



DATA-DRIVEN STRATEGY TO TRANSFORM WARRANTY PROCESS

Warranty claims contain valuable information about product quality and reliability, customer expectations, and can reveal design or manufacturing defects. The proper utilization of this data enables manufacturers to make improvements to existing products, develop more reliable new products, and drive increased profitability.

In many markets, including automotive, white goods, and consumer electronics, the large number and variety of claims makes analysis using traditional business intelligence-based methods unwieldy due to lack of specialized data transformation and machine learning capabilities.

Benefits of Warranty Analytics

The ability to access and accurately transform warranty data from multiple sources is critical, as is the ability to select and apply the right machine learning algorithms to understand insights and make data-driven decisions in terms of design, manufacturing, material selection, documentation, or service changes.

Employing warranty analytics, including root cause analysis, service pack optimization, and warranty risk profile analysis (quality issue prioritization), helps manufacturers enhance customer loyalty and brand image. The early detection of potential failures in components and systems can also increase profitability by reducing the number of claims and the costs associated with handling them. Fraud, of course, is an ever-present aspect of modern business life; the ability to detect fraudulent warranty claims accurately before they become serious problems can also go straight to the bottom line.

The advantages of investing in warranty analytics goes well beyond this. By understanding which parts in existing products are likely to fail — and why — product developers can implement changes to the product's design, raw materials used, and/or third party suppliers to eliminate known issues from the product's next generation. With good analytics, companies can make accurate estimations of warranty claim costs and reserve an optimum amount of resources to handle anticipated claims. They can even modify their warranty policies to reflect the expected reliability of a product; for example, if a component is found to fail more frequently than originally projected, a company might offer its customers enhanced warranty coverage in order to preserve brand value and maintain good customer relationships.

Challenges to Analytical Accuracy

One of the first challenges for any data analytics implementation is the data itself. Data for warranty claims often originates with third parties like dealers, distributors, and service organizations,

WARRANTY CLAIMS
DATA CONTAINS
VALUABLE INSIGHTS

MAKING CLAIMS DATA
CONSISTENT IS A
CRITICAL FIRST STEP

SELECTING THE BEST
MACHINE LEARNING
ALGORITHM(S) IS KEY TO
AN EFFICIENT PROCESS

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and will generally be in diverse sets of formats and data types. This data must be brought together, normalized, cleansed, and formatted in a consistent way before any actual analysis can be conducted. In many cases, warranty data also originates as written text descriptions of warranty issues and requires Natural Language Processing (NLP) techniques to interpret the text. This enables analysts to create themes around which to organize different types of issues and supports better understanding of customer sentiment.

It is important not to underestimate the time and resource investment required to obtain well-structured, clean data; it is not unusual for data scientists and analysts to spend 80% of their time on data preparation.

Assuming enough training data is available, machine learning technology enables analysts to develop and test predictions on customer behaviour, returns, physical failures, software issues, and repair costs. As more claims are generated, the overall predictive capabilities of the analytics system can become more granular and accurate. The major challenge in the predictive analytics phase is selecting the machine learning strategies that will provide the most useful and actionable results on a range of products. Most analytics tools offer many options for developing predictions with varying degrees of complexity. Simply selecting the option that is easiest to use can lead to poor predictive performance, while selecting more complicated approaches may require inordinate amounts of time to configure, test, and deploy. The final selection of strategies will depend on the degree of accuracy required, the number of products in the field, the amount and quality of data available, the time available to test and deliver predictions, and similar factors.

Altair Data Analytics for Warranty Analytics

Altair enables manufacturing firms to develop, manage, and deploy accurate warranty analytics systems that help improve product and company reputations, constantly improve product designs, and catch warranty fraud before it becomes a serious issue.

Data Preparation: Access, cleanse, and format warranty and service utilization data from CRM, ERP, and systems managed by channel partners, as well as PDF and Excel reports and big data sources without any manual data entry or coding.

Machine Learning: Altair’s industry-leading visual approach to data analytics enables businesses to build and deploy machine learning models in almost any analytic infrastructure. Altair’s automated ML and explainable AI functions eliminate repetitive tasks, makes data scientists and business analysts more productive, and enables managers to create profitable, attractive service packs.

Streaming Analytics: Build stream processing applications and sophisticated analytical dashboards without writing any code. Solve difficult problems quickly, understand complex relationships in seconds, and identify issues requiring further investigation with just a few clicks.



Just as most customers are willing to pay for quality, many will pay for strong warranties. With the right analytics tools and processes in place, manufacturers can minimize their warranty claims costs, improve product quality, and increase customer loyalty simultaneously.”

Sam Mahalingam, CTO, Altair



Altair® Knowledge Studio® text analytics add-on combines visual text discovery and sentiment analysis with the power of predictive analytics.