Free Training Transcript: Forecasting

Welcome to this video on Forecasting. You can download the Exercise workbook to follow along in your own copy of Tableau. Forecasting means using a statistical model to generate predictions for future data based on historical information.

Creating a Forecast

It's very easy to build a forecast in Tableau – though there are some constraints we'll cover at the end. All we need is a date and a measure, then from the Analytics tab, bring out Forecast. The view will have both the forecast and prediction intervals (the shaded band) by default. If we change the mark type to a circle, the prediction interval becomes whiskers around the point.

Forecast Options

Tableau uses exponential smoothing to generate a forecast based on the data in the view. Here, we have a forecast of shipping cost across the months of ship date. The model selection is automatic, but there are some things we as the user can adjust. If we want to customize the default forecast, right click in the view, select Forecast, Forecast options.

Forecast length sets how far into the future the forecast will extend, we could make it "exactly" 3 months. Source Data has a handy option, ignore last. This is good to use when a portion of relevant data is missing. For example, if we're aggregating to month but we're partway through the current month, we may want to trim what data is used in the forecast back to the last complete month. By default, tableau ignores the last unit of aggregation (month, year, etc). The Forecast model can be Automatic or Automatic without seasonality, which leave everything up to Tableau, or Custom. Selecting Custom brings up two further options. Trend – which can be set as none, additive, or multiplicative, and Season, with the same options. Unless you have a reason to change these, Tableau's automatic settings usually do very well. Information on Additive and Multiplicative models can be found in the online help in the article accessible by clicking on this link. The last option is the prediction interval. This shaded area represents the range of values for the forecast with 95% confidence. That is to say, the statistical model thinks there's only a 5% change the future value will be outside the shaded area. The more precise our confidence, the wider the band will be.

Describing the Forecast

Here, we have a forecast of sales for various order priorities. If we want see more

information about these forecasts we can pull up the description. Right click in the view, go to Forecast > Describe Forecast. There are two tabs here.

On the summary tab, we can see the time series and measure used, how far the forecast goes and what date it was based on, including what was ignored, and if there's a seasonal pattern. We also get some additional information about the measure specifically. This table is broken out by the dimensions in the view. I like looking at the Contribution by Trend and Season. Two order priorities don't seem to have any real seasonality in their historic data, as well as the Quality, which indicates how well the forecast fits the existing data.

The second tab is for the models. Tableau uses Holt-Winters exponential smoothing, and this tab describes the quality metrics and the smoothing coefficients used in the model. Again, Tableau will automatically evaluate the data and apply the appropriate model. There is no way to alter the smoothing constants used. For a complete explanation of the information found in Describe Forecast, please see the online help article by clicking this link.

Constraints on Forecasting in Tableau

Forecasting has some requirements. It needs at least one date (or dimension with integer values) and one measure, at least 5 data points, and if the data is seasonal, at least two seasons worth of data. Forecasting also has some restrictions. Because of the nature of the forecasting models, forecasting cannot be done against a cube, on a view containing table calculations, totals, or subtotals, or on disaggregated measures or dimensions.

How to Enhance your Forecast with Forecast Fields

Tableau can provide a lot of information about the forecast by way of the Forecast field results. This feature is easiest to explain by showing it off. Here we have an existing forecast of profits across Order Date. If we click on the pill that has been forecasted, indicated by this thick upward arrow, and go to Forecast Results, we see several options. We'll bring a new copy of the forecasted field, Profit, to the tooltip. On this pill, open the menu, and go to Forecast Results, we'll pick precision. Click on the tooltip to edit. Here where we have "Forecast Precision:" we'll and Insert that value.

Now, when we hover over a point in the forecast, we get that ± indicating size of the prediction interval. Another cool thing is this Forecast Indicator. Here, on our timeline, we see the forecasted values as light blue. Let's duplicate this tab as a crosstab, swap our

axes, and we'll move Forecast Indicator from Columns to Color. We can edit our colors to make it a bit easier to read, we'll change Estimate to be orange. We can remove things we don't care about as much. Now this crosstab shows us our actual values, in blue, and in orange, we get the forecasted value as well as the prediction interval.

Conclusion

Thank you for watching the Forecasting training video. We invite you to continue with the Free Training videos to learn more about using Tableau.