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Pfizer – Vega Baja, Puerto Rico

Building Manufacturing Efficiency

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Today, many pharmaceutical plants typically operate at somewhere around 30% efficiency, with a few world-class operations reaching the 70% range. However, even these stars fall below the levels that other well-run conventional process manufacturing operations achieve, where efficiencies of over 90% are routine.

Globalization is forcing all companies, and especially pharmaceutical industries, to develop competitiveness strategies and deploy them quickly if they expect to remain in business.

All this tells us that we must not only look aggressively for ways to make our manufacturing operations competitive, but also deploy the technologies that will allow us to measure and substantiate that competitive advantage. Pfizer has found a way to put such processes into practice, with exceptional benefits.

Overall equipment effectiveness (OEE) is a key metric that many companies are using to measure plant or line efficiency. OEE calculation results can be used for many operational diagnostics:

- Understand how well we are performing with an objective yardstick;
- Identify and eliminate constraints;
- Define target areas for improvement; and
- Align those targets with larger business strategy.

OEE measurements allow managers to make more effective, more objective, and more informed decisions in real time.

In November, the Pfizer facility in Vega Baja, Puerto Rico formed a cross-functional team to focus on creating more competitive costs through implementing an OEE data gathering and reporting system.

This important initiative, a collaborative effort between the regional manufacturing engineering and technology (ME&T) team, IT, and Vega Baja packaging teams, set out to improve data collection and visibility for determining OEE for packaging lines in the Puerto Rico region. This initiative was identified as critical and imperative to manufacturing success in today's dynamic business environment.

Crude but effective

Experiences with OEE in the Vega Baja facilities started out as manual processes developed by Juan C. Figueroa, a packaging technical specialist, and Xavier Schlienger, a packaging team leader, when they implemented it successfully at two blister lines.

While the manual system was cumbersome, the value of the information it generated was clear, so the next step was to move the process to the next level and see how data collection could be automated. That process began with automating the forms but still having operators enter data manually into the terminals. This reduced the amount of data entry, provided OEE metrics much sooner, and generally improved the quality of the process.

In December, Figueroa joined Jose Santos, Mark Poham, Vik Sharma and Edwin Rivera in an effort to develop and implement a still more user-friendly system to collect additional OEE data that would provide visibility of the results to the shop floor operators and also to management. One of the major long-term requirements of the project was building in capabilities for the system to gather real time data directly from the equipment and be expandable to other areas of the manufacturing process.

Pfizer global manufacturing (PGM) corporate IT had worked on the development of a manufacturing data reporting system called PfindIT (Pfizer factory intelligence network dashboard-IT), but the system lacked a user-friendly graphical interface and OEE reports. A team consisting of colleagues from PGM IT, regional IT, and packaging was assembled to define user requirements and work with the system vendor to develop the graphical user interface and reports required.

The team brought in long-time vendor partner GE to assist with the project. GE's production management software system, Proficy Plant Applications, has an efficiency module that seemed to fit the bill. This module is able to identify and monitor all areas of manufacturing for inefficiencies, perform root cause analyses, compile historical data summaries, schedule reports, and control OEE.

The biggest challenge was to complete the development and deployment by the first quarter. Working over the year-end holidays, the team completed a pilot system in one of the packaging lines in Vega Baja which was working in January. Deployments then continued with the rest of the 12 packaging lines. The tool was accepted by the shop floor operators immediately, setting off a wave of friendly competition between operators to demonstrate whose line was the most efficient.

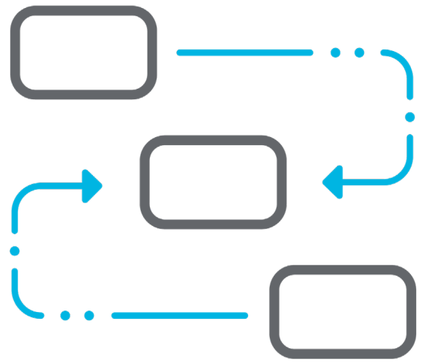
Implementing the new system brought a higher level of measurement consistency across the business. Different departments and sites had created their own techniques which made for results that could not be compared directly. With the new system in place, data collection was restructured for uniformity and aligned with the goals of the business. For the sake of consistency, the global packaging team with the help of Pfizer global engineering (PGE) defined two standard OEE calculations that are currently integrated into the system.

Real results, OEE

Watching improvements from these efforts is very rewarding. OEE numbers were only around 30%. But after, we were hitting 50% consistently, which is more than a 50% overall improvement. Perhaps that doesn't look like much, but an OEE of 30% is equal to 2.4 hours of productive time, while an OEE of 50% equals 4.0 hours of productive time, an improvement of 1.6 hours. The OEE monitoring system provides a tool for operators and supervisors to target areas of improvement continuously. We expect even higher savings since standard hours required to operate two packaging lines were reduced by 40% per line per shift. This is an example of the type of continuous improvement possible and achievable once you have visibility of your process and operations.

The development of the system has been such a success that the global packaging team has adopted it as the official tool for OEE measurement. Other Pfizer sites in Latin America, including Puerto Rico, Mexico, and Brazil have evaluated how they can implement the system as a way to build the competitive advantages within the Pfizer network.

The team next worked on Phase II of the project to collect data automatically, directly from shop floor PLCs and SCADA systems. The collaboration in this project has proven to be an excellent demonstration of what "One IT" is all about.



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