Lecture #7

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Point 10: "Eliminate slogans, exhortations, and targets for the workforce that ask for zero defects and new levels of productivity"

- Fundamental problem - words of management don’t match their actions

- Remember the Bill Conway example - motivation not enough

- Zero defects - not consistent with never-ending improvement concept
Point 11: "Eliminate work standards on the factory floor"

- Work standard - sets rate at which people should work. Penalties for not meeting the standard

- According to Deming - work standards set a cap on productivity - they are not consistent with philosophy of never-ending improvement

- Straight-scale grading system
Point 12: "Remove the barriers that rob employees at all levels in the company of their right to pride of workmanship"

- Need to look at more than just productivity
- How do we judge performance?
- Dependent on management "leadership"
Point 13: "Institute a vigorous program of education and self-improvement"

- Previous point: job-related training important
- Employees are assets not commodities!
- Invest in the future
Point 14: "Put everybody in the organization to work to accomplish the transformation"

- Management must lead the transformation
- Get everyone involved
- All organizational systems must be critically examined
Traditional Definitions of Quality

• Fitness for use

• Degree to which a product satisfies wants of the customer

• Conformance to engineering specifications

• Characteristics that distinguish one item from another

• Meeting customer expectations at a cost that represents customer value
Problems with Traditional Definitions

• They are attribute-based or qualitative in nature

• They are manufacturing rather than design based

• They do not establish the link between customer expectations and product function
Our Definition of Quality Should...

- Provide a quantitative basis to move the quality issue upstream to engineering design
- Promote focus on the process - not the product
- Be tied to productivity and therefore promote continual pursuit of never-ending improvement
- Quantify loss to customer as a result of poor quality rather than loss imparted to the producer - consumer versus producer focus
Quality - Engineering Specifications

Lower spec

Nominal

Upper spec

Bad

A

Good

B

Best

C
More on Quality & Engr. Specs.

Acceptable

Desirable

LS

US
Taguchi’s Loss Function

Quality Loss - "Loss imparted to society during product use as a result of functional variation and harmful effects."

[Diagram: Quadratic Loss Function]

- Nominal Quality characteristic
- Quality loss vs. Quality characteristic
- Quadratic Loss Function
Justifying the Loss Function Form

Quality loss

LS

US

Nominal

Warranty $

Nominal
TV Set Example

• Japan vs. United States -- which is better?? Loss fcn.

• Why the loaf-shaped distribution??
Causes for Loaf Shape
The Future

- What motivates us to reduce the variation? What about the costs?

- With process control - eliminate faults - variation and costs reduced - focus on cost of not having quality