SAS

Business impact

"SAS is helping us make discoveries so that we can address the core issues before they ever become problems – and we can make sure that we are addressing the right causes. We're talking about hundreds of millions of dollars in savings."

Tracy Cermack, Project Manager
Service Engineering Information Department
American Honda

Challenges

- **Huge data volume.** Volumes of data on failures, maintenance, warranty claims and quality from multiple sources is often manually entered and error-prone, and not optimized for equipment reliability and performance analysis.

- **Lack of data integration.** Equipment complexity – due to factors such as numerous components, suppliers, etc. – makes data integration difficult.

- **Manual systems and processes.** Current tools and processes can't detect problems until they grow to a substantial size.

- **Insufficient detail.** High-level, summarized data doesn't give enough detail on equipment quality, reliability and performance.

- **Limited resources.** There isn't enough manpower to look beyond top problems; platform engineers spend more time tracking down critical issues than working on process refinement and equipment improvements.

THE POWER TO KNOW®

How can we identify emerging reliability problems and minimize their effect on warfighter readiness?

YOUR GOAL: Improve fleet reliability and readiness

Fleet reliability is critical for ensuring warfighter readiness and maximum combat power, as warfighters expect equipment to be properly maintained and monitored to ensure the maximum capability. Meeting that expectation is a challenge, but failure to do so can dramatically erode warfighter readiness and combat effectiveness.

Unfortunately, maintenance expenditures (not including operations) consume 15 percent of the entire defense budget — almost $100 billion. That figure continues to rise while defense budgets tighten as the ongoing Global War on Terror draws limited resources away from the proper maintenance and recapitalization of battle-weary equipment. In response, military services are placing increased emphasis on Total Life Cycle Systems Management, focusing on sustainment early in the equipment life cycle to maximize reliability and performance — a tremendous challenge, given the limited resources.

But TLCSM isn't just about maintaining equipment and fixing system failures; it's also an opportunity to identify emerging reliability and performance issues and shorten the detection-to-correction cycle. The benefits? Improved fleet reliability, shorter repair cycle time, more efficient use of resources, enhanced warfighter readiness and increased combat effectiveness.

OUR APPROACH

Your maintenance and logistics data is a gold mine of information — the closest representation you have of how equipment operates in the warfighter's hands. But simply reporting on that data isn't enough if you want to make accurate predictions and avoid potential crises that can negatively impact fleet readiness. SAS approaches the problem by delivering reliability-specific software and services that help you:

- **Integrate and decode huge volumes of data from multiple sources** — maintenance systems, parts requisitions, supply systems, log books, field service, technician comments, embedded sensors, etc. — into a single data store that is optimized for reliability data analysis, tracking and reporting.

- **Transform data into a more usable format** by automatically categorizing text and separating it into key concepts that can be used for analyzing relationships among isolated failures to find patterns and anomalies — without manual intervention.

- **Analyze maintenance and logistics data and send prioritized alerts to the appropriate people** using automated maintenance- and reliability-specific predictive analytics to surface emerging issues, uncover potential problems and determine their root causes.

- **Empower problem solvers with easy reporting functions** that let them access critical information in a format they can understand without being experts in statistics.

Detailed analysis of maintenance and logistics data can help uncover near- and long-term opportunities for additional maintenance budget savings, improved product quality and, of course, maximized fleet and warfighter readiness.

THE SAS® DIFFERENCE: Take full advantage of all maintenance and logistics data

Many vendors claim to offer maintenance solutions that include analytics when they're really just selling reporting packages. But there's a big difference between maintenance data *reporting* and maintenance data *analysis*. While any reporting tool can tell you what happened, only a true maintenance analytics solution can detect emerging issues *before* they become costly, high-impact problems. And only SAS offers a solution specific to maintenance, reliability and field-failure analysis, with an automated workflow for identifying and acting on emerging issues, including:

- **Detection** – Identifies the problem early on.
- **Prioritization** – Puts the problem into perspective, calculating the current scale of the problem and the impact it will have if no action is taken.
- **Definition** – Determines the problem's root cause and takes steps toward correction.

SAS is the market leader and only technology vendor with true domain expertise in maintenance, reliability and field-failure analysis — which we've built directly into the solution. And since true maintenance analysis is just one piece of our entire supply chain intelligence suite, you can start there and build on that foundation to address all other service optimization areas — including spare parts optimization, predictive asset maintenance/CBM, service operations optimization and more.

CASE STUDY: American Honda

■ Situation

As one of the most admired and recognized brands in the US, American Honda strives to ensure the quality and performance of its automobiles by listening closely to what its customers — and the data — are saying. And that means detecting and containing warranty and call center issues before they become widespread.

■ Solution

SAS provided an early-warning system that:

- Combines customer and technician feedback with manufacturing and other systems data.
- Performs simple text-matching functions and looks at automatically defined clusters of text in a variety of different ways.
- Mines a wide range of structured data and unstructured text to spot patterns that indicate potential problems early on.
- Generates alert notices and lets analysts easily view details of the findings.

■ Results

- Engineers can uncover root causes and find hidden issues that can be corrected long before they become big problems.
- The company can ensure ongoing safety, quality and customer satisfaction.
- The resulting discoveries support engineering improvements that build better vehicles and maintain the automaker's pre-eminence in the industry.

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■ The vision

Data integration

What if you could consolidate all data sources — including structured and unstructured data from maintenance, supply, repair, etc. — into a single view that filters out noise, giving you meaningful insight into equipment behavior and performance in the warfighter's hands?

Advanced text mining

What if you could extract and categorize essential information from text-based maintenance and log-book data, combine it with your structured data, and analyze it to gain valuable knowledge about the warfighter's and maintainer's critical performance and reliability issues?

Predictive analytics specific to field failure and reliability

What if you could automatically receive prioritized alerts to potential problems very early in the equipment's life cycle so you could investigate and take corrective action before problems reach your crisis-issue list?

Easy reporting

What if everyone who needed it — quality engineers, data entry clerks, squadron commanders, etc. — could access key reliability and readiness performance indicators, drill down to performance trends, and create ad hoc charts, graphs and reports through an easy-to-use Web interface without requiring specialized training and experience?

SAS FACTS

- SAS customers include all 15 federal departments, all military departments and the joint commands.

- *Manufacturing Business Technology* magazine has named SAS to its annual Global 100 rankings in the Business Performance category.

- The SAS® Enterprise Intelligence Platform was honored by *START-IT* magazine as one of 2008's "Top 50 Technologies" for manufacturing.

Learn more about SAS® software and services for government and defense: www.sas.com/government