Forecasting

Objective of Session

- What is forecasting
- Some Examples
- Reasons why forecasting is essential
- Features of Forecasts
- Elements of good forecast
- Steps in forecasting

Forecasting

- Forecast: A forecast is a statement about the future value of a variable such as demand. That is, forecasts are predictions about the future. The better those predictions, the more informed decisions can be. Some forecasts are long range, covering several years or more.

- <u>Demand estimates</u> for products and services are the starting point for all the other planning in operations management.

- Management teams develop <u>sales forecasts</u> based in part on demand estimates.

- The sales forecasts become inputs to both business strategy and <u>production resource forecasts</u>.
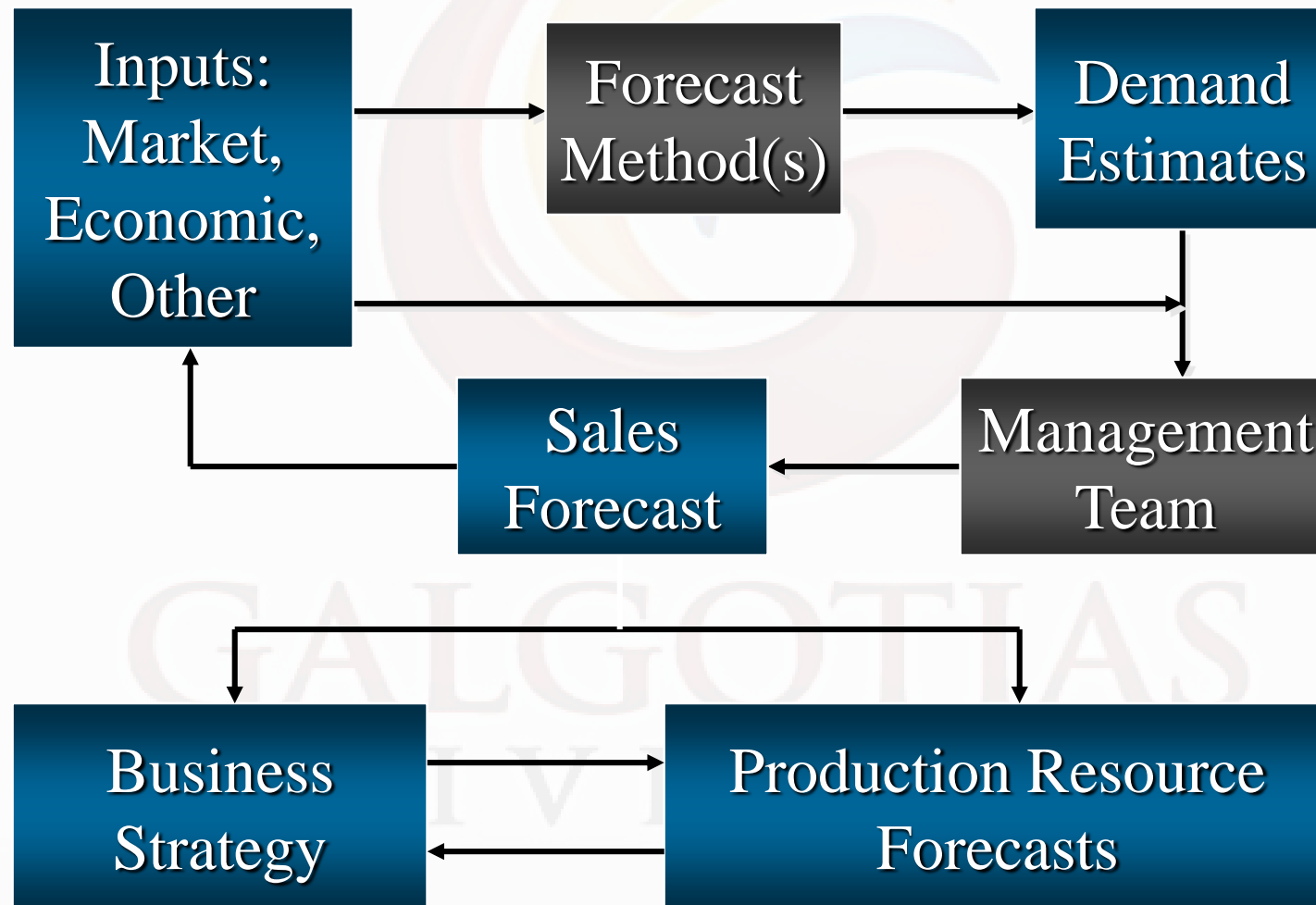
Some Examples

Here are some examples of uses of forecasts in business organizations

- Accounting: New product/process cost estimates, profit projections, cash management
- Finance: equipment replacement needs, timing and amount of funding needs.
- Human resource: Hiring activities, including recruitment, interviewing, training, layoff planning, counseling
- Marketing: Pricing & promotion, e-business strategies, global competition strategies
- Operations: Schedules, capacity planning, workloads, inventory planning, make or buy decisions, outsourcing, project management
- Product/Service design: Revision of current features, design of new products or services.

Examples of Production Resource Forecasts

Forecast Horizon	Time Span	Item Being Forecasted	Unit of Measure
Long Range	Years	Product Lines, Factory Capacities	Dollars, Tons
Medium Range	Months	Product Groups, Depart. Capacities	Units, Pounds
Short Range	Days, Weeks	Specific Products, Machine Capacities	Units, Hours

Forecasting is an Integral Part of Business Planning

Inputs: Market, Economic, Other → Forecast Method(s) → Demand Estimates → Management Team → Sales Forecast → Inputs

Sales Forecast → Business Strategy / Production Resource Forecasts

Some Reasons Why Forecasting is Essential

- <u>New Facility Planning</u> – It can take 5 years to design and build a new factory or design and implement a new production process.

- <u>Production Planning</u> – Demand for products vary from month to month and it can take several months to change the capacities of production processes.

- <u>Workforce Scheduling</u> – Demand for services (and the necessary staffing) can vary from hour to hour and employees weekly work schedules must be developed in advance.

Features common to all forecasts

- Forecasting techniques generally assume that the same underlying causal system that existed in the past will continue to exist in the future.

- Forecasts are rarely perfect; actual results differ from predicted values. No one can predict precisely.

- Forecasts for groups of items tend to be more accurate than forecasts for individual items.

- Forecasts accuracy decreases as the time period covered by the forecast increases.

Elements of a good forecast

- The forecast should be timely

- The forecast should be accurate

- The forecast should be reliable

- The forecast should be expressed in meaningful units

- The forecast should be in writing

- The forecasting technique should be simple to understand and use

- The forecast should be cost effective

Steps in the forecasting process

There are six basic steps in the forecasting process

- Determine the purpose of the forecast
- Establish a time horizon
- Select a forecasting technique
- Obtain, clean and analyze appropriate data
- Make the forecast
- Monitor the forecast