

Improve Output to Meet Design Capacity

A fulfillment and distribution company handles health and pharmaceutical product fulfillment for mail order customers. They are experiencing growth in their business, and for one particular facility, the increase in volume is resulting in extensive use of overtime and weekend shifts.

The management team was searching for solutions to improve output to make it closer to the design capacity of the processing line. The facility was consistently falling short of achieving its stated output capacity.

The management team engaged Business Engineering to find the true operating capacity, and to identify methods for achieving it. The client needed to attain between 7,000 and 8,000 units per day to keep up with demand, and currently, the operation was running short of that goal.

The team was asked to identify all of the opportunities to increase capacity, including low-cost and no-cost solutions. Preference was given to short-term, low-cost fixes, and the team was instructed to implement the fixes during a two-week project. A short-term goal of 8,000 units per day was set.

Bottlenecks and Work Shifts

Using their technique called the Readiness Roadmap, the BE team immediately began identifying bottlenecks which most impacted output performance. A high portion of the bottlenecks involved the packing area, and those were addressed first. Several low-cost fixes were implemented during the Roadmap process, some as simple as procuring better

packing tape and tape guns and re-directing headcount to address surges. Other fixes were suggested, such as bringing in temps for areas which were understaffed in order to free up technicians who were covering for the staffing shortage. During the Roadmap process the BE Team showed the lead operator how to improve work methods, and her packing rates subsequently improved by over 100 percent!

Next, the BE team focused on work shifts. The practice of using staggered shifts with sliding breaks and lunches proved unworkable. Moving to a single shift eliminated the work interruptions and allowed for better line-balancing during breaks. The result was that all stations were consistently staffed for the entire shift, an important prerequisite for achieving the desired results.



Profiling of Stock at the Workstations

The line made use of an automated filling system which required correctly slotted and full containers to reach its optimal performance. In studying the system, the BE team found that the containers did not necessarily contain the highest volume products, resulting in under utilization of the dispensing system. In addition, the staffing level was inadequate to keep the containers full, effectively reducing capacity.

After profiling the stock at both the manual and automated workstations, so that the most popular/high volume products were at the point of use, the BE team suggested changes to the products stored at each location. With only 66% of machine-fillable products assigned to the automated filling system, the team was able to make recommendation that would bring that number to 82%, dramatically improving capacity and labor expense.

The Numbers Don't Lie

With the 8,000 units per day objective in mind, the BE team recommended that to achieve this, every workstation needed to be continuously staffed. This included the manual pick stations, which were left unattended by the technicians who were covering the packing line. Once the technicians were freed up by the newly hired temps on the packing line, they were able to continuously staff the pick stations.

One of the benefits Business Engineering brings to these projects is a solid analysis of the data in order to make its final recommendations. In observing the inefficiencies of a four-person

crew in the automated filling operation, it was determined that a six-person crew was needed to handle just 5,000 units per shift. In order to reach the goal of 8,000 units per shift, and additional person was needed for a total crew of seven.

Results and Future Recommendations

The interim goal of 8,000 units per day was proven attainable, with a shift producing 7,570 while short four line crew members. The facility is now capable of achieving 8,000 units on a daily basis, when fully staffed and with the initial improvements in place.

This facility was designed to handle 12,000 units per day. The BE team also reported to the client:

- Recommendations to achieve capacity of 10,000. Activity is now underway to focus on low-cost stock profiling and optimizing the automated-filling operation, as well as the manual pick stations.
- By taking the capacity to 10,000, the client will then be positioned to reach capacity beyond what is necessary to meet demand, and to achieve the next level: capacity of 12,000.

In summary, the facility has the potential to fill more new orders, bring outsourced work back in, and to substantially reduce the cost per order.