



IE407 Total Quality Management

Lecture 22



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Reminder: SA grade

- ▶ SA grade will be determined by the attendance system
- ▶ More than 8 absents will automatically lead to SA grade
- ▶ Please be careful about your attendance in lectures





Besterfield Chapter 7: Performance Measures



Performance Measures

- ▶ Managing by facts instead of by gut feeling
- ▶ Measures play a vital part in success or failure of an organization
 - ▶ Without performance measures it is like navigating a ship without instruments
 - ▶ It is more likely that the ship without instruments will travel in circles
 - ▶ The same is true for an organization without performance measures





Basic Concepts

Objectives

- ▶ Performance measures help achieve one or more of the following objectives
 - ▶ Establish baseline measures and reveal trends
 - ▶ Determine which processes need to be improved
 - ▶ Indicate process gains and losses
 - ▶ Compare goals with actual performance
 - ▶ Provide information for individual and team evaluation
 - ▶ Provide information to make informed decisions
 - ▶ Determine the overall performance of the organization



Typical Measurements

- ▶ Human resources
 - ▶ Employee satisfaction index, absenteeism, turnover, ...
- ▶ Customers
 - ▶ Customer satisfaction index, Number of complaints, ...
- ▶ Production
 - ▶ Nonconformities per million units, machine downtime, ...
- ▶ Research and development
 - ▶ New product time to market, cost estimation errors, ...



Typical Measurements (2)

- ▶ Suppliers
 - ▶ On-time delivery, quality performance, ...
- ▶ Marketing/Sales
 - ▶ Sales expense to revenue, new customers, ...
- ▶ Administration
 - ▶ Percent on-time payment of salaries, Office equipment up-time, ...
- ▶ See page 162 for more measures of each of the above
- ▶ Usually percent (or ratio) measures are more useful
 - ▶ For example, rework hours to total hours



Criteria for Performance Measures

- ▶ **Simple**
 - ▶ Should be understandable
- ▶ **Few in number**
 - ▶ Two or three for workgroup
 - ▶ Number increasing for department, functional areas, plants, and corporations
- ▶ **Developed by users**
 - ▶ Ownership facilitates implementation
- ▶ **Relevance to customer**
 - ▶ Needs of internal and external customers should be taken into account as they are responsible for performance



Criteria for Performance Measures - 2

- ▶ **Improvement**
 - ▶ Improvement, prevention, and strategic long-term planning and goal setting should be the focus than just performance
- ▶ **Cost**
 - ▶ Cost of poor quality should be highlighted. Cost of measurement should also be considered
- ▶ **Visible**
 - ▶ Posted in a central location
- ▶ **Timely**
 - ▶ Should not be too late to be actionable
- ▶ **Aligned with organizational goals**
- ▶ **Results**
 - ▶ Views of all the stakeholders should be represented



Strategy

- ▶ Quality council has the overall responsibility to create a strategic measurement system
 - ▶ Obtain information from all stakeholders
 - ▶ Make use of core values, goals, mission, and vision statements
 - ▶ Make use of objectives and criteria on previous slides
 - ▶ Ensures integration of measures into a total system of measures
- ▶ See example percent measures on p. 164
 - ▶ These measures are tracked monthly to show trends, identify problem areas, and allocate resources



Strategy - 2

- ▶ Functional areas can develop their systems of measurement by following the lead of the strategic measurement system
 - ▶ Determine processes that are critical for input to strategic system
 - ▶ Determine critical metric(s)
 - ▶ Assign responsibility for collection, analysis, and dissemination of the data
 - ▶ Develop improvement procedures
- ▶ Each month quality council should meet to monitor current activities and plan the future ones



Performance Measure Presentation

- ▶ Time series graphs
 - ▶ Benchmarks the process
 - ▶ Shows trends
 - ▶ Control charts
 - ▶ Capability index
 - ▶ Ratio of tolerance to process capability
 - ▶ Taguchi's loss function
 - ▶ It combines target cost and specification into one measurement
 - ▶ Cost of poor quality
 - ▶ Malcolm Baldrige National Quality Award Criteria
 - ▶ Balanced Score Card
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Cost of Quality

Quality Related Costs

- ▶ “Cost of quality” is an approach to measure and track financial impact of various quality activities in terms of costs and benefits
 - ▶ Higher management understands the language of money better than anything else
- ▶ Expenditure on quality related activities is justified by the benefits these will bring
 - ▶ Expected benefits have to be greater than the expenditure
- ▶ Management can prioritize appropriate improvement activities when cost of quality related activities is separately reported



Quality Costs - 2

- ▶ The objective is to achieve better quality and customer satisfaction at minimum cost
- ▶ Quality costs related studies revealed surprising results
 - ▶ The quality related costs were much more than those shown in accounting statements
 - ▶ Big chunk of the cost was on account of poor quality
 - ▶ Cost of poor quality is often compared with the tip of iceberg (see next slides)



References

- ▶ Besterfield, Dale H. and others. 2019. *Total Quality Management*, 5th edition. Pearson India

