

# Automating the Analysis of Call Center and Warranty Data

Developed by Megaputer Intelligence

## Background

A company with manufacturing facilities in the US is one of the largest suppliers of injection-molding services and equipment. Serving customers in over 100 countries and employing over 3,500 employees worldwide, this company earns over \$9 billion in annual revenues.

Maintaining high customer satisfaction was an important goal of this company. Ensuring that the equipment they sold met customers' needs, the company provided service warranties to maintain quality throughout the lifecycle of its injection-molding equipment as well as customer call centers to assist customers in troubleshooting and fixing this equipment. Call transcripts from the call centers provided a useful source of information on the type of complaints and emerging issues related to the company's product lines. Likewise, service notes for repairs on equipment under warranty provided a source of data replete with information on the most common repairs and issues with various products the company designed. The company realized that these data sources, if combined, could provide a highly informative resource for enhancing their product design and service warranties as well as providing better customer support training for call center operators.

## Challenge

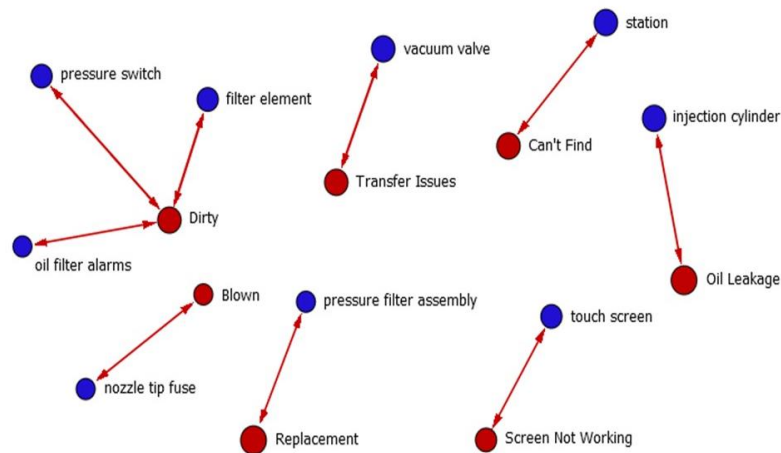
The company was interested in identifying the top customer complaints with its products and determining the issues that were the most problematic and costly. The warranty service data likewise was seen as a useful dataset for discovering emerging equipment issues and identifying any systemic product issues. The bulk of the information in both of these datasets, however, was in the form of unstructured text data. Manual analysis of this data would require large expenses to the company in the form of personnel costs. Furthermore, analysts were finding it difficult to keep pace with the rate of emerging issues and complaints recorded within the datasets. Other challenges they needed to overcome included: non-homogeneous data sources, unstructured, free-form text, domain-specific terminology, inconsistent naming, and irrelevant information within datasets. As a result, the company sought an automated text categorization and reporting system that could help them resolve all issues documented by their call center operators and within their service warranty data.

## Solution

The company turned to Megaputer to provide a scalable, automated solution that could combine the information from their warranty data and call center transcripts. Using the deep linguistic analysis capabilities of PolyAnalyst™, Megaputer's proprietary data and text analytics software system, Megaputer developed a solution that monitors emerging product issues and customer complaints. Using PolyAnalyst's advanced text analysis capabilities, Megaputer's Data Analysis Consultants quickly developed a turn-key analytical solution, custom tailored to handle multiple analysis tasks.



The data from multiple sources was easily loaded into the system where it was cleansed and processed using the system's intelligent spellchecker and context-based pattern recognition text filtering nodes. Automated entity extraction enabled the system to identify important dates, values, terms, and names relevant to the analysis. Any irrelevant information was able to be filtered out and synonymous terminology was renamed for consistency using the replace terms node of the system. Built-in features like web graphs, link analysis, and word clouds identify relationships between specific parts of a product and the type of issue experienced by the end user (Figure 1). To compare multiple data sources, the system also has join nodes that conveniently combined data from call centers and warranty data for global analysis of equipment issues.



**Figure 1.** Link analysis generated by PolyAnalyst identifies relationships between issues and machine parts.

By comparing the text data from both data sets, the company was able to identify the top issues customers complained about and the top issues service warranty repair specialists reported. While the top issues varied for each data set, problems with the injection piston on one of their products was among the top issues reported by both customers and repair specialists. Additionally, PolyAnalyst was able to detect the onset of some of these emerging issues, which is useful for identifying equipment parts that tend to fail or need replacement in future product redesigns and warranty service agreements.

The automated text analysis solution can easily update data daily, weekly, or monthly to pick up new data records, refresh the analysis, and have an easy-to-comprehend web-based report of the results ready the next day. Email alerts can also be set to notify the proper personnel of emerging product issues. With automated analysis and frequent updating, companies can stay on top of emerging product issues.

## Benefits

Before Megaputer's solution, the company carried out its analysis manually and was unable to keep up with the growing amounts of customer and product data. The automated solution can substantially improve the efficiency of the company's customer service call centers and help improve product design. In addition to



streamlining a time-consuming process, Megaputer's solution can help the company successfully overcome other challenges. The key benefits of implementing this solution include the following:

- **Early detection of emerging issues:** With frequent automated updates, companies are equipped with information about emerging issues with their products so that they can address these issues in a timely manner. Likewise, they can train call center operators to handle customer complaints in the most efficient manner, leaving customers highly satisfied and avoiding costly repair issues.
- **Informed product design and supplier choice:** Problematic parts in a product can be easily identified and replaced with substitutes. Issues with a part from a particular supplier can be traced so that costly machine malfunctions can be avoided.
- **Restructuring warranty and service agreements:** The results of this analysis can help the company determine how future service warranties and service agreements should be structured. Routine maintenance recommendations can be optimized and service repair specialist can be trained to recognize typical issues that arise during the lifecycle of the equipment.

