

Key Business Findings - Data Analysis Results

CRITICAL FINDINGS:

1. Critical Missing Usage Data (82%)

Finding: 82% of records lack machine hours data, severely impacting depreciation modeling capabilities.

Impact: High - Usage is critical for equipment valuation

Action: Develop proxy measures for equipment condition/usage

2. High-Cardinality Model Complexity (5 features)

Finding: 5 categorical features have >100 unique values, requiring specialized handling.

Impact: Medium - Affects model training and inference speed

Action: Use target encoding or embedding approaches

3. Market Volatility Period Detected (2008-2010)

Finding: Significant price volatility during financial crisis period affects model stability.

Impact: High - Time-aware validation critical for model reliability

Action: Use chronological validation splits, consider regime-specific models

4. Data Preprocessing Requirements

Finding: Dataset requires comprehensive preprocessing for ML modeling.

Impact: Medium - Affects model development timeline

Action: Develop robust preprocessing pipeline

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