



Z Solutions®

## CASE STUDY: WARRANTY RETURN ANALYSIS

### SITUATION

A manufacturer of electric consumer products is concerned with the high rate of return of one of their high end products for warranty repairs. These products are covered by a five year warranty and the manufacturer is concerned about two issues. First and foremost, are the existing processes in place sufficient to monitor the production of these products? If not, what can be done to catch the problems earlier and reduce the failure rates and reduce cost? Secondly, the company is concerned about forecasting future returns of the products as they age, with a concern that the cost may increase over time.

### ANALYTIC SOLUTION

The solution to this problem required a multi-stage predictive model implementing traditional techniques and Neural Networks. Most importantly, the preparation of the models required coordination of data from several sources in the organization including purchasing, engineering and manufacturing. This coordinated gathering of information produced unexpected results.

### RESULTS

Surprisingly, the company found that their manufacturing processes were not at fault. Through careful analysis of the return data and the engineering data, it was apparent that the increased return rate was related to inadequate purchasing processes and testing of subcomponents. These problems were being masked by a system of coding in the company's data warehouses of the components used each item produced. The predictive models found the underlying pattern and made the solution obvious. The company turned their attention to the purchasing process, not the manufacturing process.

Additional use of the models to make forecasts of returns showed that after approximately a year and half the return rates decreased therefore future ageing concerns were not justified.

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