



IIT ROORKEE



NPTEL ONLINE
CERTIFICATION COURSE

Project Management for Managers

Lec – 56 Cost of Quality

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Appraisal Costs: Costs associated with measuring, evaluating or auditing products, components and purchased materials to ensure conformance to the standards that have been imposed.

1. Inspection and test of incoming material
2. Product inspection and test
3. Materials and services consumed
4. Maintaining accuracy of test equipment

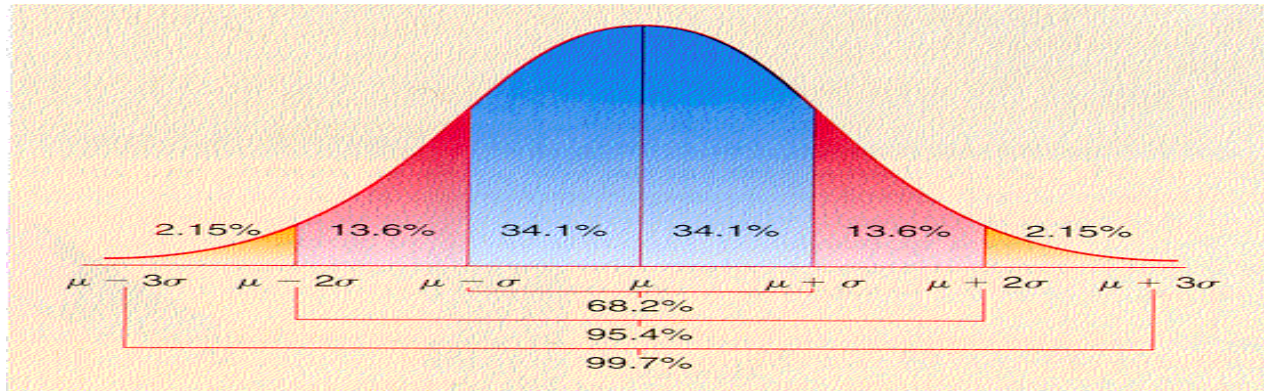
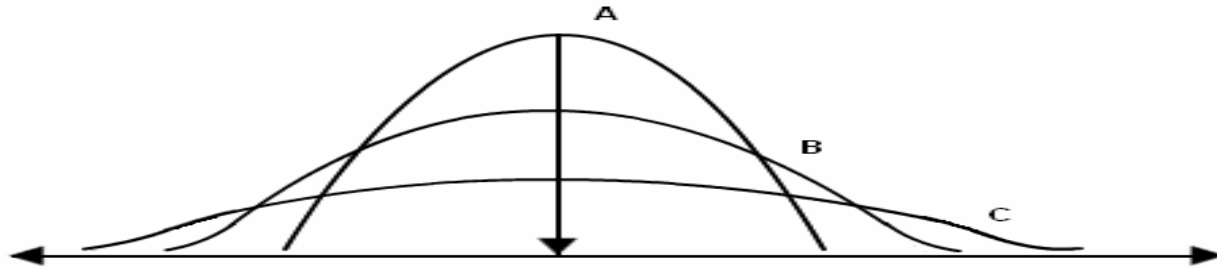
Internal Failure Costs: Internal failure costs are incurred when products, components, materials and services **fail to meet** quality requirements and the failure is discovered **prior to delivery** of the product to customer.

1. Scrap
2. Rework
3. Retest
4. Failure analysis
5. Down time
6. Yield losses
7. Downgrading (off-specing): Price difference

External Failure Costs: External failure costs occur when the product does not perform satisfactory after it is delivered to the customer.

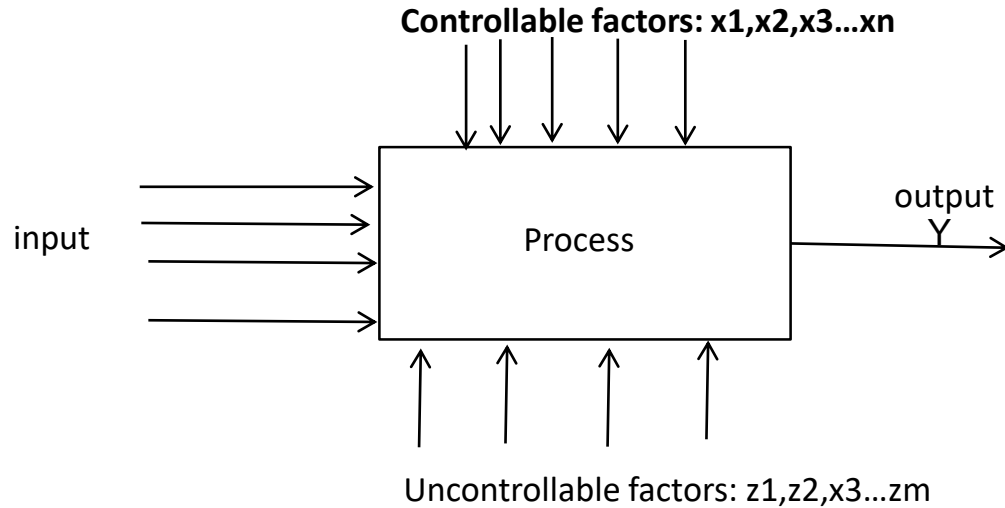
1. Complaint adjustment
2. Returned product/material
3. Warranty charges
4. Liability costs or awards incurred from product liability litigation.
5. Indirect costs: These are incurred because of customer dissatisfaction with the level of quality of delivered product.

What is variability?



How to measure it : σ

Sources of variability



How to remove variability?

- Determine which variables (x 's) are most influential on the response, y
- Determine where to set the influential x 's so that y is near the nominal requirement
- Determine where to set the influential x 's so that variability is small
- Determine where to set the influential x 's so that the effects of the uncontrollable variables z are minimized

