



## Orchestrate Demand: Redesign Warranty Systems

Thursday, April 12, 2007

Lora Cecere, Simon Jacobson

U.S. manufacturers spent more than \$25B honoring warranties last year. Based on recent reports from **Accenture**, this cost is rising over 4.8% year over year. Warranty systems, however, are both a liability and an asset.

In this article, we share insights on how to make warranty systems even more of an asset through demand-driven strategies. The goal of these demand-driven processes is making them predictable, reducing exposure, and using them as a source of demand insights.

As a financial liability, warranty systems are a promise to provide service to ensure a purchased item performs at expectations during the warranty period. Fulfillment on the warranty promise is costly and, for most companies, too unpredictable. It's a messy supply chain process that lacks standardized best practices and technologies equivalent to those in manufacturing processes, like order to cash or procure to pay.

### Scaling the supply chain agenda

As a source of revenue and a key positioning element in brand differentiation, warranty management and service supply chains are rising in importance on the supply chain agenda. The goal is to not only control costs, but to use them as a mechanism to drive back real-time feedback on product usage for closed-loop, continuous improvement into product manufacturing, supply, and R&D processes. This involves analysis of supplier performance and feedback from repair networks to pinpoint patterns in product performance, detect and correct, and prevent fraudulent claims.

As product complexity is increasing, this closed-loop processing of information, also called warranty analytics, is growing in importance as product lifecycles become shorter and customer customization increases. For example, a cell phone now has a lifecycle of six months; a year ago, it was eight months. With this added complexity, it is easy for organizations to focus on product launch and commercialization, bypassing warranty processes.

Leaders view warranty systems more comprehensively. For demand-driven supply network (DDSN) leaders, we see a balance between launch and usage, with ownership throughout the product lifecycle as well as at four moments of truth: point of purchase, usage, service, and disposal (see "DDSN and the Four Moments of Truth for Aftermarket Service").

Based on interviews with over 35 manufacturers, warranty capabilities vary considerably. While some companies view warranty as an element of service managed in isolation in a profit center, more advanced companies view it as an asset, with a focus on total contribution to the brand. Leaders view warranty programs as an opportunity to continuously gather downstream data on the use and quality of products they produce.

### Redesigning networks to incorporate upstream and downstream sensing

In addition to the successful orchestration of data from field service networks, there is also a need to translate this data back through the multiple manufacturing and R&D tiers. In high-tech, the tiers are complex, involving brand owners, contract manufacturers, return merchandise authorizations (RMAs), field service mechanics, service parts providers, and call center operations.

Multitier quality management is a major opportunity within high-tech supply networks. Since manufacturing in these networks is largely outsourced in a complex network of OEM and original design manufacturer (ODM) partners, visibility into test-and-assembly data from suppliers, as well as end-to-end product performance from the field (post-manufacturing), is a challenge.

For the most part, companies have cobbled together architectures to track how product performed, using combinations of product lifecycle management (PLM), quality management systems (QMS), MES, ERP, BI tools, and SCM systems, but this fragmentation renders most architectures not equal to the task.

To answer this market need, **SigmaQuest** offers capabilities to collect and analyze quality and warranty data from both upstream and downstream entities in the supply network through an on-demand model. Using the its dashboard and predictive analysis engine, companies can examine data related to any serial number in the lifecycle of a product (pre-production through manufacture through field service through parts repair) and then analyze that data beside similar serial numbers (genealogy, component mix, and so forth).

For manufacturers of either complex products or ones that require a high level of customer configuration, there are huge, untapped savings and operations excellence opportunities to be reaped once establishing the capability to model the interdependencies between various components and subassemblies:

- Closing the detection-to-correction cycle for isolating and resolving problems related to specific suppliers and product configurations
- Deriving more accurate data relative to a product's performance in the field to help plan warranty and returns exposure

Here we share insights from three companies that improved warranty information through work with technologies from **SAS** and **SigmaQuest**.

### *Whirlpool Home Appliances*

**Whirlpool Corporation** is the world's leading manufacturer and marketer of major home appliances, with annual sales of more than \$18B and more than 73,000 employees. The company markets Whirlpool, **Maytag**, **KitchenAid**, **Jenn-Air**, **Amana**, **Brastemp**, **Bauknecht**, and other major brand names to consumers in nearly every country around the world.

With a long history in Six Sigma quality systems, the Whirlpool quality team had used the SAS system for product quality management for over 10 years. So when the company wanted to improve customer satisfaction with its products and better understand warranty claims, the use of SAS Warranty Analysis, closely coupled with its quality systems, was a natural evolution.

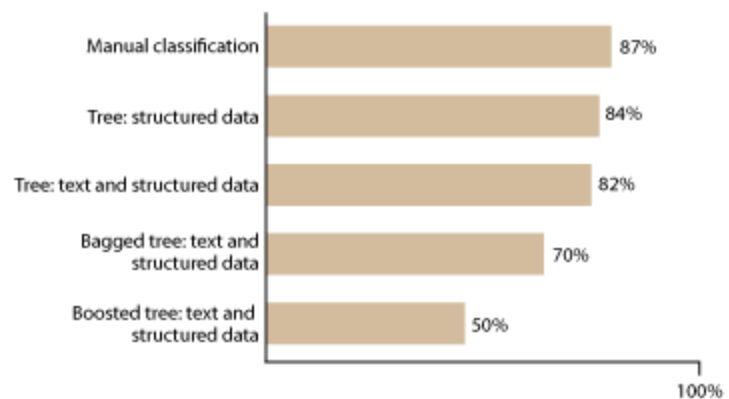
After 12 months of deployment and training, Whirlpool was able to reduce service calls through root cause analysis and provide emerging quality issues to the management team. This reduced financial risk and improved customer satisfaction. The result was a six-month reduction in Whirlpool's issue detection-to-correction cycle and a three-month decrease in initial issue detection, with close coupling to its quality systems for continued productivity and efficiency gains.

### *Producer of heavy-duty trucks*

A major heavy-duty truck manufacturer in North America installed the SAS Warranty Analysis system in February 2003. Within a year, the company was able to use the system to gather, pinpoint issues, and provide possible root causes to warranty issues based on predictive analytics in a warranty insight system. As a result, warranty claim accuracy improved by 50%, with close coupling to manufacturing quality targets and engineering continuous improvement programs.

The system is based on the use of special forms for data collection, dealer product reports, to structure warranty information from the call center. This data is fed into the SAS Warranty Analysis system multiple times a day. It's also available for analysis by over 200 users for reporting, with alert generation when failure rates of parts or assemblies exceed the preset number. This data is used for accurate categorization of warranty claim information, and through exception-based alerting, it decreased time for detection by 50% to 70% within nine months. Through the use of structured and unstructured text in combination with predictive analytics to monitor the data and give early notification of escalating trends, the classification improved to 87% (see Figure 1).

**Figure 1:** Warranty code classification results—accuracy rates



The use of optimization in warranty classification determines statistical significance and pinpoints problem resolution. Examples include the plant of origin, common suppliers, supplier defects, machine tolerances, and dealer service records. As a result, the team has detected and corrected 25 issues three to four months earlier than they would have using the prior manual systems. This early detection system was critical to the launch of new engines to meet the EPEA 07 engine requirements, and it's the basis of a weekly problem-review meeting between the quality control, research and development, and manufacturing teams.

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Source: AMR Research, 2007

### *Palm*

**Palm**, a manufacturer of handheld devices, has enlisted SigmaQuest, to provide visibility in its multitier RMA and warranty management processes. The focus is to accelerate and streamline product performance data collection to minimize detection-to-correction cycle time. This automation has led to reduction of warranty returns and improved repair predictability. It also ensures the proper assignment of liabilities by type of supplier. Furthermore, by automating this process, time frames, from issue detection to issue resolution and head count associated with it, can be compressed, with an element of predictability introduced into the process. And for any high-tech manufacturer that is operating on slim margins, the ability to reduce any expenditure on warranty, even only by 1%, has a drastic impact on the bottom line.

## **Conclusion**

The holistic redesign of warranty systems is required for both enterprise and multitier networks to help tip the scales to make warranty programs more of an asset than a liability. Continued reliance on loosely connected pockets of data can prevent any firm from maturing its warranty management process.

However, incorporating analytical tools can help bring these silos together to drive the orchestration of warranty management as a part of demand management. This can connect back to R&D with customer insights on usage, supply and design networks on product performance, and quality and supplier development systems on failure detection and early warning for cross-functional corrective action. If warranty management is of concern for your organization, let us know how we can help—lcecere@amrresearch.com.

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