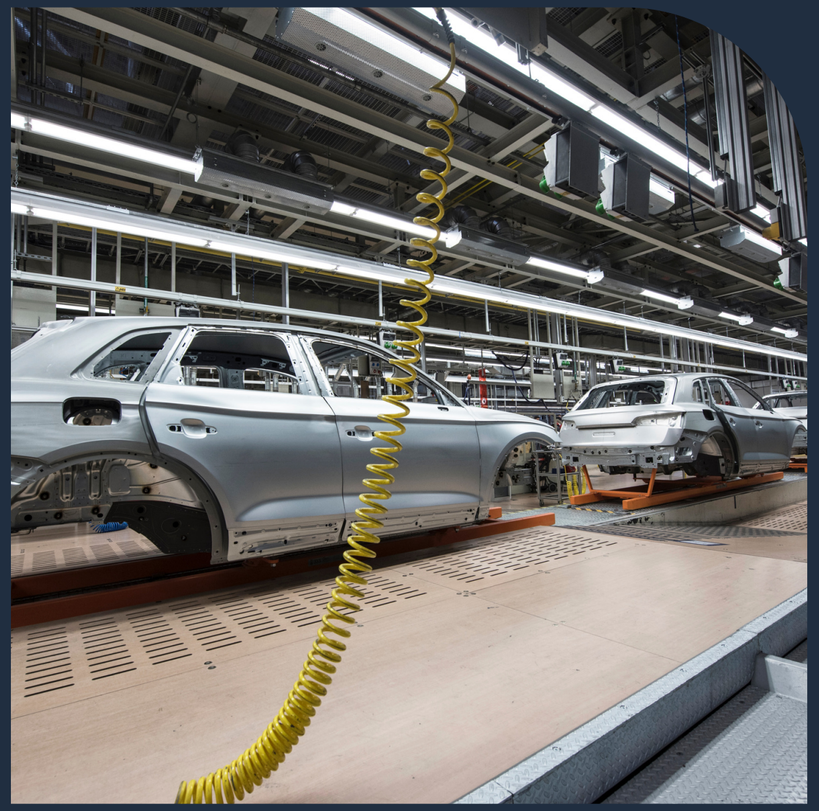
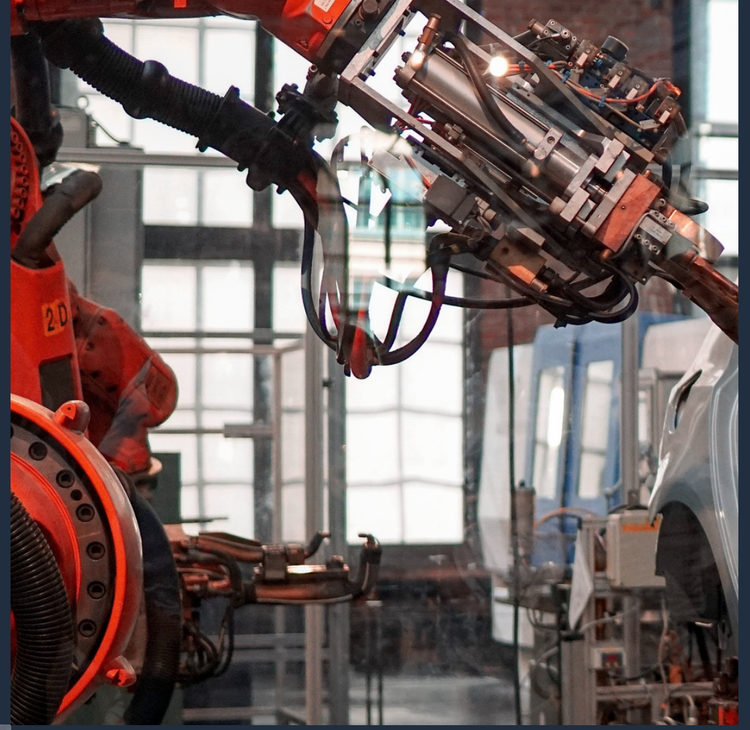


Case Study

How a leading automotive manufacturer increased their market forecast accuracy by 40%

Read now

indicio



WHAT THE MANUFACTURER WANTED TO ACHIEVE

01

Minimize forecast error margin.

02

Identify new market drivers, evaluate new policies, and their impact on the CV market.

03

Extend coverage of more markets for both demand and production.

CHALLENGES

The automotive manufacturer's primary concern was to ensure that they could quickly adapt and optimize production capacity to meet market trend shifts.

To do so, they required accurate forecasts of their aggregated sales volumes. However, this was not the case.

Their current method of forecasting, not unlike other automotive players,
is built primarily in Excel. The absence of statistical methods when identifying leading indicators resulted in irrelevant indicators being selected, which translated to poor forecast accuracy.

RESULTS

Increase in
forecast accuracy

+ 40.4%

Mean accuracy
percentage error

4.68%
Indicio accuracy error

7.86%
Internal accuracy error

Improved forecast accuracy

By implementing best practices through all stages of the forecast process, the manufacturer achieved a double-digit MAPE forecast accuracy improvement.

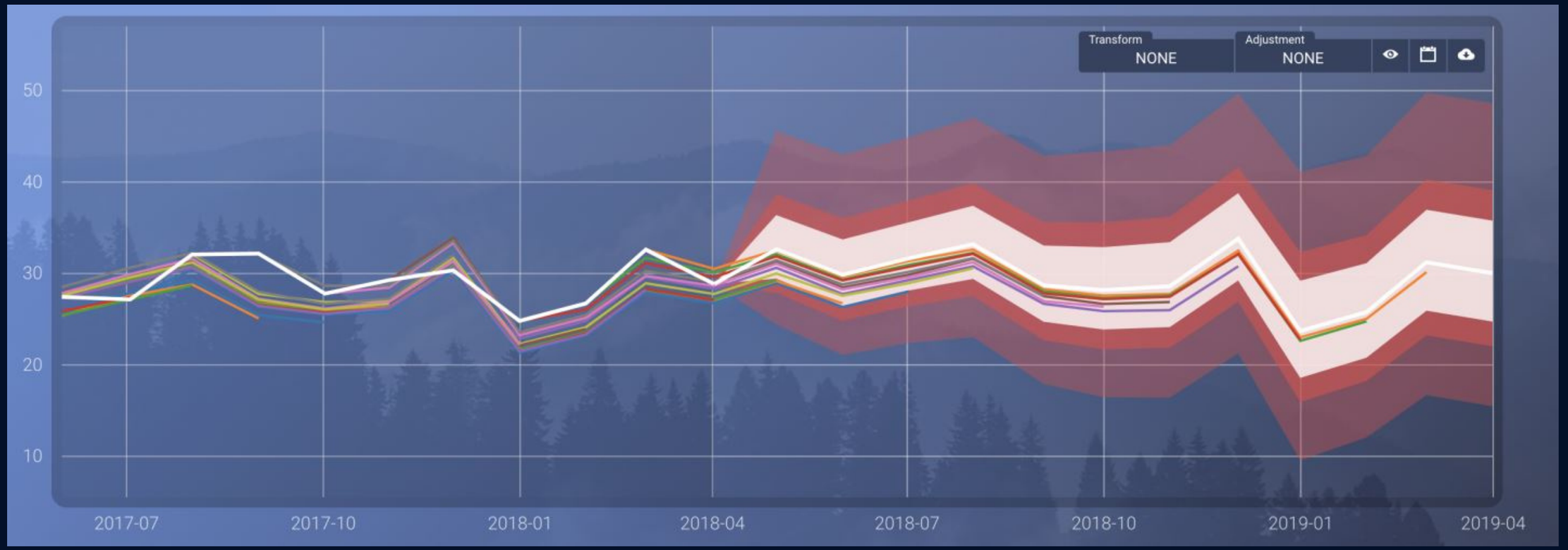
Gained the ability to detect market shifts

With Indicio, they were able to detect trend shifts on the market 1-2 months earlier than before. This gave the manufacturer enough time to adjust production before a trend shift, resulting in significant savings when the market went down and the ability to meet demand when the market went up.

Aligned across management to production

Successfully established a structured process across all markets and management support was significantly improved.

A CLOSER LOOK AT THE FORECASTED RESULTS

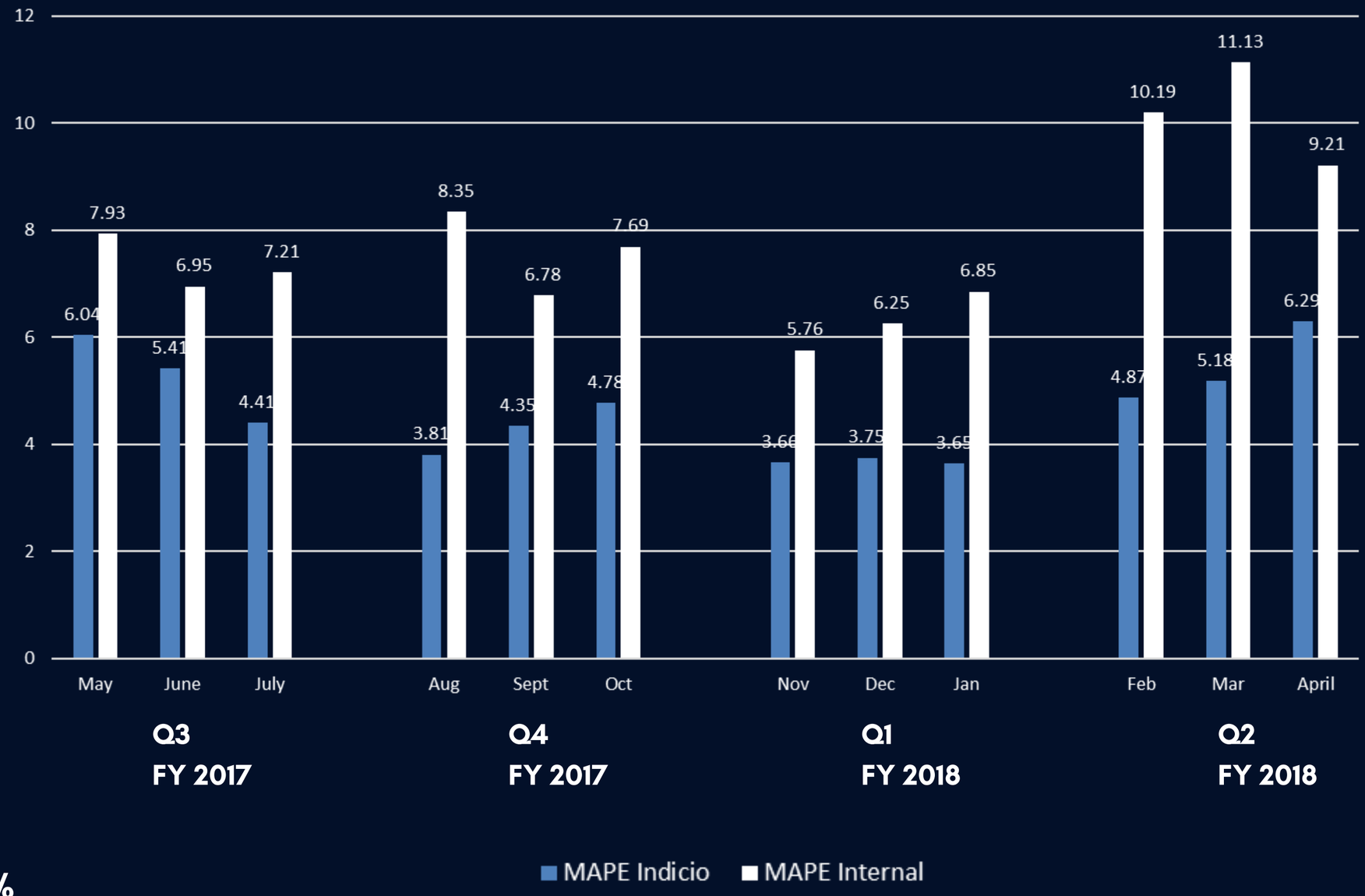


1 A rolling average of 352,8K vehicles per year were sold by the manufacturers while internal forecast anticipated 339,62K.

2 This discrepancy was minimal with Indicio, with a rolling prediction of 351,8K vehicles.

A SNAPSHOT OF THE ACCURACY IMPROVEMENT

**These figures represent the MAPE of the 12-month ahead forecast.*



Overall MAPE Indicio: 4.68%
Overall MAPE Internal: 7.86%
Reduction: -40.40%

HOW WAS THIS DONE?

Identified their seasonal patterns

Built benchmark forecasts

Identified the manufacturer-specific leading indicators

Built multivariate forecasts

Weighted all models according to accuracy

IDENTIFIED THEIR SEASONAL PATTERNS

To begin with, we started with data cleaning.
Next, we proceeded to identify their seasonal patterns.

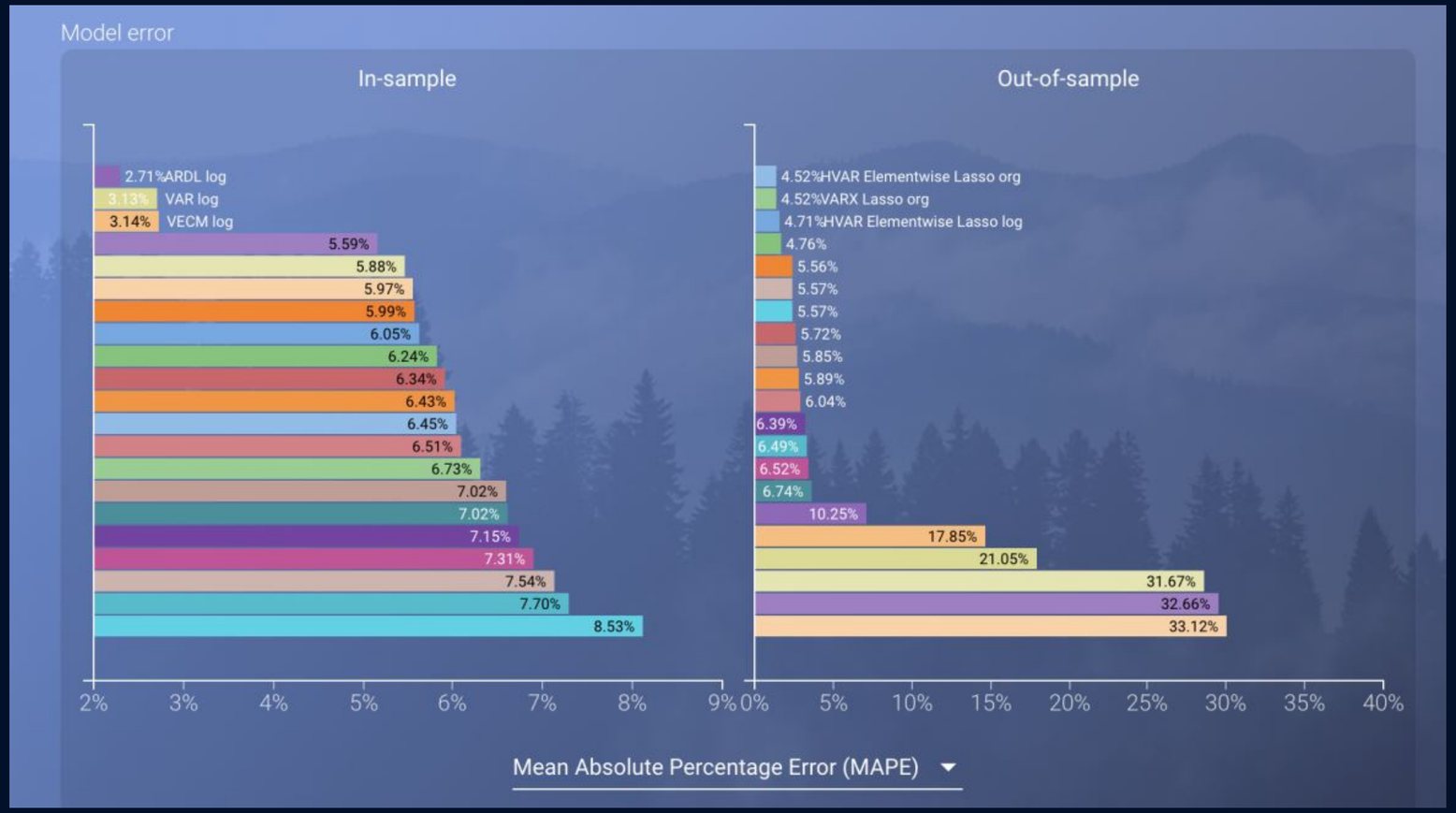
We detected a seasonal pattern in the manufacturer's sales data. Sales tend to be low in January before slowly increasing during Spring, to reach the first peak in May.

After a seasonal pattern was identified, the seasonality was removed before building forecast models. **After the forecast models had been applied, the seasonality was added back to the forecast**.

BUILT BENCHMARK FORECASTS

Initially, Indicio built several univariate models that were based solely on historical sales.

This acted as a first benchmark to judge the quality of the more advanced models applied at a later stage.



**These figures do not represent actual company data due to confidentiality reasons.*

IDENTIFIED THE MANUFACTURER-SPECIFIC LEADING INDICATORS

Main variable:
Vehicle Sales - Euro Zone, Total, Calendar Adjusted, SA

**These figures do not represent actual company data due to confidentiality reasons.*

Historically, the manufacturer was identifying leading indicators through correlations identified in Excel. The problem was that many of the indicators identified did not have a causal effect on the main variable.

Indicio uses a Lasso model to test for all the potential combinations of indicators that are determined as most valuable towards predicting future sales, and suggests the optimal group of indicators to use as a basis for forecasting.

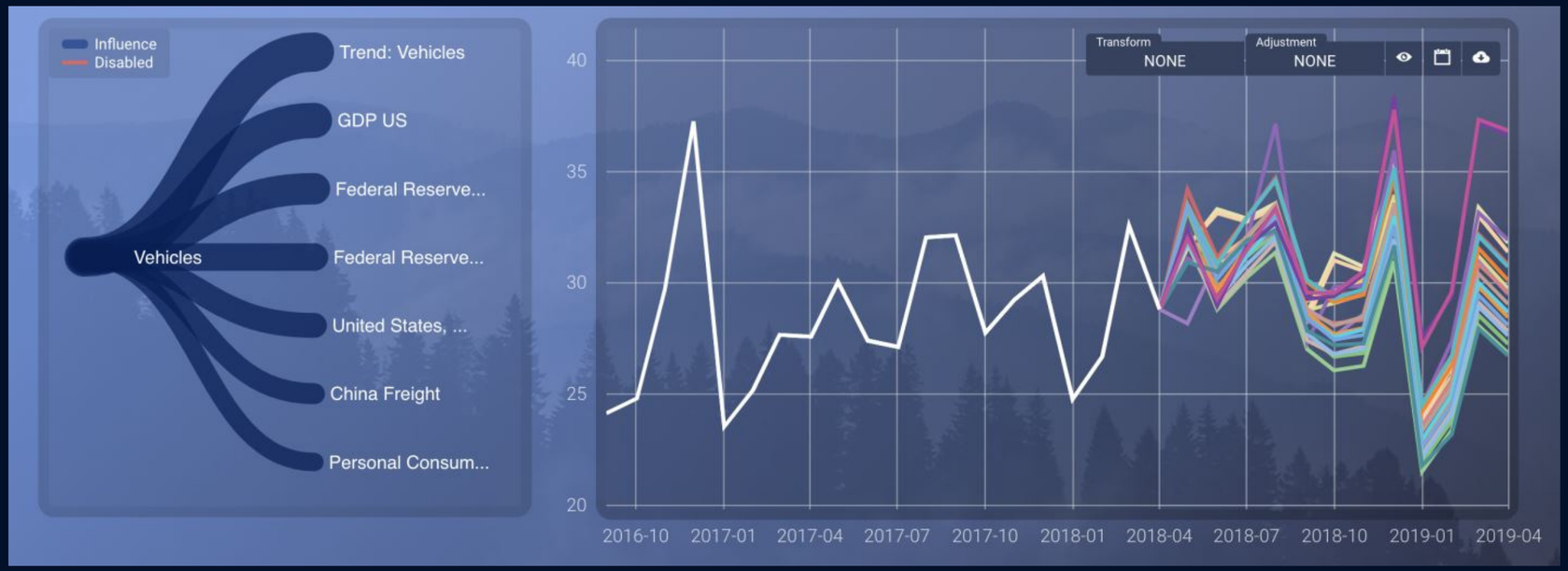
>> **[Learn more about how this is done]**

In the analysis, they found that the combination of these indicators (seen in the left diagram) had the highest impact on aggregated sales.

BUILT MULTIVARIATE FORECASTS

After the relevant leading indicators had been identified, we applied multivariate forecast models on the indicators identified to forecast their data.

Indicio applied a large number of econometric forecast models and weighted them according to accuracy.



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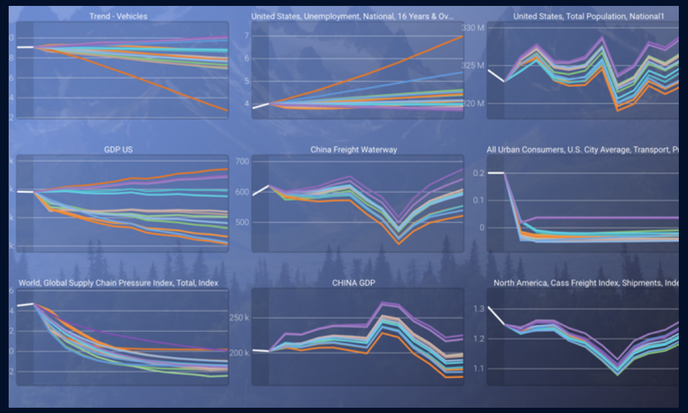

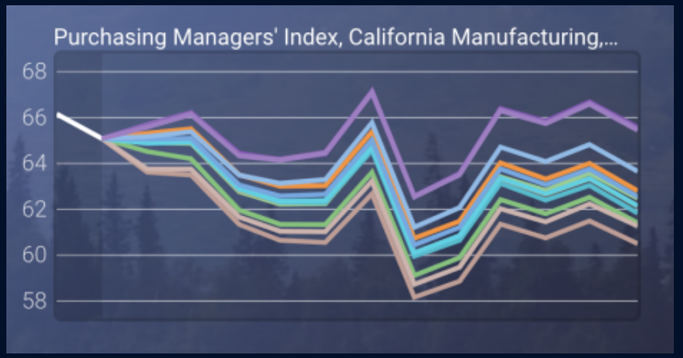

Why not just one good model?

All forecast models have their advantages. By weighting a large set of models, we capture the strengths of each individual models. According to the latest forecast research, this has been proven to be more accurate.

Read more about the platform.

WEIGHT ALL MODELS ACCORDING TO ACCURACY

Some models are better than others at short, mid and long horizons. Indicio combines all models into one forecast, giving more weight to the best performing models at each step.

The manufacturer’s forecast did not apply any forecast models while Indicio's forecast applied 50+ of the latest econometric models, and weighted them into one optimal forecast.

HIGH-LEVEL RESULTS

01 Successfully identified their driving factors, improving their forecast accuracy by 40.4%

02 Ability to detect market trends one to two months earlier, and pivot accordingly.

03 Better aligned forecasting process for all markets.