



CASE STUDY: REDESIGNING AN AIRCRAFT REPAIR PLANT WITH SIMULATION

About the Customer

The customer is an American aerospace manufacturer with global service operations. The customer's aircraft engines are widely used in both civil aviation (especially airlines) and military aviation. The customer is one of the "big three" aero-engine manufacturers. In addition to aircraft engines, they manufacture gas turbines for industrial and power generation, and marine turbines.

Project Summary

Leveraging advanced Manufacturing Plant Simulation technology, our Engineering Industries eXcellence team of specialists helped the customer virtually model and redesign their existing aircraft facility from an OEM (Original Equipment Manufacturer) plant to an MRO (Maintenance, Repair & Operations) plant. The customer had a team of subject matter experts from all over the company come together to determine the appropriate steps to redesign the facility. The redesign required many aspects to be thoroughly considered and analyzed, including layout design, resource allocation, capacity planning and throughput.

Project Activities

- Designing and building a complete simulation model of customer's entire plant and manufacturing process leveraging Siemens Tecnomatix Plant Simulation software
- Analyzing the model and simulation results to validate the customer's plan for plant layout, resource allocation, capacity planning and throughput
- Delivering final presentation and report detailing the entire project, what information was gathered and how it was used
- Providing onsite training and documentation for software end users

Business Drivers

- Ensure efficiency and productivity of redesigned facility
- Reduce inventory and throughput time
- Optimize system dimensions, including buffer sizes
- Lower investment risks through early proof of concept
- Maximize use of manufacturing resources (machines, people, logistics, etc.)

More About The Project

Our aerospace customer was planning the redesign of one of their production facilities from an OEM (Original Equipment Manufacturer) plant to an MRO (Maintenance, Repair & Operations) plant. They had a team of subject matter experts from all over their enterprise come together to determine the appropriate steps to redesign their facility. The redesign required many aspects to be thoroughly considered and analyzed, including layout design, resource allocation, capacity planning and throughput.

Our world-class team of Industries eXcellence experts was brought in to help the customer's project leaders validate their design decisions. Our simulation specialists utilized Siemens Tecnomatix Plant Simulation software to virtually simulate the customer's entire process. The model would help the customer better visualize their future layout, run various what-if scenarios, and ensure that the new design would be able to meet the demands of their future workload.

After our team completed the design and virtual simulation of the plant layout, we analyzed the minimum resources (workers, transportation, storage, fixtures) needed to attain the customer's future repair workload goal. We looked at the maximum capacity their process could handle. We also determined what the customer's maximum throughput and WIP (Work In Progress) would look like during the entirety of the following year. All of these analyses were summarized and visualized within charts, tables and one big report. The simulation delivered was also flexible enough so that the customer would be able to create new scenarios within their process and analyze the results moving forward.

Engineering's Advantage

Thanks to the solution delivered by our team, this global aerospace leader has gained the validation needed to move forward with the planned redesign of their aircraft facility. More importantly, they can now do this with the confidence that they are making the right decisions, minimizing costs, maximizing throughput and optimizing plant performance. These validations are being incorporated into decisions that are being made by the manufacturer today. Finally, our simulation model will continue to bring the customer value and facilitate smarter decision-making for both their operations and their business in the future. This is the immense power of advanced simulation for manufacturing!

About Engineering Industries eXcellence

Industries eXcellence is a division of the Engineering Group, a global software maker, system integrator and provider of innovative technology solutions and services. Our division specializes in the digital transformation of the manufacturing and transportation sectors. We design, build and implement solutions that drive process automation, operational efficiency, supply chain optimization and intelligent data analytics for leading industrial enterprises worldwide.

Would you like to learn more about this customer case study?

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