

## TOO CLOSE TO A PROBLEM? WHAT YOU MAY NEED IS A FRESH PERSPECTIVE

A friend and mentor sent me a newspaper cartoon many years ago that I think of to this day. It depicted a person in a homemade lemonade-style stand with a banner that read "Swift Kick in the Pants \$1.00". His friend asked him how business was to which he replied "Terrible" and, "I can't understand it. Everybody I know needs what I'm selling!" Under the copy, my friend wrote in big black marker, "People will buy what they want, but not necessarily what they need."

As consulting engineers, we often have the unenviable task of convincing clients that what they want might not really be what they need. While a "Customer is Always Right" mindset is useful in customer service, when it comes to the engineering industry, it is helpful to ask for another party's opinion. A fresh perspective may help uncover alternative solutions that can improve operations and produce better manufacturing outcomes.

### **A Good Idea, in Theory**

Recently, a new client asked my team for help designing a multi-line robotic palletizing system. They wanted us to provide a concept (and cost) to design the system; this is a fairly common request and we design several systems like this per year. Nonetheless, we sent a small team to the client site to make sure we thoroughly understood their needs.

The client has 26 small production lines in a fairly large factory. Each production line was built as a cell that included filling, packing, and robotic palletizing of the product.



By providing a fresh perspective, our team was able to assist our client reduce fork truck traffic in a busy warehouse, increase safety for employees on the plant floor, and save money in the process.

The finished pallet loads were then taken to stretch wrapping areas scattered throughout the factory. After wrapping, the pallets were taken by fork truck to the shipping warehouse. This system generated a lot of fork truck traffic and the client wanted to reduce traffic to enhance safety and economy.

Their plan was to relocate some of the existing palletizing robots and stretch wrappers to an area of the warehouse and make a palletizing cell. Then they could convey all the cases out to that area to be sorted and accumulated for palletizing. In theory, having the palletizing tied to the wrappers eliminated the double handling. Already having the loads in the warehouse eliminated a lot of the fork truck traffic and handling time in the factory area.

### **The Reality of the Situation**

While relocating palletizing robots and stretch wrappers sounded like a clean solution to our client's problem, our team discovered that it may not be the best or most cost effective. During our data gathering process, we made the following observations:

- Many of the robots in the cells handled dual duty: they moved cases in the case packing system and palletized the finished cases.
- None of the existing robots had sufficient reach to palletize in multiple locations. They were also not rated to handle more than one case at a time.
- Most of the existing stretch wrappers were slower turn-table style wrappers without conveyor tables.
- The building structure would not handle the added weight of case conveyors.

- Our client produced a wide variety of finished cases. Some were larger bulk pack regular slotted cases (RSCs), others were RSCs with cartons inside, and some were large lithographed cartons for club stores.
- Finished loads varied quite a bit. Some needed slip sheets; others required corner posts – they had a requirement for two different pallet types.
- Each cell required a number of items to be provided via the fork trucks on pallets:
  - > Product in bulk bags
  - > Primary package in bulk cases
  - > Internal packaging material
  - > Lid material
  - > Knocked down cartons/cases
  - > Labels

### Big Changes for a Big Price

We completed a preliminary assessment for the client's request and discovered the estimate for the new system would be well above what was justifiable by the client. The basis for the cost was:

- The system needed new robotic palletizers, because the existing equipment was not suitable.
- All new wrapping, including automatic corner post application, would be required because the existing ones were not acceptable.
- A new zero pressure case conveyor would be required due to the case variation.
- A structure would need to be built throughout the factory to carry the loads of the case conveyor.
- An expensive vision system to sort cases would need to be developed due to the variation of case types and bar code locations.

We also determined that due to the need for consumables at each line, eliminating the finished load handling would only reduce 25% of the fork truck traffic. We could not see a way to justify the cost by eliminating just 25% of the fork trucks. It made little sense to propose a solution our client could not afford, so we went back and took another look at the problem.

### A Second Chance for Change

Our proposal to the client recommended keeping the current production cells just as they were. As an alternative, we proposed they install a new high speed wrapping system. This system would be complete with automatic corner boards, which protect the cartons during shipment, to help eliminate operator interaction. Once those were in place, we recommended they establish a system of automatic guided vehicles (AGVs) to travel between the existing cells and new wrapping system. We developed a plan where the automatic fork trucks would travel a one-way path around the plant, and we could separate the pedestrian traffic from the AGV traffic. This idea had a lot of advantages:

- The capital cost would be half of what had originally been estimated for the new system, and now within the client's return on investment criteria. The price could be reduced further if the AGVs were leased.
- The system could be gradually introduced to the plant: we could start with one or two AGVs and address issues on a small scale before bringing everything online.
- Since the AGVs would need to return to the line for pickups, we could load consumables in the

other direction and further reduce fork truck traffic. We estimated that 70% of the truck traffic could be reduced with the new system.

- This system would take much less space in their shipping warehouse.

Frankly, when we made this suggestion to the client, they told us it was not what they asked for. However, a few months later they came back and said their internal team had determined the robotic system was not justifiable. They asked if we could explain our idea again, and we were retained to complete the study. The design resulted in a system that allowed our customer to save money, reduce congestion in the warehouse, and provide a safer environment for the teams working on the plant floor.

Every person is a consumer in some form or another. As one myself, I'll admit that it is not always the easiest thing to accept my way may not be the best. However, requesting a second opinion can help guide you to what you need; a solution that can save you time, money, and frustration.



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