How to Choose the Right Forecasting Models

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Nowadays, forecasting is used in virtually every business sector. This is an important method to handle the size of any organization. Executives in corporate meetings and conferences often hear from their company CEOs or directors about predictions for the next quarter or year. From critical business decisions to decisions about our personal lives, we consciously or subconsciously use forecasting to get the best out of a situation. However, forecasting is a make or break for the company. Forecasting lets organizations see what lies ahead of them, and coordinate their decisions on that basis.

Forecasting is the technique of using historical data to predict the future. As simple as it may sound, businesses find this difficult to do. Any type of business produces an enormous amount of data that needs to be analysed for business growth and to understand its customers. Data analysts spend significant time producing historical data-based predictions using software and mathematical models.

Many predictive techniques have been developed in recent years to deal with the growing variety and difficulty of managerial forecasting problems. Each has its particular usage, and care must be taken to choose the appropriate technique for a specific application. The better you grasp the range of forecasting possibilities, the more likely it is that the attempts being made to forecast an organization will materialise.

There is no "one fits all" algorithm or model. Choosing the right one depends on several factors including:

- Purpose,
- Data size, quality and diversity;
- Availability of resources

However, before selecting the forecasting model, a data analyst or forecaster needs to have answers to the following questions.

- What's need to forecast and purpose of that?
- Are there any relationships between your variables?
- In terms of population and sample is the amount of data sufficient?
- Are the data sources reliable or correct?

This will help the data analyst to direct themselves to the right forecasting model and build an accurate set of growth projections for their businesses. Choosing the correct model plays a major role in statistical research and forecasting. Use the correct one and you have a good forecast that you can schedule your operations around.

The predictive or analytical model will have practical situational representation. To suit the current problem you need the correct test of models, inputs, parameters, and situations. You're looking for the right balance between the precision and the overfitting capacity. You need ample time to build and train/tune the model, too.

Structured judgment will also help the forecaster to choose the best methods when several parameters are appropriate and some methods are available. The forecaster first creates specific parameters in a formal assessment and then scores different approaches against them.

Market popularity involves determining what methods are used by other people or organizations. The assumptions being that (1) over time, people figure out what methods work best, and (2) what is best for others will be best for you. Surveys of usage offer only indirect evidence of success.

What are forecasting models?

Forecasting is broadly divided into two categories: Qualitative and Quantitative. Qualitative techniques are the ones which apply knowledge of the business, market, product and customer to make a judgment call on the forecast.

Qualitative Models

There are many qualitative techniques used in forecasting. These techniques are primarily based on opinion, like the Delphi Method, Market Research, Panel consensus etc.

The Delphi method is very commonly used in forecasting. A panel of experts is questioned about a situation and based on their written opinions, analysis is done to come up with a forecast. The objective of qualitative models is to forecast numbers based on logical and unbiased opinions. Many organizations use a combination of both methods to forecast sales and revenues.

However, it depends solely on opinions which may be wrong. Secondly, the accuracy of this method is not high and mostly depends on human judgments.

The Market Research method is a more systematic and formal way to estimate market sentiment and come up with a forecast based on various hypotheses. It incorporates procedures for testing the hypothesis from the available numbers for real markets.

Panel Consensus techniques assume that a group of experts brought together will result in better predictions. Here, there is no moderation and the panellists themselves conclude with regards to the forecast.

Quantitative Models

The qualitative forecasting approach is a statistical model based on historical data. It involves using historical sales data to forecast future demand for goods procurement or sales. It can be used for small

and large datasets, however, the more data available, the more accurate picture of historical demand will be attained. While it may provide a basis for forecasting, demand can be unpredictable based on variable market conditions or product seasonality.

Leading Indicator: This model uses the relationship between different macro-economic activities to identify leading indicators and estimate the performance of the lagging indicators

Regression Model: The model uses the least square technique to form an equation based on dependent and one or more independent variables.

Econometric Model: The econometric model tests the relationships between variables such as sales, promotional campaign, and customers over time. The model forms interdependent regression equations.

Time-Series Model: A time-series model has the goal of finding trends in historical data and extrapolating them into forecasts. For forecast data for the next time intervals, it uses exponential smoothing, ARIMA, and trend analysis.

Each model captures a specific data pattern, each model has a shelf-life of its own, each method yields unique results, and each model reacts differently for different time horizons. There are hundreds of variations of baseline methods that can be combined into thousands of models with unlimited steps and inputs you can choose from.

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