BOEING 777X
TRAFFIC MANAGEMENT

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Boeing Commercial Airplanes (BCA), the world's leading manufacturer of commercial jetliners, has recently launched the 777X, a derivative of Boeing's flagship 777 aircraft. The 777X will be the largest and most efficient twin-engine jet in the world and will have the longest composite material wings ever produced. These wing components for the 777X will be fabricated in the Composite Wing Center (CWC), a brand-new, state-of-the art factory in Everett, WA.

In order to build a full set of composite wing components at the CWC, nearly a dozen transportation methods will be implemented to conduct over 1700 movements for each airplane, which involves substantial interaction between overhead cranes, automated vehicles, and human operators. This material movement is further complicated due to the large size of the components and the speed limitations of the transportation methods. The Tauber team was brought in for a 14-week project to assess how this traffic could impact production and to provide solutions to mitigate production risks.

The team began by identifying the key stakeholders and conducting interviews with the industrial engineers of each of the wing components in order to develop an extensive process map that captured every movement required for material flow in the building. Due to the facility's early stage of development, it was also necessary for the team to identify critical assumptions regarding the future state of the CWC and to develop a dynamic tool to assess how the utilization of the transportation aisles matures over time under various conditions.

Analysis of the process map revealed that severe overutilization of the transportation aisles would occur, preventing Boeing from meeting its monthly 777X production targets. In response, the team provided a solution to immediately reroute automated vehicle paths to reduce traffic utilization in the high impact areas. These re-routes will reduce the utilization of the transportation aisles by 12%, allowing the CWC to produce an additional full set of wing components each month. Next, the team conducted five benchmarking trips to other Boeing facilities, and provided recommendations to implement a dynamic system for scheduling production movements and a communication protocol for mitigating cross-product traffic delays. Finally, the team led a cross-functional workshop that established how to prioritize traffic conflicts, which resulted in a defined list of future factory data requirements.

The Tauber team identified significant traffic impacts to production and recommended vehicle reroutes, communication protocols, and traffic scheduling to eliminate production risks. Collectively, implementation of these recommendations will result in millions of dollars in annual cost savings.