



## Unfolding Forecasting

In making conscious decisions under uncertainty, we all make forecasts.

In business, **Sales Forecasting** is a critical component of Supply Chain Management. Forecast helps to determine the amount of inventory to be kept on hand, raw material to be purchased, and quantity of products to be manufactured.

**Inaccurate forecasts can lead to costly inventory buildup, stock outs and higher cost of supply.**

An interesting survey on sales forecasting from a fairly diverse population of companies revealed

- 49% companies used simple tools like Excel, Access for demand forecasting
- 9% did not use any software
- 42% used mathematical models
- 93.5% of companies that used some forecasting model achieved significant benefits
- The percentage of companies having forecasting error less than 10% increased from 25 to 67 on use of forecasting models.

## How to do Sales forecasting?

**Sales forecasting is a formalized way to understand the predictable behavior of demand.** The following seven steps can help in building a good sales forecasting model.

### Step I: Forecasting Audit:

Detailed study of forecasting process - roles of people involved, information available to them, type of analysis done, issues to the process - is **a positive step towards unlocking many hidden efficiencies** in the first place.



## Modeling Lab at DecisionCraft

Dedicated to data collection, analysis and modeling, the Modeling Lab at DecisionCraft is headed by [Dr. Jitendra C Parikh](#). Dr. Parikh, a theoretical physicist (PhD-Physics, University of Chicago) with 40 years' experience of research and teaching, has expertise in modeling complex real systems. He is supported by a team of MBAs, engineers, and statisticians.

**Modeling brings the power of mathematical abstraction to domain reality to solve problems.** Meaningful and relevant modeling is a product of close and continuous interaction between the decision maker and the modeling experts.

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**Improve accuracy of sales forecast** Case Study by DecisionCraft

**Step II: Identification of objective and decision set:**

Forecasting becomes **economically justified** if specific decisions are addressed by it to meet the pre-defined objectives. E.g., if a production batch size meets six-month demand for a product, then there is no point in spending significant effort on it's forecast.

It is crucial to define **forecasting granularity** i.e. town level, state level, national level etc., and the **forecasting horizon** - weekly, monthly, rolling basis, etc.

**Step III: Segmentation of products:**

A single forecasting model cannot predict sales of all products so segmenting them into categories and identifying forecasting model for each category would be reasonable.

**Step IV: Selection of appropriate methodologies:**

**Modeling experts can suggest and execute appropriate methodologies to forecast sales** by using techniques such as Artificial Neural Networks (ANN), Fuzzy Logic and Chaotic Systems Theory. ANN, for example, is a mathematical technique for forecasting that "learns" about systems directly from the data.

**Step V: Data collection and cleaning:**

Although reasonably good sales forecasts can be made by the sales data present in most organizations - **identifying, collecting and cleaning additional relevant data could improve the quality of forecasts manifolds**. The key here is to adjust for disruptive events like introduction of VAT in some states, natural calamities, labor strikes, etc.

**Step VI: Model Testing:**

Repeated testing with users, and implementing the model in a phased manner, makes the model robust, and helps in developing user's confidence in it.

**Step VII: Monitoring performance of the Model:**

Presenting forecasts as scenarios, obtaining feedback about its accuracy, **gaining decision makers' confidence**, and facilitating constant review aids continuous model improvement and gradually leads to model maturity.

**Key considerations before starting a forecasting exercise are:**

1. **Beginning Early** - building forecasting model takes time
2. **Taking expert inputs** - consulting a modeling company can add advantages of cross industry learning

Any changes in supply chain strategy will be incomplete if the issue of forecasting is not addressed properly. The benefits of analytical sales forecasting model are tremendous. Inventories come down sharply, the distribution costs decreases, warehousing cost reduces, there are fewer changeovers at shop floor, the plant runs more efficiently and most importantly the quality of decisions improves. [Read more](#)

**Related Resources:**

- [Demand Forecasting TODAY](#)
- [Overbooking by Airlines Case study](#)
- [Forecasting Methods for Marketing](#)
- [Forecasting in Pharmaceutical industry](#)
- [Glossary of Sales Forecasting terms](#)

**DecisionCraft Products**

qcCharts™  
dataOrganizer™  
Supply Chain Simulator  
Travel Route Optimizer  
Logistics Planner

3. **Avoiding over- dependence on tools** - statistical packages can do data analysis, but they cannot replace domain expertise
4. **Thinking of multiple solutions** - there is no single solution for sales forecasting of all the products
5. **Playing one's role** - modelers build the model and domain people provide business insights

Next issue: [Role of Process Excellence and Quality](#)

Previous issue: [Variability and Supply Chain](#)

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