

## BUILDING A FOUNDATION FOR A DIGITAL FACTORY OF THE FUTURE

**ABOUT MAGELLAN AEROSPACE.** Magellan Aerospace, Middletown, Inc., is an Ohio corporation with approximately 100 employees located in Middletown. It is a subsidiary of Magellan Aerospace Corporation, a Canadian corporation headquartered in Mississauga, Ontario, with over 3,000 employees worldwide. Magellan Aero Middletown manufactures high-temp, vacuum-brazed honeycomb structures primarily for aircraft exhaust systems and control surfaces and assembles titanium and nickel based alloy components and conventional aluminum structures.

**THE CHALLENGE.** Magellan Middletown's processes were too reliant on manual legacy systems, contributing to rework, scrap, inefficiency and additional time to train new operators. NC programmable equipment required manual load of programs by engineering to shop floor equipment and individual work centers required navigating network folders to find process documentation. Equipment oversight was also manually facilitated. Detailed run information was unavailable, requiring post event interviews and other investigation techniques that relied on conjecture.

**MEP CENTER'S ROLE.** TechSolve, part of the Ohio MEP and the MEP National Network™, and Siemen at the local divisional level, collaborated on solutions presented to, and approved by, the North American executive team as well as the Board of Directors of Magellan Aerospace. Engineering USA established the Siemens Teamcenter + SFC solution, a fully integrated environment that provides engineering design management tools, DNC for program dissemination to NC equipment, a web-based interface to consume manufacturing work instructions, and provides a pathway toward bi-directional machine communication. Focusing on CAD/CAM management, this new environment has become the foundation for improved process control and shared resources across divisions within North America. Techsolve managed the MT Connect implementation supports monitoring over 40 devices, including CNC equipment, furnaces, power quality, and argon consumption. Utilizing Juxtum MTConnect Software Adapters with encryption for data acquisition, SmartBox hardware, and TAMS RevolutionCore IIoT Platform for data visualization, this solution provides real-time monitoring of machine status, utilization, and efficiency. Further development will provide actionable data to support program optimization, process performance improvements, and predictive maintenance.

"The changes introduced by this initiative are transformational for Magellan Aerospace, Middletown. Not only do they help our business meet the necessary aerospace regulations, the solutions implemented allow us to exceed our Customer expectations for process excellence. I am confident that these technologies will prove to be instrumental in our success moving forward and ultimately will be deployed throughout the Magellan Aerospace Corporation. "

-Tom Heis, Director of Technical Operations

## RESULTS



**2.1%** increase in efficiency (payback at 0.5%) with \$135,900 in efficiency improvement



**1.4%** reduction in shop rate based on \$51,473 cost reduction in scrap and rework



**\$26,270** reduction in cost to train new operators

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