

# “One AI Forecasting” Module Transcript

## Chapter 1

### Intro, Topics Covered, & Learning Outcomes

Hi there. I'm Hayley from the One AI team here at One Model. As discussed in the "What is One AI?" module, forecasting is an embedded insight that can be used with line and spline chart tiles directly from your storyboard and the One AI assistant to predict future trends based on historical data. In this module, we will build upon those learnings and fully explore the One AI-powered forecasting tool.

We will cover an overview of forecasting and its significance in people analytics, permissioning forecasting in One Model, data requirements for forecasting, forecasting and storyboards and the One AI assistant, and we will close with forecasting configuration options.

After watching, you will understand the purpose of forecasting in analytics, such as its role in guiding decision making and anticipating future trends. You will become familiar with the different ways forecasting can be run in One Model. You will understand the data requirements for forecasting, such as the importance of consistent time periods and sufficient data points. You will gain the ability to interpret forecast results in storyboards, including confidence intervals and the rationale behind forecast selection, and you will know how to configure forecasts and customize settings to meet your specific needs.

## Chapter 2

### Forecasting Overview & Significance

#### Section 2 - Overview and Significance

Embedded forecasting allows you to extend time series beyond the latest time period into the future on storyboards with the click of a button. Additionally, forecasts can be requested in the One AI assistant simply by including the word forecast in your prompt.

Forecasting predicts future trends and patterns in an organization's workforce by utilizing historical data and statistical techniques. It's a powerful tool for guiding decision making by providing real time visualizations of future metric trends. One AI's robust forecasting framework provides highly configurable forecasts, allowing you to tailor

projections to meet your specific business needs. Forecasting empowers organizations to make data driven decisions about their workforce, enabling them to anticipate and adapt to changes in the business environment and achieve strategic objectives. By accurately forecasting workforce trends, organizations can develop proactive strategies to address potential challenges or capitalize on untapped opportunities.

## **Chapter 3**

### **Permissioning Forecasting in One Model**

#### Section 3 - Permissioning Forecasting in One Model

Before we get right into forecasting and storyboards and the One AI assistant, let's cover permissioning.

There are three different ways that forecasting can be run in One Model: on demand using the light bulb icon, configured to run automatically when a storyboard loads by the storyboard designer, or generated in the One AI assistant.

Any user, regardless of permissions, can view a forecast that has been configured to run automatically when a storyboard loads. All users can disable a forecast in storyboard view mode using the 'Turn Off Forecast' option from the upper three dots in the tile menu and re-enable it using the 'Forecast' option in the same menu. If they have access to the One AI assistant, they can also request a forecast there.

To run or configure new forecast, either on demand or in storyboard design mode, users must be assigned to an application access role with the CanEnableOneAIForecast permission checked, which can be found in the admin tab. Reach out to your site administrator to inquire about having this permission added to your role.

## **Chapter 4**

### **Data Requirements for Forecasting**

#### Section 4 - Data Requirements for Forecasting

In order for forecasting to be available for a tile, there are a few data requirements.

Forecasting is available in line and spline charts where time is pivoted. While time must be pivoted, you can include other dimensions in the standard dimension section of the explore query to create different breakouts for forecasting.

Forecasting can be run at a yearly, quarterly, monthly, or daily level of granularity, but time periods must be even and consistent. For example, a trend with mixed months and quarters will not allow forecasting. A continuous time selection is also highly recommended as gaps in the trend will negatively impact forecasting accuracy. If future-dated time periods are included, they will be excluded by the forecasting algorithm.

At least four data points are required, meaning the time selection must have at least four segments, such as 'Last 4 Quarters' or 'Last 24 Months'. While four data points are the minimum, more data points typically result in more accurate and reliable forecast and allow you to try forecaster types beyond the Curve Fit. Generally speaking, 10-30 data points is a good starting range depending on the type of forecast and data. When building your query, keep in mind that only data presented in the tile is considered for the forecast. Forecasting does not look outside the bounds of the query.

When you are happy with how your query is built, click 'Run Query', and pin to a storyboard of your choice. Let's go check it out!

## **Chapter 5**

### **Forecasting in Storyboards & the One Model Assistant**

#### Section 5 - Forecasting in Storyboards and the One AI Assistant

If the user has the appropriate application access, forecasting can be run on demand when viewing a storyboard by clicking the light bulb icon and selecting 'Run Forecast'.

By default, the forecast will extend for four periods that match the chart's time period level. For example, '+1' here represents April of 2024.

As you learned previously, when a forecast is run in a storyboard, it extends an existing trend beyond the latest time period into the future. A confidence range, defaulted to 95%, is displayed in a lighter shade of the trend line color. This confidence range, or confidence interval, represents the range of values within which we expect a future observation to fall with a certain level of confidence.

When we generate a forecast, we typically don't expect it to be perfect due to various sources of uncertainty, such as random data fluctuations or limitations of the forecasting model.

The confidence range quantifies this uncertainty and provides a range of plausible values for the forecasted variable. This helps decision makers assess the reliability of the forecasts and make informed decisions based on the level of confidence they require.

If the latest time period in your chart is incomplete, the forecast algorithm will exclude that data point and generate a new forecasted data point using the complete historical trend data to improve forecast performance.

For example, in this chart, April 2024 is not yet complete. Therefore, when a forecast is run, April becomes the first predicted period represented by a '+1'.

Clicking the information icon in the tile header dynamically generates a description the forecaster type or types run. If the forecast was run with the default 'Let One AI Decide' configuration, both Curve Fit and ARIMA are attempted and both are explained. If a specific forecast was selected in design mode - more on this in the next section - only that forecast type will be explained.

Clicking on a forecasted data point in the chart displays supporting data related to the forecast configuration and the specific point selected such as value, forecast confidence, upper and lower ranges, and the justification for the selected forecast.

One AI chooses the forecaster based on the Akaike Information Criterion (AIC) score of each tested forecaster type. A lower AIC score indicates better performance and will be selected.

The AIC score is based on the principle of parsimony, which states that simpler models that explain the data equally well are preferred over more complex models. The AIC score takes into account both the goodness of fit of the model and the complexity of the model, penalizing complex models that may overfit the data.

Forecast can also be run in the One AI assistant by including the word "forecast" in your prompt. For example, you could type "forecast headcount by location", and voila. You must pin it to a storyboard to view the information icon and click into the data points for more information.

Additionally, if the tile has forecasting configured to run when the storyboard loads, a user can view a forecast simply by opening the storyboard, and it will contain all the

extras mentioned before. We will discuss how to configure this and much more in the next section.

## Chapter 6

### Forecasting Configuration

#### Section 6 - Forecasting Configuration

Storyboard designers have access to a variety of pretty cool forecasting configurations by tile in 'Modify Storyboard' mode. First and foremost, as mentioned in the last section, they can enable forecasting on charts as the default behavior. This means that whenever a particular storyboard is open, the chart will automatically include a forecast.

The option to enable this feature is available in the 'Tile Settings' in the 'Discover' tab.

Simply slide the toggle by forecast from off to on. From this tab, storyboard designers will find several forecasting configuration options. Starting slightly more basic, under 'General Settings', you will first find 'Periods to Predict', which is the number of periods past the end of the trend for which to generate the forecast. This is defaulted to 4, but can be increased or decreased by typing in the designated field or using these arrows.

Next, we have the 'Confidence Interval', which is defaulted to 0.95 or 95%, but can be increased or decreased in the same way as periods to predict. Generally speaking, the higher the confidence interval, the wider the range.

And last, we have the 'Upper and Lower Bounds', which are the maximum and minimum allowed forecast value. And these are defaulted to auto, but can be set here.

A common example where this should be set is if you are forecasting something that cannot have a negative value such as headcount. If that is the case, you would want to set your lower bound to 0, like so.

Next, we have forecaster type, which is defaulted to 'Let One AI Decide'. 'Let One AI Decide' means that the Curve Fit and ARIMA will both be tried. The one with better performance determined by a lower AIC score will be chosen.

Or you can manually select which forecaster you want to use.

The ARIMA forecaster predicts future values based on past values. It makes use of lagged moving averages to smooth time series data. ARIMAs are best suited for data with more than 12 data points and can reflect seasonality.

The Curve Fit forecaster entails fitting a line or a curve to the plotted points in the trend and extending the trend forward. This is the simplest form of forecasting and does not reflect seasonality.

The advantage, however, is that it can be applied to a minimal number of data points. Curve Fits are ideal for data that increases or decreases steadily over time.

And finally, we have the Prophet forecaster, which was developed by Meta and designed to make time series forecasting accessible to non-experts and to provide a flexible and intuitive framework for forecasting data with trends, seasonality, and holidays.

It works best with time series that have strong seasonal effects and several seasons of historical data. Prophet also handles missing data, shifts in trends, and outliers well. However, this forecaster takes a few minutes to run, so it's left out of the 'Let One AI Decide' setting for forecaster type.

Finally, we have custom settings for our more advanced users, that can be viewed and configured by switching the toggle to on. These vary based on what forecaster type was selected and will not appear when the forecaster type is set to 'Let One AI Decide'. For example, when a Curve Fit forecaster is selected, you can select the mathematical equation whose parameters will be fit against the historical data.

There are tool tips for all settings, including custom settings that you can view by scrolling over the question mark icons. These will guide you through configuring the custom settings for each forecaster type.

Please note that all manual configuration for forecasters is optional and that the defaults are typically suitable for forecasts run in One Model.

## **Chapter 7**

### **Conclusion & Thanks**

In this module, we explored the powerful forecasting capabilities of One AI, from configuring and running forecast to interpreting results. With these tools, you can make more informed data driven decisions for your organization. Accurate forecasting will help you anticipate future trends and navigate uncertainties effectively, enhancing your strategic planning and decision making processes. Happy modeling!