

# Informed business

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According to Chase, Jacobs and Aquilano the four basic areas of forecasting are: qualitative, time series, analysis, causal relationships, and simulation models (p. 513). Qualitative techniques are subjective or judgmental and are based on estimates and opinions. This category includes: grass roots, market research, panel consensus, historical analogy, and the widely used Delphi method (Chase et. al, p514). Time series analysis techniques are based on the idea that historical data and its cyclic behavior can be used to predict future events and behaviors within various systems.

This category includes: simple moving average, weighted moving average, exponential smoothing, regression analysis, Box Jenkins technique, and the Shiskin time series (Chase et. al, p514). According to research cited in this paper causal techniques of forecasting attempt to explain and understand the relationship between the various system components involving the item being forecasted. Causal techniques include utilizing regression analysis, econometric models, input/output models, and leading indicators to make forecast.

Simulation models use dynamic models that allow forecaster to make assumptions about the internal variables and the external environment in the model. Comparative Analysis of Various Forecasting Methods Forecasting is valuable in helping key decision makers make changes to an existing system in order to prepare for the future (George, 1992). To illustrate this point, in a brief analysis comparing forecasting techniques from each of the before mentioned categories you will see that different forecasting techniques are valuable in different situations.

The grass roots, panel consensus and Delphi method utilize the expertise and knowledge of a certain knowledge base to make its forecast. Beyond an opinion or a predication, these methods are typically based on other sets of qualitative information such as a market research, trend extrapolation, and historical analogy. This synthesized approach fuses or combines different forecast or sets of information into one forecast (George, 1992).

Similar to many qualitative and consensus based methods, the Delphi method synthesizes opinions from various experts to make its forecast thus proving itself to be one of the most widely used forecasting methods. As cited by Alan Cline in Prioritization Process Using Delphi Technique the Delphi technique was developed by the RAND Corporation in the late 1960's as a forecasting methodology ([http://www. carolla. com/wp-delph. htm](http://www.carolla.com/wp-delph.htm)).

Later, the U. S. government enhanced it as a group decision-making tool with the results of Project HINDSIGHT, which established a factual basis for the workability of Delphi. That project produced a tool in which a group of experts could come to some consensus of opinion when the decisive factors were subjective, and not knowledge-based ([http://www. carolla. com/wp-delph. htm](http://www.carolla.com/wp-delph.htm)). As in the Delphi technique the experts' opinions, like those found in the intuition based genius methodologies, may be based on anecdotal evidence, or like trend extrapolation may be based on historical data.

In general consensus methods typically fall short because of general group dynamics and conflict that is often a hindrance to group progress. The Delphi method seeks to rectify the problems of face-to-face confrontation in the

group, so the responses and respondents remain anonymous and the process produces a rapid narrowing of opinions or a consensus (Walonick). In contrast, forecast based on mathematics or statistical inferences are often very rigid but scientific.

Commonly mathematic-based methods often involve the use of multivariate statistical techniques and comparative data that can be analyzed statically (forecastingprinciples.com). These may include econometric models, leading indicators, multiple regression analysis and the least squares method found in time series analysis (Chase et. al. , p. 514). Multiple regression analysis is the mathematical analog of a systems approach, and it has become the primary forecasting tool of economists and social scientists.

The object of multiple regression analysis is to be able to understand how a group of variables (working in unison) affect another variable (George, 1992). Similar to the leading indicators and econometric approaches where separate but related system variables are compared, multiple regression analysis contains multiple variables. Unlike trend extrapolation models, which only look at the history of the variable being forecast, multiple regression models look at the relationship between the variable being forecast and two or more other variables.

As Walonick reminds us, there is a potential for danger when relying on mathematical forecasting models; these techniques often begin with an initial set of assumptions, and if these are incorrect, then the forecasts will reflect and amplify these errors (Walonick) . Like the decision tree method the scenario method of forecasting is often used as a narrative forecast that

best described a potential course of events based upon a decision or variable, or event.

These approaches may state that if decision, variable or event A occurs it is likely, or in statistical terms, "probable" that it will result in B or C. In other words these respective methodologies paint a picture for decision makers based on the probability or likelihood of one variable leading to another (forecastingprinciples.com). This is termed as causal; where one event may affect another. Conclusion The future is filled with uncertainty. As reflected in the research cited in this paper forecasting is not an exact science however it attempts to predict the probability of an uncertain future.

Forecasting and its various methods and approaches are merely tools used to help predict or prepare for the future. They cannot however, create a certain future with absolute certainty or absolve key decision makers from their needed flexibility that an uncertain future demands. However, conclusively it is important to note that although a length full discourse on forecasting is beyond the scope of this paper, that forecasting methods differ and should be used appropriately for varying situations.