CASE STUDY

Production Data Intelligence Application

Client	Industry	Solution
Metal Fabrication Facility in Phoenix, Arizona	Metal Fabrication Custom Manufacturing	AI-Enhanced Production Analytics Performance Monitoring Platform

Challenge

Phoenix metal fabrication shop with 45 CNC machines serving aerospace and defense contractors experienced limited visibility into production efficiency, $2.4M opportunity costs from unidentified bottlenecks, manual tracking of machine utilization and job progress, difficulty identifying which jobs were most profitable, and customer inquiries about delivery status requiring manual research across multiple systems.

AI Consulting Approach

• Production Data Analysis: AI consultants integrated existing machine data, job tracking systems, and time records to create unified analytics using available manufacturing execution system data and basic machine learning models.

• Practical Analytics Implementation: Simple algorithms processing production data to identify patterns, predict completion times, and optimize job scheduling based on historical performance.

AI Solution

• Machine Utilization Analytics: AI application processing CNC machine data to identify efficiency patterns and recommend optimal job sequencing

• Job Progress Tracking: Automated system combining time clock data and machine status to provide real-time job completion estimates

• Profitability Analysis: Basic machine learning analyzing material costs, labor hours, and machine time to identify most profitable job types

• Customer Portal Integration: Simple application providing customers with automated updates on job status and estimated delivery dates

Implementation (14 weeks total)

- Data Integration (3 weeks)
- Application Development (6 weeks)
- Analytics Setup (3 weeks)
- Testing Launch (2 weeks)

Key Results

Production Visibility:
- 85% improvement in job tracking accuracy, $890K value from bottleneck identification and resolution, enhanced machine utilization rates across the facility

Business Intelligence:
- 70% faster customer status inquiries, improved job profitability analysis enabling better pricing decisions, enhanced delivery predictability

Business Impact:
- $1.4M annual value creation, strengthened customer relationships, 185% consulting ROI, improved competitive positioning for complex jobs

Technologies:
- Manufacturing execution system integration
- basic machine learning analytics
- customer portal development
- automated reporting tools