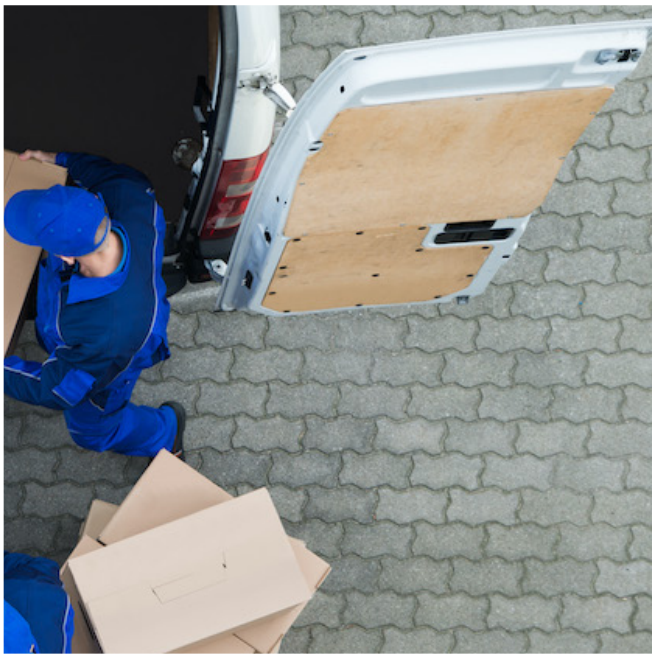
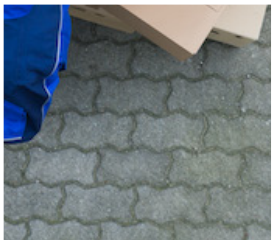
Bruviti

Bruviti Parts Prediction Engine

WHITE PAPER





The right part for the job

To minimize truck-roll costs and maximize first-time fix rates, manufacturers of field-serviceable equipment and their field-service partners must accurately predict which parts will be needed to get an appliance up and running. Getting this right has implications along the supply chain: from OEM to service depot and, ultimately, what is loaded onto the service truck.

Consumers expect a timely and accurate repair response to address a technical problem. Traditionally, service teams have relied on the rich experience of service technicians to stock trucks with frequently required parts. But what gets loaded onto the truck also requires accurate problem diagnosis.

During that initial service call, Bruviti's AI-powered applications help diagnose the problem and determine the best course of action to remedy it. As part of this process, Bruviti can also accurately determine which predict parts will be needed and ensure they are provisioned for the service call.

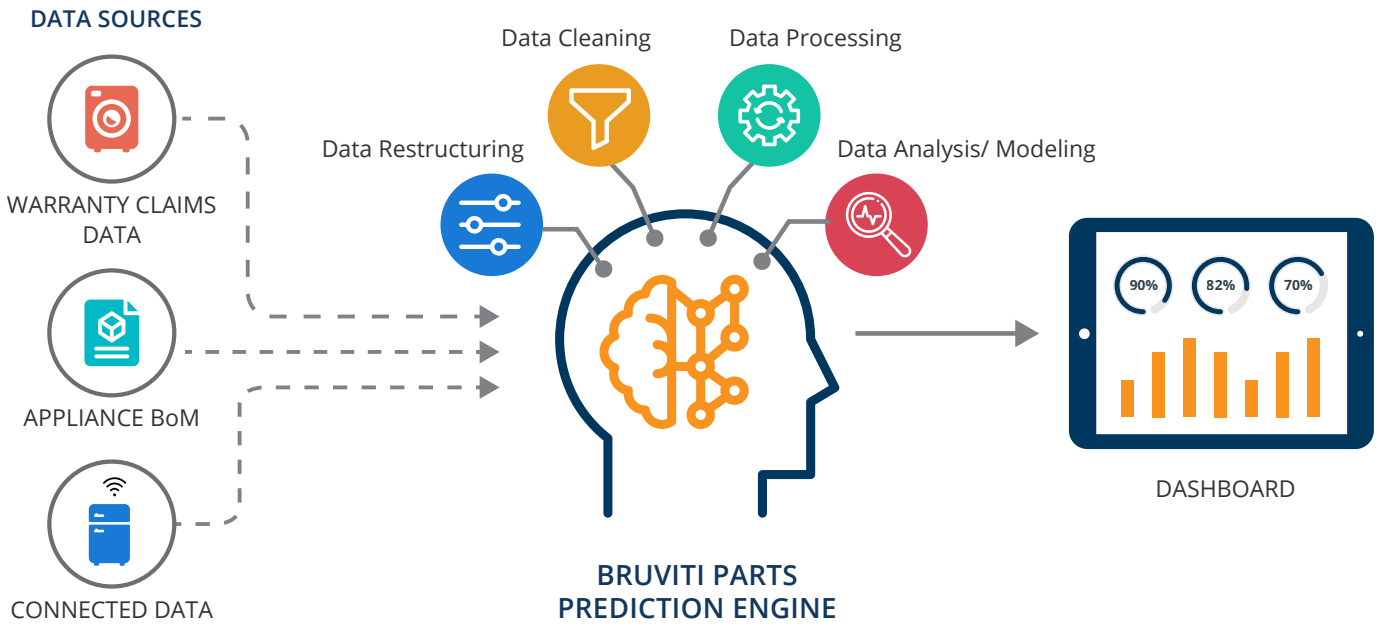
This white paper outlines the steps to build a robust parts prediction engine: extracting data, model building, model training, and measuring model performance.

Bruviti parts prediction engine

The AI-powered Bruviti parts prediction engine comprises machine-learning algorithms and models based on specific manufacturer data. These models include warranty claims data, appliance BOM, and connected data, if available.

The four-step model-building process includes:

1) Data extraction and restructuring
2) Data cleaning
3) Data processing
4) Data analysis and modelling



Model building and training

Data modelling and training is implemented on data extracted from warranty claims submitted by servicers, with warranty claims matched with the corresponding problem description. To achieve greater accuracy, data for one specific model is extracted for each appliance type. For example, for a home appliance OEM, comprehensive data for one model in each of the laundry, kitchen and cooking appliances is used for model training.

The steps taken for model training include:

01 Collect warranty claims and corresponding ticket data

02 Extract problem descriptions as stated by consumers from the ticket data

03 Extract parts used by the servicers from the warranty claims data

04 Parts used, specified in terms of part numbers, are then mapped to the corresponding parts descriptions

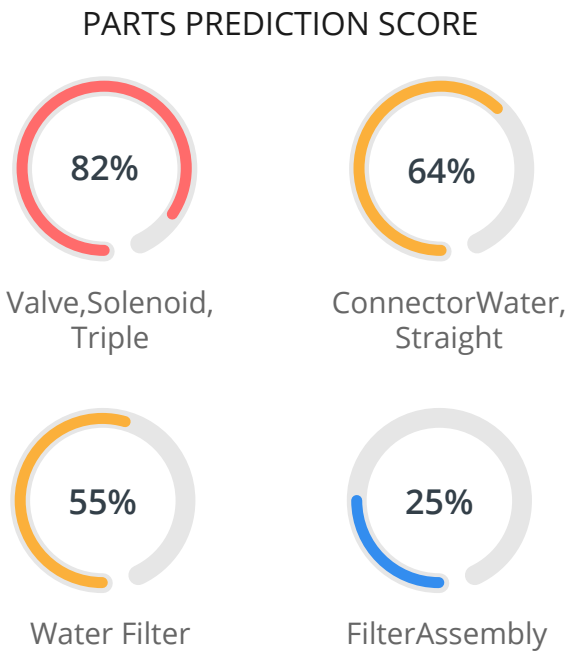
05 Clean up parts descriptions

06 Train the models and fine-tune where required

07 Build ETL processes that facilitate future claims and tickets data to retrain the models at periodic intervals

Model output

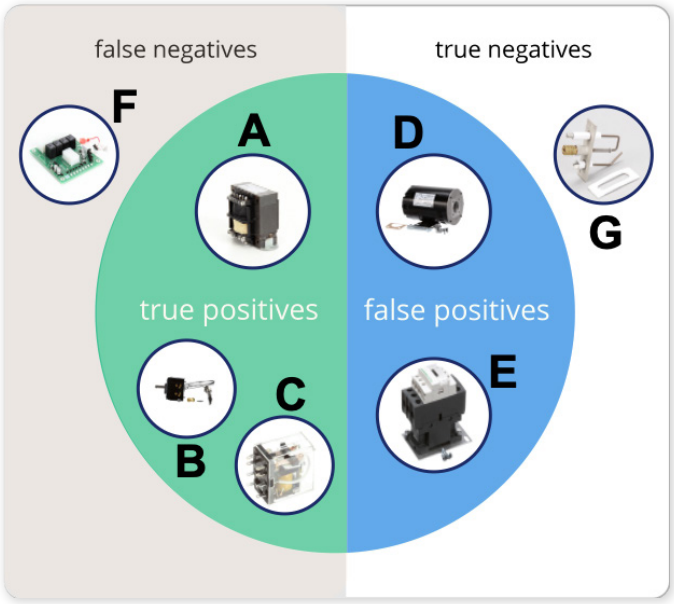
Following the model training and fine tuning process, the model accurately yields part descriptions for each problem identified. A confidence score is used to predict the parts from the most favorable model. The results from the model output can be optimized and shared on dashboards or shared as text files to the 'open tickets' for field-service technicians. The higher the confidence score, the higher the accuracy of parts predicted in the field.



Measuring model performance

A good metric to evaluate model performance is the recall rate.
For example, let's say the model predicts these parts: A, B, C, D, E
Compare this with parts actually used, as per servicer's warranty claim: A, B, C, F
Recall rate = 3 (correct predicted parts) / 4 (actual used parts) = 75%

Prediction works best when the quantity and quality of training data are sufficiently good—in fact, model performance improves over time due to retraining of the model as more data becomes available.



Recall rate

Summary

Parts prediction methods have typically relied heavily on years of service technician experience coupled with 'frequently required parts' data to determine how to stock service trucks. Service teams can also be hindered by primitive methods for solving technical issues. The result can be excessive repeat visits, expensive truck rolls, higher manpower costs, longer equipment downtime, and dissatisfied customers.

Bruviti's mission is to apply artificial intelligence to improve service delivery. To ensure accurate parts prediction for OEMs and service teams, Bruviti's parts prediction engine factors in current and historical appliance faults and parts failures, precise model types by serial and model numbers, service histories, and parts used.

About Bruviti

Bruviti's enterprise software platform applies data analytics and AI to accurately triage technical support issues associated with field-based equipment. By dramatically enhancing the diagnostic and repair capabilities of both contact centers and field-service organizations, Bruviti improves overall customer satisfaction and reduces costs.