

PREDICTION FOR AHEAD OF TIME DELIVERY

CHALLENGES

Smart, green and integrated transport

The Industrial Problem

Both IMPAR Ltd. and Melinda Instal Ltd. are retail companies having to cope with long lead times for product delivery, while also aiming to satisfy user demand. In order to do this, they need accurate long term predictions on the demand for their products.

PRODUCTIVE SECTOR: Transportation, automotive

Széchenyi Egyetem

The research group working on this problem was formed from a young researcher.

Research
group



IMPAR, Melinda

Both companies are retail companies. IMPAR is a car parts distributor while Melinda Instal is a retailer for installation equipment.

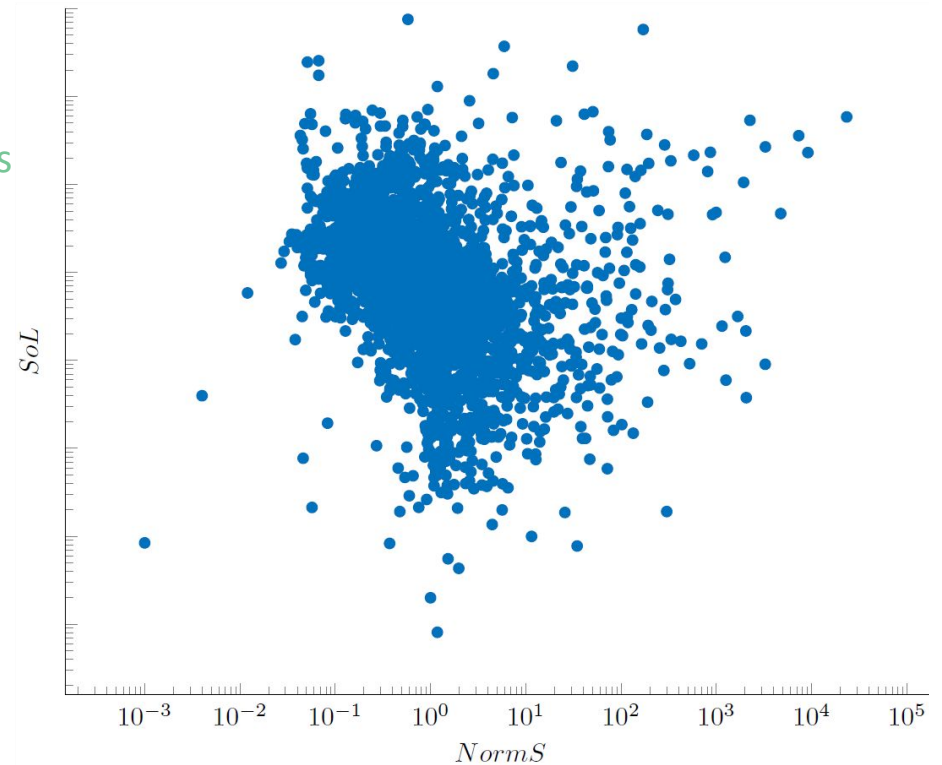
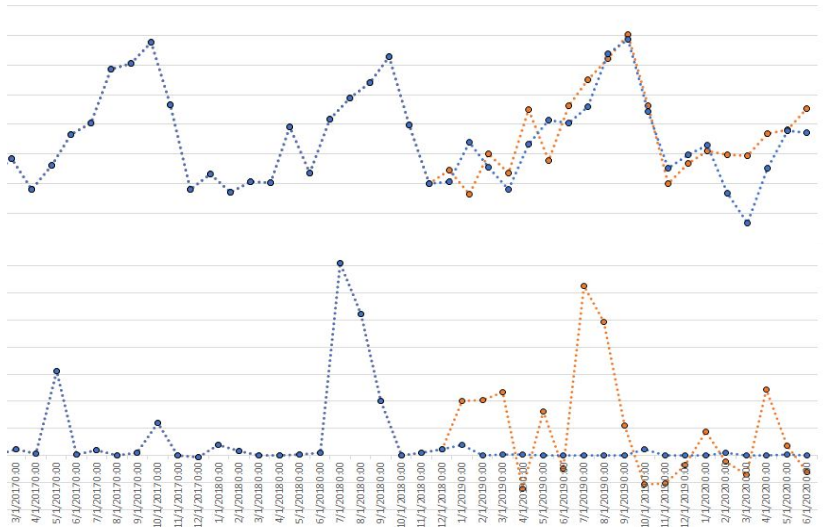
Company



A SMART PREDICTION FOR AHEAD OF TIME DELIVERY

Challenges & Goals

- Evaluate data provided by the industrial partners for statistical predictability
- Evaluate different prediction methodologies
- Provide predictions for demand using modern time series prediction tools
- Suggest changes in existing prediction pipelines of the industrial partners.

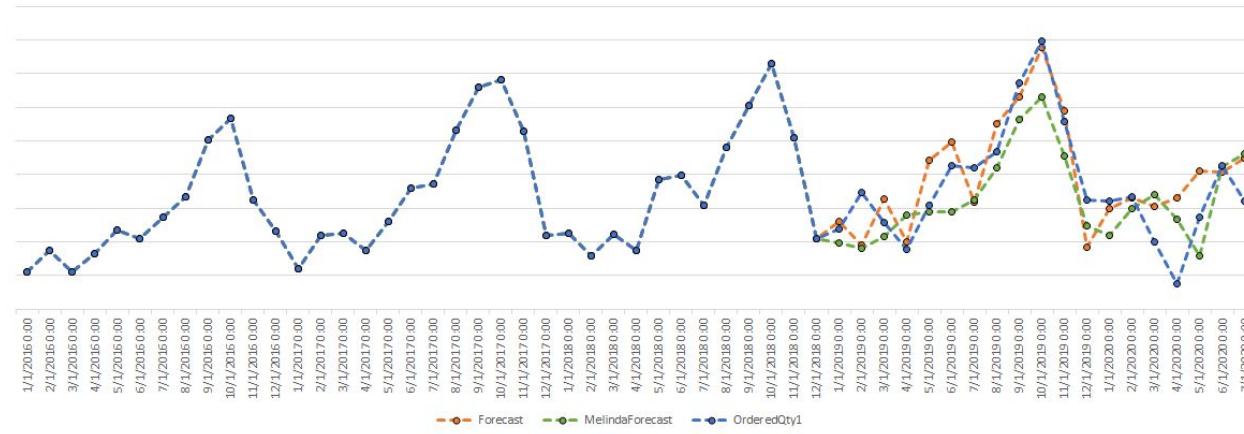


Cumulated revenue difference per product against prediction precision

A SMART WAY to AVOID TRAIN DELAYS

Mathematical and computational methods and techniques applied

- Modern predicting algorithms available in industry level cloud platforms (PyTorch, Prophet, TensorFlow)
- Prophet proved to be the most suitable for the available data
- A group of products identified that whose demand can be better predicted with the new methods compared to the current practice



A product for which the proposed forecasting pipeline produces better results than the currently used algorithms

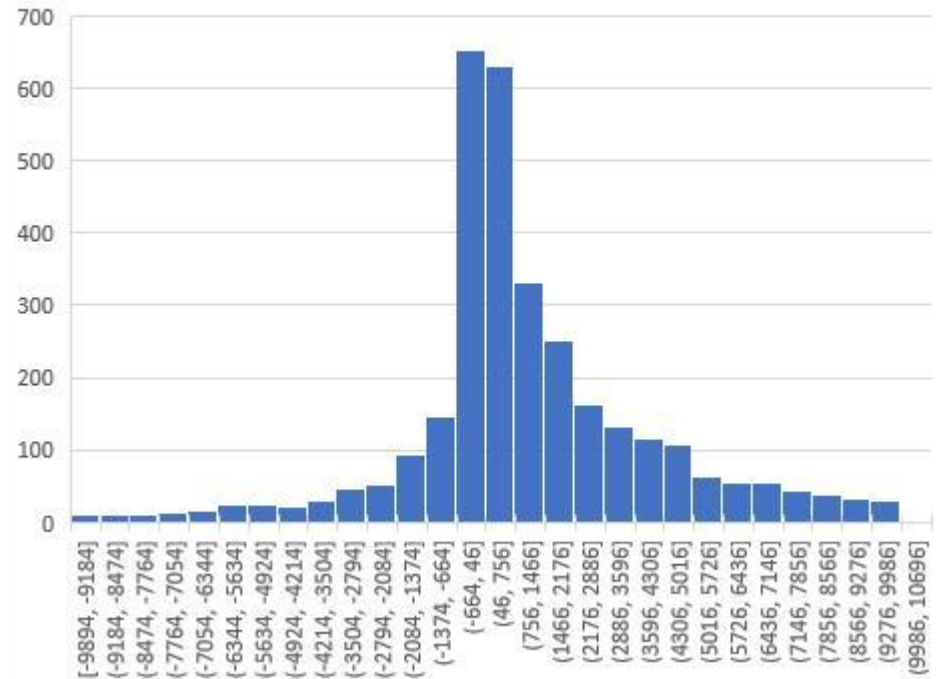
Results & Benefits to the company

• Results

- New statistical insights into company data
- Evaluation of different modern prediction techniques
- Definition of a new prediction pipeline

• Benefits

- Increased understanding of the problem
- A set of products where the new pipeline produces better predictions



*Difference between new predictions and those provided
by the current practice*

Predicting the future is hard but combining domain knowledge and modern techniques brings results.