

PFIZER, INC. – MATERIAL

Optimizing Material Flow In Clinical Supply Chain

STUDENT TEAM:

Darren Lau – Master of Business Administration

Petra Marina Romano Lieber - EGL (BSE & MSE Industrial and Operations Engineering)

PROJECT SPONSORS:Neil Baker – Senior Director, Global Materials
ManagementJennifer Booth – Senior Manager, Global Materials
Management

Laddie Grim – Director, Global Materials Management

FACULTY ADVISORS:

Matt Gibson - College of Engineering

Len Middleton - Ross School of Business

With revenues totaling \$53.6 billion in 2018, **Pfizer Inc.** is the largest publicly traded pharmaceutical company. It is a leader in the research and development of compounds spanning therapy areas such as immunology, oncology, and rare diseases. As part of the drug development process, Pfizer conducts clinical trials to ensure maximum efficacy and usability of its products; as of July 2019, the company is engaged in more than 100 clinical trials, ranging from first-in-human testing to final registration and approval by the Food and Drug Administration (FDA).

With the ambitious goal of delivering 25 new drugs to the market by 2025, Pfizer and its Global Materials Management team (GMM) are faced with an increasing demand for a more agile and reliable supply chain. GMM is responsible for the planning, procurement, storage, and shipment of clinical materials, supporting all Pfizer research sites. To meet this demand, a new ERP system was launched in 2019, but GMM has since encountered difficulties maintaining oversight on material requests, prioritizing workstreams, and meeting communicated material lead-times. The Tauber team therefore was tasked with reviewing legacy practices and optimizing material flow.

Through value stream mapping, the team established that it took 6 weeks longer than expected to move standard replenishments through the supply chain. Even with the new system, material planners had to cross-reference data from 4 separate systems when assessing each request. In addition, the lack of an effective change management process meant that reassessments were necessary whenever customers adjusted requested quantities or use dates. This is especially significant in dynamic clinical trial environments, where more than 2,000 adjustments are made annually.

The Tauber team developed several tools to aid GMM in material coordination and operations. By leveraging SQL databases and data visualization software, the team built and piloted dashboards enabling material planners to instantly match available inventory to incoming requests, track statuses of active requests, and automatically assess customer adjustments. Furthermore, using simulation software, the team identified process bottlenecks and modeled future state scenarios, quantifying and recommending required resources for greater operational efficiency. Lastly, the team created a live warehouse space utilization dashboard to reduce material handling and improve procurement planning.

The tools developed by the team were piloted with user feedback incorporated. Between the pilot results and long-term recommendations, the team projects combined savings of 5,890 hours yearly, leading to a more streamlined supply chain, and the ability to handle a 30% increase in requests.