



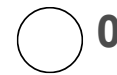
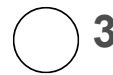
# Introduction to Demand Forecasting for Inventory Management (part 4)

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## *Qualitative methods and their descriptions*

In our final part we will consider organizational and qualitative approaches in demand forecasting.

*Table 1. Qualitative methods of demand forecasting*

| Qualitative Method | Subjective judgment based on estimates and opinions  |
|--------------------|--|
| Grass roots        | Derives a forecast by compiling input from those at the end of hierarchy who deal with is being forecast. For example, an overall sales forecast may be derived by combining inputs from each salesperson, who is closest to his or her own territory  |
| Market research    | Sets out to collect data in a variety of ways (surveys, interview, and so on) to test hypotheses about the market. This is typically used to forecast long-range and new product sales   |
| Panel consensus    | Free open exchange at meetings. The idea is that discussion by the group will produce better forecasts than any one individual. Participants may be executives, salespeople or customers   |
| Historical analogy | Ties what is being forecast to a similar item. Important in planning new products where a forecast may be derived by using the history of a similar product  |
| Delphi method      | Group of experts responds to questionnaire. A moderator compiles results and formulates a new questionnaire that is submitted to the group. Thus, there is a learning process for the group as it receives new information and there is no influence of group pressure or dominating individuals |

Forecasts with quantitative methods are possible only when there is adequate *history file* by various commercial software packages. However, it may be nonexistent when a new product is introduced or when a procedure is expected to change. The history file might exist but be less useful when certain event as rollouts or special packages are reflected in the past data, or when certain event expected to occur in the future. In some cases, judgment methods are the only practical to make a forecast. In other cases, judgment methods can also be used to modify for that are generated by quantitative methods. Such adjustments are particularly important when the forecaster has important “contextual knowledge”. *Contextual knowledge* is knowledge that practitioners gain through experience, such as cause-and-effect relation environmental cues, and organizational information that may have an effect on the forecast.

In the case of forecasting the demand for new fashions merchandise in a retail store, the firm can include a combination of typical customers to express preferences and store managers who understand product mix and store volumes, where they view the merchandise and run through a series of exercises designed to bring the group to a consensus estimate.

Indeed, a manager and consumer might know better what contracts would be in the future and managers could reasonably guess what demand could be for the relatively new products.

These techniques are most useful when the product is new or there is little experience with selling into a new region. Here such information as knowledge of similar products, as habits of customers in the area, and how the product will be advertised and introduced is important to estimate demand successfully. In some cases it may even be useful to consider industry data and the experience of competing firms in making estimates of expected demand.

Finally, judgment methods can be used to adjust the history file that analyzed with quantitative methods to discount the impact of special one-time events occurred in the past and for the other event that could be treated in history file to clarify the demand data.

### **Panel Consensus**

In a panel consensus, the idea that two heads are better than one is extrapolated to the idea that a panel of people from a variety of positions can develop more reliable forecast than a narrower group. Panel forecasts are developed through meetings and free exchange of ideas from all levels of management. The difficulty with this open style is that lower employee levels may be intimidated by higher levels of management. For example, a salesperson a particular product line may have a good estimate of future product demand but may not speak up to refute a much different estimate given by the vice president of marketing. The Delphi technique corrects this impairment to free exchange.

Salesforce estimates are forecasts compiled from estimates made periodically by a company's salesforce. Forecasts of individual salesforce members can be combined easily to get regional or national sales estimates. However, individual (naturally optimistic or pessimistic) biases of the salespeople may well have an influence so that adjustments in forecasts may need to be made.

Executive opinion is a forecasting method in which the opinions, experience, and tech- knowledge of one or more managers and customers (as with CPFR) are discussed, summarized and agreed upon to give a single forecast.

### **Market research**

Market research is a systematic approach to determine external consumer interest in product by creating and testing hypotheses through data-gathering surveys. A market research study includes designing a questionnaire, deciding how to administer it, selecting a representative sample, and analyzing the information using judgment and statistical tools to interpret the responses. Market research is used mostly for product research in the sense of looking for new product ideas, likes and dislikes about existing products, which competitive products a particular group are preferred, and so on. Again, the data collection methods are primarily surveys and interviews.

## **Historical Analogy**

In trying to forecast demand for a new product, an ideal situation would be where an existing product or generic product could be used as a model. There are many ways to justify such analogies—for example, complementary products, substitutable or competitive products, and products as a function of income. The products are in the same general category of electronics and may be bought by consumer at similar rates. A simpler example would be toasters and coffeepots. A firm that already produces toasters and wants to also make coffeepots could use their Toaster history.

## **Delphi Method**

The Delphi method is a process of gaining consensus from a group of experts while maintaining their anonymity. This form of forecasting is useful when no historical data are available to develop statistical models and when managers inside the firm have no experience to base informed projections. A coordinator sends a question to each member of the outside experts, who may not even know who else, is participating. Everyone has the same weight. The coordinator prepares statistical summary of the responses along with a summary of arguments for particular responses. The report is sent to the same group for another round, and the participants choose to modify their previous responses. These rounds continue until consensus is obtained.

The step-by-step procedure for the Delphi method is:

1. Choose the experts to participate. There should be a variety of knowledgeable people in different areas
2. Through a questionnaire (or e-mail) obtain forecasts

3. Summarize the results, and redistribute them to the participants along with appropriate new questions.
4. Summarize again refining forecasts and conditions, and again develop new questions
5. Repeat step 4 if necessary. Distribute the final results to all participants.

The Delphi technique can usually achieve satisfactory results in three rounds. The time required is a function of the number of participants, how much work is involved for them to develop their forecasts, and their speed in responding.

## **Summary**

As we have seen, choosing a Forecasting Technique is interdependent with forecasting system framework and an organization. Also, the nature of the decision and the units of measurement will all influence techniques used.

Of course, the problem of interaction of quantitative and qualitative forecasts with strategic management of a company can also be done as can other methods of collaborative qualitative forecasting. These will follow in next posting

To be continued

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