tvsnext Ai Digital Platforms

Harnessing MES to Elevate Aerospace Manufacturing Traceability

About The Client

A global leader in aviation, our client specializes in aerospace component manufacturing and exclusively exports to luxury car and aero-engineering manufacturers, driving sustainability and efficiency to shape the future of flight with unparalleled excellence and commitment.

The Problem

The client's lack of real-time machine data and manufacturing performance metrics led to significant cost overruns. This hindered efforts to boost labor and machine efficiency. Operators couldn't fully document reasons for machine downtime, delaying resolutions. Moreover, the lack of a unified system to access technical information and record production & quality data created operational challenges.

The Approach

To address the client's challenges, we implemented a Manufacturing Execution System (MES), incorporating components like Proficy Workflow, Plant Application, Historian, Simplicity, and Industrial Gateway Server.

This architecture enabled seamless machine -to-MES communication, capturing real-time data. It visualized performance for all machines on one screen, empowering prompt actions with real-time visibility. Integration of ERP and MES systems consolidated quality, labor, and supply chain data, optimizing financial management.

Services

⚙️ **Digital Engineering**

⚙️ **Manufacturing Execution System**

🗄️ **Big Data**

The Process

The implementation of the MES solution followed a systematic approach. It started by setting up thorough route management and real-time operator notifications for quick issue resolution. MES-driven maintenance schedules aimed at improving Overall Equipment Efficiency (OEE), while a Nonconformance Management system ensured smooth production flow.

We mapped out data structures, established data exchange protocols, and configured system interfaces to ensure cohesive consolidation of quality, labor, and supply chain data. Customized reports provided daily insights, enhancing productivity and reducing cycle time.

The Result

The integration of machine data and real-time visibility reduced machine downtime significantly. Overall Equipment Effectiveness (OEE) for connected machines increased by 33% resulting in improved productivity.

The new system provided a single visualization platform for all machines, enabling operators to view 3D work instructions, record production and quality data, and notate downtime. Additionally, predictive analytics helped decrease maintenance costs and optimize labor and machine run time, leading to a cost avoidance for one CNC machine.

The Outcomes

95%

Achieved a machine uptime of 95% through improved efficiency in tracking actual process times, leading to proactive maintenance schedules.

45% to 60%

Increased Overall Equipment Effectiveness (OEE) for connected machines from 45% to over 60%.

$1 million

Realized significant cost savings, including $1 million in cost avoidance for one computer numeric control machine.