PFIZER, INC.

Optimizing Continuous Drug Product Manufacturing With PCMM

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Pfizer Inc. is the world's largest research-based biopharmaceutical company. This project took place at one of Pfizer's two primary R&D clinical supply manufacturing facilities, in Groton CT. The project focused on the Portable Continuous Miniature and Modular (PCMM) platform, a first-of-a-kind, transportable, manufacturing facility for continuous oral solid dose pharmaceutical development. PCMM accelerates the speed of tablet production and enables smaller, more flexible continuous processing. PCMM is the epitome of Pfizer's goal to drive for Breakthroughs that change patients' lives because continuous manufacturing will enable them to accelerate the timeline to bring lifesaving therapies to patients.

Demand for PCMM was set to double from 2019 to 2020 so the Tauber team was tasked to standardize efficient work processes, visualize capacity utilization, and establish schedule adherence. With uncertain clinical manufacturing and demand expectations, PCMM faced challenges with establishing and enforcing production schedules. Further, the team didn't have formal processes to efficiently update schedules when faced with process upsets and delays. Additionally, the PCMM team could not view true free capacity and identify process inefficiencies as they were unable to distinguish between productive and non-productive downtime. With an unreliable view of capacity, the Tauber team focused on delivering a strategy for updating data tracking and establishing scheduling tools.

The team created a flexible Excel-based capacity model to understand capacity limits and schedule demand. The model enabled the Tauber team to run scenarios and recommend strategic improvements to improve process understanding of key large batches on the horizon in 2021. The team also designed a daily downtime tracker to track non-productive delays, which with the scheduling tools, enabled Pfizer to view their true current capacity. Finally, the team created a high-volume production strategy by identifying work processes that warranted updates to enable longer run times required by the high-volume demand that PCMM would encounter in 2021 while increasing production capacity.

When applied, the dynamic capacity model, downtime tracker, and high-volume production strategy will have the potential to avoid the cost of outsourcing up to 20 batch equivalents to external manufacturers which could cost upwards of $2 million. They will increase visibility and efficiency in scheduling PCMM operations and clinical manufacturing with an anticipated 50% increase in utilization of yearly manufacturing capacity with the enforcement of the downtime tracker and high-volume production strategy. These initiatives with PCMM support Pfizer's strategic goal to lead the industry in rapidly delivering a large portfolio of life changing therapies to market.