Original Equipment Manufacturer Embolden Their Processes to Reduce Material and Labor Costs

The Client

A leading full-service systems integrator and original equipment manufacturer (OEM) whose business is designing, manufacturing, and integrating electrical and process control systems for water, wastewater, transportation, lighting, and renewable energy applications across the United States.

The Challenge

The company was behind schedule in both of their divisions with no plan as to when they were going to make delivery to their customers. Their reputation was tarnished, customers were charging for lateness, cancelling orders, and costs were out of control. This was not a simple project.

Some of the contributing factors that created this challenge included:

Material Overruns. As part of being acquired by a private equity firm, the original owner sold far beyond the company's capacity to produce in what can be up to a 24-month lead time. Their order fulfillment process directs the purchase of parts up to 18 months before actual production begins. The warehouse operated on outdated processes and spreadsheets and could not manage the influx of parts. Numerous parts were lost but not realized as such until the start of production 18 months later. Some of these lost parts are highly specialized with extended lead times that could then further postpone production. The reorder of parts was crushing the budget and causing severe downstream effects.

Labor Overruns. Production had no choice but to start orders they did not have all the parts for. As a result, excessive WIP would sit, and various employees would work on the same order over time as reordered parts arrived. Without standard processes in place, each employee would rework to meet what they thought the work should look like, resulting in significant labor overruns.

Lack of a Robust Management Operating System (MOS). There was little to no capture of data for analysis or review, let alone to enable continuous improvement efforts. Even if data was being captured, there were no standards to measure it against.

The Solution

Like we do on every project, we partnered with our client to observe and understand how the current system was working using live documents and data to map the core processes. Once we understood what was happening, we worked together to develop the future state of operations and jumped right into implementing solutions.
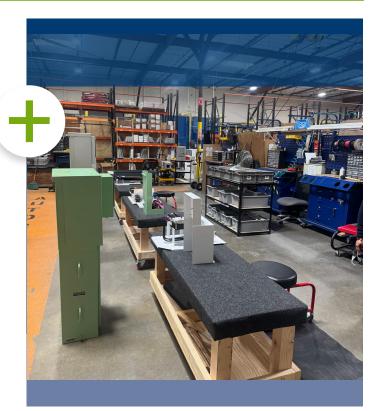
Here are a few of the key activities we accomplished.

Warehouse Management System. Our client's goal was the implementation of a barcode scanning enabled Warehouse Management System. Before we could help them do that, though, we had to gain control of the warehouse.

The first step was to instill order and discipline as part of an everyday approach to efficient warehouse operations. We implemented control logs to capture data, timely supervisor rounds as part of Leader Standard Work to engage employees and collect data, and developed agreed upon amounts of time each activity should take so we could have a standard to measure the data against.

Once order and discipline were instilled, we needed to understand what was physically present in the warehouse. To do this, we implemented a temporary, manual clipboard and spreadsheet accountability system that immediately gave the logistics team a place to look for parts without having to waste time wandering aisles looking for them. It was now all in a data repository, ready to be searched.

Now that we knew what we had, we needed to procure missing, required parts before job orders could be released to production. With the client, we developed and implemented an initial, robust spreadsheet-based order tracking system that created visibility across the plant to catalog what was missing, what was ordered, when it was coming, when it arrived, and where it was located. The improvements were immediate, and the tool was adopted by various departments, requiring intervention from in-house data engineers to

provide a robust database integrated into their in-house ERP system for increased visibility across the operation.
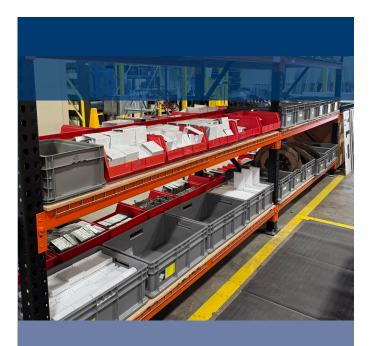
With the basics covered, we were now able to help them manage the implementation of their Warehouse Management System that gives them the ability to cycle count and audit put aways to measure quality, so they never return to the state they were in, in addition to all the efficiencies and tools a Warehouse Management System provides.

Single Piece Flow. Once we were able to account for and track parts, it was time to go to work improving production performance. Like in the warehouse, we started by instilling order and discipline on the production floor with process monitors to capture data, timely supervisor rounds as part of Leader Standard Work to engage employees and collect data, and daily reviews of action items to meet the needs of the employee.

A particular challenge we faced was the custom nature of every job order that flowed through the shop that generally prevented any type of time standards or measurements being set. To get around this, we analyzed historical production data to find the most common of the custom jobs, did time studies to create standard hours, and created

a reasonable expectation to measure future performance of all orders against. This was not an exact match across the board, but it was a place to start measuring from; if you cannot measure it, you cannot manage it.

Once we could measure production, we could make production Lean by transforming their cellular, batch and queue production system into a Single Piece Flow system. To do this, we calculated Takt time, verified cycle times, identified and balanced workstations, changed the layout of the production floor, standardized processes, brought tools and parts to the employee, and installed a countdown clock that sounded the alarm when it was time to move the product to the next station. In addition to these changes, now that the warehouse could account for parts effectively, kits of less than 100% were not delivered to production.

Key to this transformation was the voice of the employee. The employees played an integral role in putting this together. Once it was together, they played an even bigger role in identifying waste and process improvements to make it even faster. These process improvements included Kanban for parts replenishment, the need for a water spider, Poka-Yoke initiatives, creation of sub-assemblies, and the use of Kaizen to quickly solve problems at the employee level.

The Results

- **$1.5M increase** in annual revenue
- **51% reduction** in monthly labor cost per job order
- **99% improvement** in year-over-year throughput
- **80% improvement** in inventory accuracy
- **$500K in cost avoidance** with ability to find parts

Conclusion

The success of this project came from the passionate determination of the client and the courage they found to be bold while partnering with USC Consulting Group.

Now that this client knows where its parts are (Warehouse Management System), has an efficient and continuously improving process to manufacture its assemblies (Single Piece Flow), and the sustainable continuity of a fully functioning Management Operating System (MOS), they hold the keys to continue reducing material and labor overruns and have developed an internal capacity to sustain these improvements for years to come.

To find your courage to create bold, successful, sustainable change, contact USC Consulting Group today!

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