

# IE407 Total Quality Management

## Lecture 22

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## Reminder: SA grade

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- ▶ 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

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- ▶ 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

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- ▶ 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

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- ▶ 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)

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- ▶ 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

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- ▶ 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

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- ▶ **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

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- ▶ 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

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- ▶ 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

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- ▶ 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





# Cost of Quality

# Quality Related Costs

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- ▶ “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

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- ▶ 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

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

