

Leading Supplier drives Operational Excellence during Volatile Demand using Smart Manufacturing Analytics

Company Background

Today's aircraft are increasingly controlled and monitored by electronics, requiring a high level of system design and integration expertise to meet the challenges of producing next-generation products. **This company fabricates, machines, finishes, and assembles** close tolerance aluminum, specialty alloy, and composite components. **They are a member of the Sonaca Group, an organization** active in the development, manufacturing, and assembly of advanced structures for the civil, military and space markets. With a focus on giving customers a competitive advantage so they can succeed in today's demanding marketplace, they provide **cost-effective solutions for complex problems with an integrated approach** that ensures complete customer satisfaction.

The Challenge

Machine and Workforce Optimization for On-Time Delivery

As customer demand grew, it became increasingly **difficult to fulfill orders on schedule**. Certain inconsistencies in performance across machines and operators significantly impacted product throughput, leading to late deliveries, delayed schedules, and additional hours of operation in order to fulfill customer demand.

Accurate Costing

Original data models used to quote customer jobs did not reflect the actual time and cost to produce parts, causing a loss in profitability. Understanding true manufacturing costs became essential to continue providing competitive quotes while remaining profitable.

Lean processes to enable Flexibility

With recent market changes, it became crucial to utilize specific lean processes to sustain operations. Demand volatility required an immediate need to use analytics to drive efficiency by reducing labor costs. Streamlining operations was essential to continue delivering high-quality products while remaining competitive in the industry.

The Solution

Advanced Analytics Drive Operational Excellence During High Demand

While demand was high, VIMANA Smart Manufacturing IoT analytics solution significantly increased shop floor visibility. After **connecting and collecting** real-time data from legacy & digital assets, VIMANA Elevate provided insight into part throughput and cycle times. A lean improvement project was developed to determine whether running jobs individually or coupling multiple jobs together would make a significant difference in productivity.



Company Background

- Leading supplier of structural assemblies, kits and components
- Provides design engineering solutions in the aerospace industry
- 19+ Global Manufacturing Locations

Challenge

- On-Time Delivery during High Demand
- Accurate Costing
- Flexible Operations during Low Demand
- Machine Performance and Workforce Optimization

Solution

To succeed as a world-class aerospace organization, **operational excellence** is essential. VIMANA Elevate's out-of-the-box, IoT analytics solution for Smart Manufacturing provided:

- **Machine and Workforce Visibility** using Advanced Analytics.
- **System integrations** to provide accurate customer quotes.
- **Standard work** implementation across shifts.
- **Real-time** product throughput and cycle times to help develop lean processes.

Business Outcomes

- **Improved asset utilization** by 13% enhancing On-Time Delivery
- **Reduced labor and resource allocation** by streamlining operations
- **Improved competitive win rate** with accurate costing

It was determined that day shift ran at 85% while coupling jobs and 75% when running jobs individually. As part of the lean improvement project, duplicate activities were eliminated, such as walking to the crane and scanner, entering tool lengths, and spinning holes, which provided time savings during part setup. In contrast, the night shift ran at 50% regardless of whether it was coupling jobs or running individually. Night shift operators were not prioritizing machine uptime as consistently as day shift operators, and it was determined that coupling jobs will only be effective if the operator is prioritizing the machine's uptime. By finding these results using VIMANA Elevate, standard processes were then revised, requiring operators to have the next part setup ready ahead of time and supervisors were also instructed to monitor operators closely.

Systems Integration Enables Accurate Costing

By integrating & automating the 'actual' producing time into the SAP pricing/quote generator, LMI Aerospace can now more easily **determine accurate cost models** using collected data to adjust pre-existing cost models. VIMANA's analytics assisted in **analyzing real-time data to dynamically define** the actual number of parts produced, part cycle time, cost per machining hour, and total part cost, therefore maintaining accurate quotes on cost and labor required.

Advanced Analytics Drives Operational Excellence During Low Demand

With recent changes in market demand, it became essential to **streamline operations** and drive efficiency, and **gaining visibility on operator and shift performance** using VIMANA Elevate helped drive accountability throughout all resources. Eliminating bottlenecks helped reduce excessive labor and operation costs while dynamically adjusting production planning, proving to be valuable in an ever-changing market.



“As a company committed to operational excellence with a focus on product integrity while increasing efficiencies, VIMANA’s analytics has allowed us to streamline operations and continue to provide competitive rates to our customers regardless of market changes.”

Business Outcomes

Improved asset utilization by 13% resulting in On-Time Delivery.

Improved competitive win rate with accurate quotes.

Reduced labor and resource utilization by streamlining operations.