

Customer Challenges

- Uncertain personnel, tool, and factory space requirements

PROJECT SUMMARY

An airframe manufacturer sought to improve their throughput rate. Previously, they had been first-to-market with a particular airframe model, resulting in both a high number of orders and a great deal of production process uncertainty. PMC was tasked with providing a plan that would allow the manufacturer to double production levels.

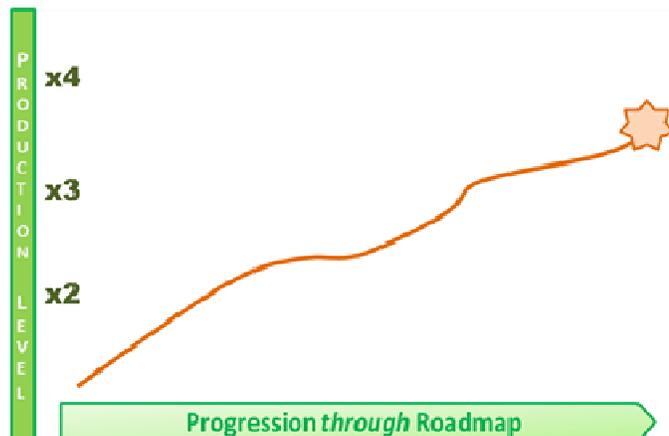
Our utilization of discrete event simulation techniques allowed the company to identify and eliminate non-value-added production steps, evaluate plant layouts, review hiring and training plans, and observe tooling selections in a virtual setting.

SYSTEM DESCRIPTION

Three product groups were produced at each of the facilities: Doors, Curtain Walls and Skylights. The manufacturing systems are set up for both custom products and standard products. Each engineering process is similar but uses differing software and processes to achieve similar goals. The client required a CAD solution, along with a PLM system, that would be common across all Engineering and Manufacturing facilities.

OPPORTUNITY

Many of the stations within the production system were experiencing high 'waiting' and 'blocked' times. This wasted time represented an opportunity for improvement. Throughput could be increased by minimizing these times. Additionally, high variability in cycle times was constraining the plane production rate.



PMC's plan for process improvement nearly quadruples expected throughput.

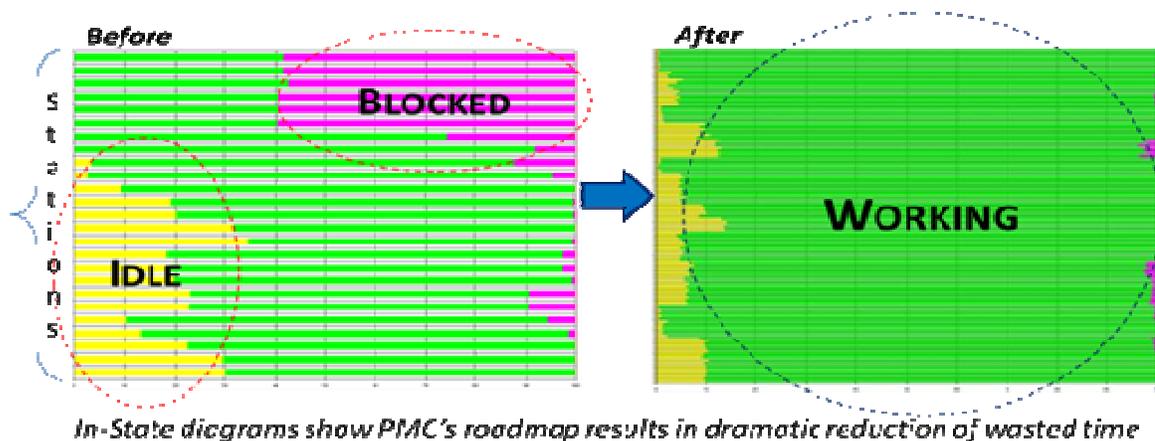
Case Study: Aircraft Assembly Productivity Improvement

APPROACH

PMC developed a discrete event simulation model using Simul8 software. The model was used first to verify the opportunities related to the station in-state times, and subsequently employed to by the PMC team to conduct what-if analyses and create a plan for an improved production process.

SOLUTION

PMC's simulation model verified that the manufacturer's goal of doubling throughput was feasible. An improvement roadmap was compiled detailing what actions were required to meet the goal, and the quantitative gains predicted with the completion of each prescribed action.



BENEFIT

Upon project completion, PMC had supplied an explicit plan for meeting the goal of doubled throughput. Additionally, PMC illustrated that quadrupling production levels was possible while still using the existing plan footprint. Excessive work-in-process (WIP) inventory and less than optimal levels of personnel utilization were eliminated by the identification and removal of waste throughout the system. The manufacturer was able to use the simulation model and improvement roadmap supplied by PMC to create plant layouts, design training and hiring plans, and make informed tooling purchases.

