



## SAS® WARRANTY ANALYSIS

Reduce warranty costs and improve product quality and brand reputation

### Overview

With warranty issues costing organizations billions and indirect cost factors such as increased government regulations and customer expectations for quality products and services on the rise, warranty data has become critically important to analyze and understand.

To reduce warranty costs, build customer loyalty and competitively differentiate themselves as providers of exceptional customer service, smart manufacturers have increased their focus on post-sales service. And they are relying on analytics to make sense of their warranty claims and other field performance data.

SAS Warranty Analysis integrates text and structured data across the service chain, and provides the information and tools necessary to issue early warnings of problems, reduce time to identify root cause and minimize the size and scope of recalls. This SAS solution integrates field performance data with key customer, product, manufacturing and geographic information to enable organizations to detect and correct issues earlier and reduce warranty costs.

### Challenges

- Increasing warranty costs and poor customer satisfaction ratings.
- Cannot track warranty claims and resolutions in a timely manner.
- New issues grow in the field for months before they are detected.
- Hard to integrate and analyze historical/supplier warranty information, so it is difficult to anticipate and prepare for future issues.
- Business analysts and executives do not have ready access to warranty data and reports.
- Difficulty integrating quality and warranty data.
- Root cause analysis takes too long.
- Feeding warranty claim information back to design and manufacturing takes too long.
- Ineffective, manually intensive processes.



# Reduce the time to identify root causes of warranty issues

## The solution

SAS Warranty Analysis integrates warranty data with key customer, product, manufacturing and geographic information, enabling organizations to increase the efficiency of problem-solving efforts for improved quality and customer satisfaction. This solution allows organizations to:

- Automatically detect emerging issues before they have a significant impact on performance.
- Quickly prioritize issues so that problem solvers can focus on what is most important.
- Determine which combination of attributes are driving failures so that resources can be focused on the right issues in the right place at the right time.

## Why SAS®?

Take advantage of your warranty, call center and other service data with a solution designed specifically for performance analysis.

- **Data integration.** Consolidate all data sources into a single repository for tracking, analysis and reporting. Having access to all data sources enables a more comprehensive approach to identifying problems.
- **Text mining and analytics.** SAS Warranty Analysis transforms text-based warranty data into a meaningful format ready for use in data exploration, clustering and statistical modeling. You can extract and categorize essential information from reams of text-based data, combine it with structured data, and analyze it to gain valuable knowledge about customers' critical service and product issues.
- **Predictive analytics specific to warranty analysis.** Automated, high-level analytics detect potential problems early on. Early warning alerts are prioritized and sent to the appropriate person for further investigation.
- **Project-based user interface and easy reporting capabilities.** Access the latest information on key warranty performance indicators and drill down to performance trends, as well as create ad hoc charts, graphs and reports from a point-and-click interface.

## Benefits

### Reduce warranty costs

Simply reporting on warranty data is not sufficient in today's marketplace. Instead, you must proactively analyze your data to surface emerging issues, quickly identify problems and determine their root causes. Advanced analytics and data mining techniques with an automated workflow help organizations reduce warranty costs by:

- Detecting issues earlier.
- Accurately forecasting the potential cost of warranty issues.
- Quickly pinpointing where problems are occurring.

### Automatically detect issues earlier

SAS Warranty Analysis enables organizations to recognize emerging issues before they become huge, costly problems, and enables them to start the problem-solving process months earlier.

The solution:

- Simultaneously monitors production period, time in service and claim period.
- Identifies new issues in the field without analysts having to look through hundreds or thousands of charts.
- Flags higher-than-normal failures and notifies the appropriate analyst or engineer.

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## Reduce detection to correction time

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SAS Warranty Analysis provides engineers with the information they need to request parts and conduct tear downs. The solution:

- Defines the combinations of attributes that are driving field issues.
- Filters out normal variation so that problem solvers can focus on the significant differences.

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## Minimize the size and cost of recalls

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By understanding which product, customer and usage attributes are driving the failures, organizations can focus recalls on attribute combinations that are at risk, reducing the size and scope of recalls. SAS Warranty Analysis:

- Detects problems and identifies fixes before they become product recalls.
- Helps reduce the shipment of faulty products in the future.

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“With SAS Warranty Analysis we expect to increase the quality of our products and services while reducing our warranty costs by a significant amount... this means happier customers and a competitive advantage through a superior brand.”

### John Kerr

General Manager,  
Quality and Operational Excellence,  
Whirlpool

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## Capabilities

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### Standard, extensible data model

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Integrate warranty claims, call center information, technician hot lines, and other field performance data with sales, product and repair information to gain a comprehensive view of field issues. The Data Model is common to all SAS Service Intelligence solutions and includes a common interface with dashboards and scorecards designed for the service chain.

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### Integrated warranty business rules

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Address the variation and complexities of warranty data by applying business rules such as sales lag profiles, usage distributions, maturity calculations and seasonality adjustments.

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### Integrated text analysis

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Find patterns in text collected from customer comments and technician notes. Identify groups of similar claims based on content and highlight critical, quantitative variables that differentiate text-based groups. Move quickly between quantitative analyses and text analyses.

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### Warranty dashboard and scorecard

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Use the Web-based, point-and-click dashboard to access the latest information on key warranty performance indicators, drill down to performance trends, and disseminate strategic objectives and information across your

## The SAS® difference

While many vendors claim to have warranty analytics solutions, they're really just selling reporting packages. There is a huge difference between warranty data reporting and warranty information analysis. Any reporting tool, from the most sophisticated solution down to a basic spreadsheet application, can tell you what happened (e.g., report on how many claims for which products were submitted by what servers). But to see into the future and find true emerging issues before they become huge, costly problems, you need a true warranty analysis solution.

Only SAS offers a solution specific to warranty analysis, with an automated workflow for identifying and acting upon emerging issues, including:

- **Detection** – identifies the problem early on.
- **Prioritization** – puts the problem into perspective, calculating how much it will cost if nothing is done.
- **Definition** – identifies which variable combinations drive failures and isolates failure models to enable more effective root-cause analysis.

SAS is the market leader and only technology vendor with true domain expertise in warranty analysis. We've built our industry-leading analytic capabilities and our intellectual capital directly into the solution. You get a true warranty analysis solution with a singular focus — not just an analytical tool that can be adapted for warranty data.

organization. The warranty scorecard provides Web-based, point-and-click access to the latest information on key warranty performance indicators.

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### Report library

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Information can be made available across the enterprise or can be limited to specific users or groups. Interactive reports can even be shared with suppliers, service providers and customers, allowing them to analyze their own products and performance.

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### Emerging issues system

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Automatically detect upward shifts in claims, calls or other activity through an emerging issues system. Shifts are determined through three different analytical methods. The system automatically determines the critical values and simultaneously monitors changes across production period, usage and time of claim. Issues with criteria that surpass critical values are flagged. Issues can be distributed appropriately and comments can be attached so that current progress is easy to ascertain. The comments also can be used as a knowledge repository.

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### Warranty reporting and analysis

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Combine and subset data using comprehensive, easy-to-use filters. Quickly prioritize and define issues using a standard set of interactive, warranty-focused analyses. Conduct the filtering and analysis within a project-based users interface built around the warranty analysis process workflow. Problem solvers can quickly understand where they need to focus their efforts.

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### Advanced warranty analysis

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Unlock additional knowledge from data by allowing advanced users to choose from hundreds of powerful analytic techniques, all from within an environment that does not require programming.

## About SAS

SAS is the leader in business intelligence and analytical software and services. Customers at 43,000 sites use SAS software to improve performance through insight from data, resulting in faster, more accurate business decisions; more profitable relationships with customers and suppliers; compliance with governmental regulations; research breakthroughs; and better products and processes. Only SAS offers leading data integration, storage, analytics and business intelligence applications within a comprehensive enterprise intelligence platform. Since 1976, SAS has been giving customers around the world THE POWER TO KNOW®.

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