanted—they expected 10,000 tons per hour and were only getting 8,500. They were confident it was the mixer and asked us to come in and take a look. After observing the process and equipment, we found the problem wasn't the mixer or anything mechanical at all—it was the automaton. By taking the time to look from angles we hadn't thought of, we discovered a coding error was causing sequencing issues with several aspects of the automation. It ended up being a far less costly problem to repair.

Had we stuck with that first assumption, the client would have incurred heavy equipment costs that were unnecessary and wouldn't have resolved the problem.

We look at what's hidden in your blind spots.

In another client scenario, CPS was called in to check out a microbial contamination issue in an aquafeed product, and all signs pointed to the extruder being to blame. We walked the line and found the equipment was running an effective kill zone, so the extruder was doing its job. But further along the process we noticed a small area of rust in a conveyor. A routine wash down after a maintenance procedure had introduced moisture into the equipment. This hidden moisture caused enough rust to harbor microbes that contaminated the product on its way down the conveyor.

Sometimes the answer is right under your nose, but if there's no drastic or sudden change catching your attention, it easily goes unnoticed. In this case, the slow growth of the rust made it undetectable to the team who saw it day after day.

We think outside the box (or factory walls).

Another lesson we've learned is that the most unsuspecting factors are often the culprit, so we always inspect everything.

A food manufacturer was getting contamination readings inside their facility. Testing revealed no issues with the raw ingredients, so it had to have been introduced from the outside—and the most logical explanation was that an employee had inadvertently brought it from home.

Food safety personnel went to the site to find exactly what they were seeing, and it took a few days to observe their segregation processes for different zones. And what was discovered was a surprise to everyone. They determined the plant employees were tracking in bird feces from the newly installed aesthetic water feature outside the facility that was attracting waterfowl to the campus. Despite proper safety and sanitation procedures, the contaminants were still getting into the production area. No one thought to blame the pond outside.

We treat more than the symptoms.

Treating the symptoms and not the root cause means the problem never really goes away. You may mask it awhile, but it likely will come back—maybe next time with a vengeance.

Had it not been determined waterfowl was the source in the story above, they could have treated the symptom by putting up a wall and creating another zone protection. That may contain the problem temporarily, but the thing about bacterial growth is that eventually it will spread and propagate, and without taking care of the source of the problem, that contamination likely will make its way back into the production area. And as it grows it becomes a much, much bigger problem to deal with. To eliminate the problem for good,

the company had no choice but to drain the pond to get rid of the waterfowl.

We don't just toss out random solutions until something works.

When you don't know what's wrong, your inclination may be to go through a lot of trial and error with a checklist of common problems until you find something that does the trick.

Taking the “see what sticks” approach is inefficient and may never lead to a resolution. Sometimes the solution seems to stick at first, but then weeks later the problem rears its ugly head again. If you move hastily and correct the wrong issue—or don't go deep enough to find the root cause—then you've created an even bigger mess.

Obviously, prevention is always the first goal with manufacturing processes, but problems do occur; and when they do, it's important to address them swiftly—but correctly—to ensure minimal disruption to the line.

“Correctly” is the important word here. Spending the time upfront to correctly identify the root of the problem can save millions by avoiding a recall or shutdown, not to mention a stain on your reputation.

We Keep Asking, “Why?”

As problem solvers, we follow the “Five Whys” mentality: Keep asking “why?” until we isolate the problem's origin. Each “why” reveals another clue as we backtrack to the root cause. This is what prompts us to keep digging further until we know the whole story—that way we're confident we've arrived at a conclusion that really gets to the heart of the matter. Addressing the problem where it originates is far more effective than just covering up symptoms that become evident along the way.

We have a steady methodology to problem solving that involves spending time onsite watching the equipment and processes, talking and listening to the operators, and taking notes and measurements. Once we've exhausted all the information gathering we can do, we narrow down the potential problems and go through the methodical process of implementing the solution that works.

Our team has immense collective expertise we can tap into—we rely on those individual strengths to come up with the best possible solutions for the best possible outcomes. We weigh our answers carefully before reporting back to the client. There's no shooting from the hip, and no guesswork. Speculating prematurely can lead to incorrect actions being taken.

One commitment we'll always make: We will not give a cursory answer. It's got to be right, and we've got to know for sure. We won't quit until we have it right, and then we follow through to make sure the solution does the trick. This all is part of us striving to bring a level of professionalism that instills confidence—the client knows we are results driven and a trusted partner they can count on.

If you want help getting to the root cause of problems you're facing, please [reach out to our team](#).

[Corporate Project Services](#), a division of Wenger Manufacturing, is a dynamic group of planning specialists backed by Wenger's more than 80 years of process system supply to the industry. Our knowledge base and breadth of experience in extrusion processing and facilities construction is unsurpassed – and our commitment to excellence is recognized around the world.