



White Paper: Transforming an Aerospace Supply Chain with Connected Technology

Addressing Supplier Issues:

Aerospace has experienced significant challenges directly caused by problematic supplier content, many key suppliers are responsible for providing essential structural components for aircraft assemblies. Frequent issues with receiving incorrect, defective, or missing parts from these suppliers caused major disruptions and high-profile accidents for the airlines. Additionally, managing high-value, technologically advanced aerospace components adds complexity to the supply chain, necessitating stringent real-time quality control and precise coordination.

- **Incorrect Parts:** Real-time data integration ensured that only the correct parts were shipped from suppliers, reducing the incidence of receiving wrong parts.
- **Defective Parts:** Continuous monitoring and quality control measures ensured that defective parts were identified and addressed before they could disrupt the assembly line.
- **No Parts:** Improved visibility into supplier inventories and proactive collaboration helped prevent situations where necessary parts were not delivered, maintaining a steady flow of materials to the assembly line.
- **High Technology Components:** Enhanced monitoring and quality control for high-value aerospace components ensured compliance with stringent industry standards and minimized risks associated with sophisticated, technologically advanced parts.
- **Costly Supplier Transitions:** By improving existing supplier relationships and performance, the need for exiting and on-boarding new technology suppliers was reduced, saving significant transition costs and mitigating associated risks.

Case Study: Assembly Process Optimization

To illustrate the impact of Pico's Connected Supply Chain solution, we examine a specific case within an Aerospace assembly process:

- **Scenario:** Incoming structural subassemblies and components from a supplier are traced through the entire assembly process.
- **Challenges Addressed:** By implementing real-time monitoring and predictive analytics, our client ensured that raw materials met quality standards, production schedules were maintained, and inventory levels were optimized.
- **Outcome:** The connected supply chain resulted in a 25% reduction in inventory levels, a 60% decrease in expedited freight costs, a 75% improvement in supplier performance metrics, an 80% reduction in machine and process downtime, a 95% reduction in production defects, and a significant increase in process transparency. Additionally, issues with incorrect, defective, or missing parts were significantly eliminated, leading to smoother and more reliable assembly operations.

Introduction

Our customer's commitment to innovation and operational excellence is evident in its continuous pursuit of advanced technologies. The implementation of Pico's Connected Supply Chain solution marked a pivotal step in revolutionizing their supply chain management. By integrating real-time data and advanced

analytics, our partner transformed its supply chain operations, driving substantial improvements across various metrics.

Challenges in the Traditional Supply Chain

Before adopting the connected supply chain solution, our partner faced several challenges:

- **Assembly Delays:** Disruptions in the supply chain led to delays in the assembly process, impacting production schedules.
- **High Inventory Levels:** Excess inventory to buffer against uncertainties in supply chain operations led to increased holding costs.
- **Expedited Freight Costs:** Inconsistent supply chain visibility resulted in frequent use of expedited freight to meet production schedules.
- **Supplier Relationship Management:** Limited real-time collaboration with suppliers hindered proactive problem-solving and continuous improvement efforts.
- **Machine and Process Downtime:** Unanticipated equipment failures caused production delays and increased maintenance costs.
- **Production Defects:** Quality issues due to insufficient real-time monitoring of production processes.
- **Process Transparency:** Lack of comprehensive visibility into the entire supply chain hindered strategic decision-making.
- **Incorrect and Defective Parts:** Frequent issues with receiving wrong parts, defective parts, or no parts from suppliers, causing significant disruptions in the assembly line.
- **High Technology Components:** Managing high-value, technologically advanced aerospace components require stringent quality control and precise coordination.
- **Costly Supplier Transitions:** The expense and complexity of exiting existing suppliers and onboarding new technology suppliers add significant costs and risks to the supply chain.

Implementation of Pico's Connected Supply Chain Solution

Our customer's implementation of Pico's Connected Supply Chain solution focused on achieving end-to-end visibility and control over its supply chain, from Tier 4 suppliers to finished goods distribution. Key features of the solution included:

1. **Real-Time Data Streaming:** Integration of sensors and IoT devices provided real-time data on raw material quality, shipment status, and supplier performance.
2. **Advanced Analytics:** Predictive analytics and machine learning algorithms enabled proactive decision-making, identifying potential disruptions before they occurred.
3. **Collaborative Platform:** A unified platform facilitated seamless communication and collaboration between our customer and its suppliers.
4. **Comprehensive Monitoring:** Continuous tracking of equipment performance and production processes to ensure quality and efficiency.

Results and Benefits

The transformation brought about by Pico's Connected Supply Chain solution yielded impressive results for our customer:

1. **Cost Reduction:**
 - **Lower Inventory Levels:** Real-time data and predictive analytics enabled our customer to maintain optimal inventory levels, reducing excess stock and associated holding costs.
 - **Reduced Expedited Freight:** Improved visibility and proactive planning minimized the need for expedited freight, leading to significant cost savings.

2. **Improved Inventory Management:**
 - **End-to-End Traceability:** Tracing raw materials from Tier 4 suppliers through the assembly process ensured that all components met quality standards and were delivered on time.
 - **Optimized Warehousing:** Enhanced visibility into inventory levels and demand patterns enabled more efficient warehousing and distribution operations.
3. **Enhanced Supplier Relationships:**
 - **Proactive Collaboration:** The collaborative platform facilitated real-time communication and joint problem-solving with suppliers, improving overall supply chain performance.
 - **Supplier Performance Monitoring:** Continuous monitoring of supplier performance metrics fostered a culture of continuous improvement and accountability.
4. **Increased Supply Chain Capacity:**
 - **Capacity Optimization:** Better coordination and resource allocation improved supply chain capacity, allowing our customer to handle higher volumes with the same infrastructure.
5. **Reduced Machine and Process Downtime:**
 - **Predictive Maintenance:** Real-time monitoring and predictive analytics reduced unexpected equipment failures, minimizing downtime and maintenance costs.
6. **Reduced Production Defects:**
 - **Quality Control:** Continuous process monitoring and real-time feedback ensured higher quality standards, reducing defects and rework.
7. **Increased Process Transparency:**
 - **Visibility and Control:** Comprehensive data integration provided complete transparency across the supply chain, enhancing decision-making and strategic planning.
8. **Operational Improvements:**
 - **Improved Demand Forecasting:** By analyzing historical data and market trends, the solution enhanced demand forecasting accuracy, aligning production schedules with market demand and reducing the risk of overproduction or stockouts.
 - **Agility and Responsiveness:** The connected supply chain enabled our customer to quickly adapt to changes in demand, supply disruptions, or market conditions, ensuring business continuity and customer satisfaction.
 - **Enhanced Compliance:** Real-time data and traceability ensured compliance with regulatory requirements and industry standards, mitigating risks associated with non-compliance.
 - **Environmental Sustainability:** Optimized supply chain processes reduced waste, energy consumption, and carbon footprint, supporting our client's sustainability goals.
 - **Employee Productivity:** Automated data collection and reporting freed up employees from manual tasks, allowing them to focus on value-added activities and innovation.

Conclusion

Our client's adoption of Pico's Connected Supply Chain solution underscores the transformative potential of advanced technology in supply chain management. By achieving end-to-end visibility, real-time data access, and enhanced collaboration, our customer realized substantial cost savings, improved operational efficiency, and stronger supplier relationships. As the aerospace industry continues to evolve, the success of our client's connected supply chain serves as a benchmark for organizations seeking to drive innovation and excellence in their supply chain operations.

Contact Information

For more information on Pico's Connected Supply Chain solution and how it can benefit your organization, please contact us at:

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Acknowledgments

We would like to thank our client for their partnership and commitment to innovation in supply chain management. Their success story is a testament to the power of technology in driving operational excellence.