

# Lecture #5

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**Sept. 7, 2005**

# Assignment #2

- **Problem:**
- **Graduate Credit:** Create a data file of 500 uniformly distributed random numbers (between 0 and 1). Prepare a histogram of the data. Use these random numbers to create a data file of 500 normally distributed random numbers (mean of 0, standard deviation of 1) - create a histogram of this data. Convert the standard normal deviates to deviates with a mean of 35 and a standard deviation of 5 - form a histogram of this data. Submit the 3 histograms.

**Hint : Use Excel**

# Deming's 14 Points

- More precisely, Deming's 14 Obligations of Top Management
- Developed during his interactions with industry
- His "take" on what management should be doing to adopt the new philosophy
- Not a menu - can't just pick the points you want

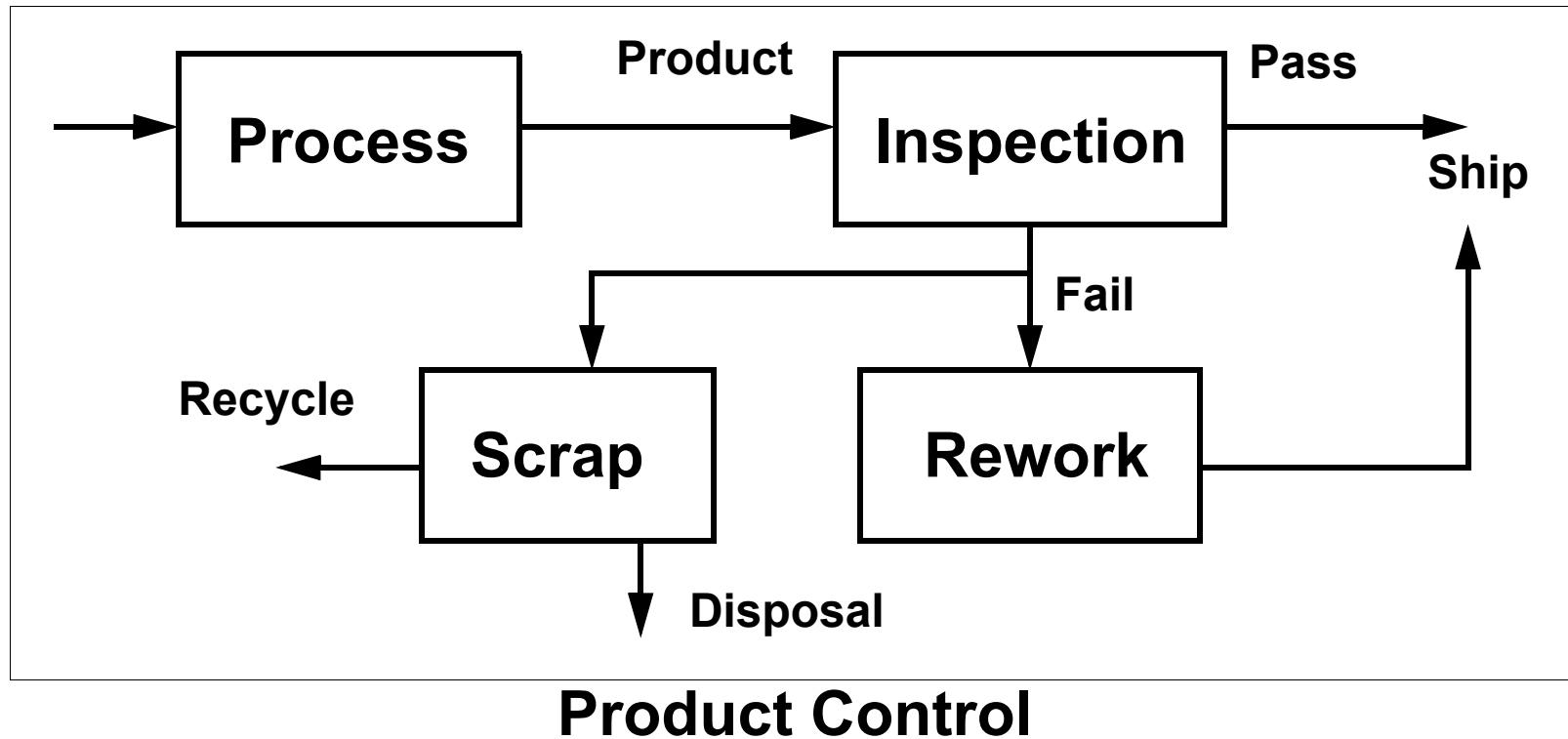
# **Point 1: "Create constancy of purpose for the improvement of product or service"**

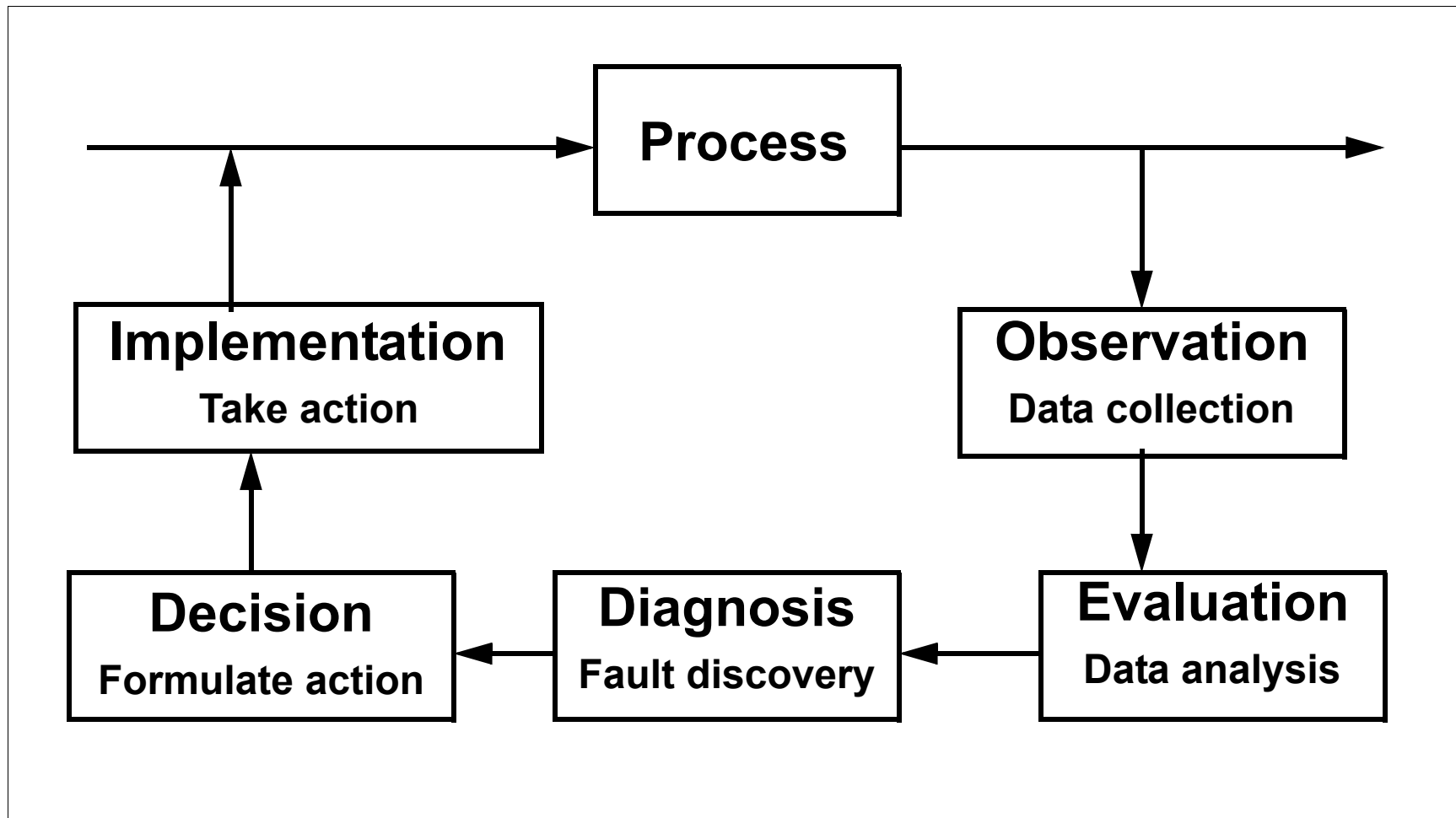
- **Avoid focus on just the short term**
- **Believe that the future exists**
- **Vision**
- **Customer focus**

## **Point 2: "Adopt the new philosophy"**

- **Can no longer accept premise that there is an optimal level of defective product. Less focus on "cost of quality"**
- **Must move from product control to process control.**
- **More attention on designing quality into products.**
- **Management must recognize its responsibilities and take on a leadership role.**
- **Eliminate inhibitors to never-ending improvement**

# Point 3: "Cease dependence on mass inspection for quality control"





## Process Control

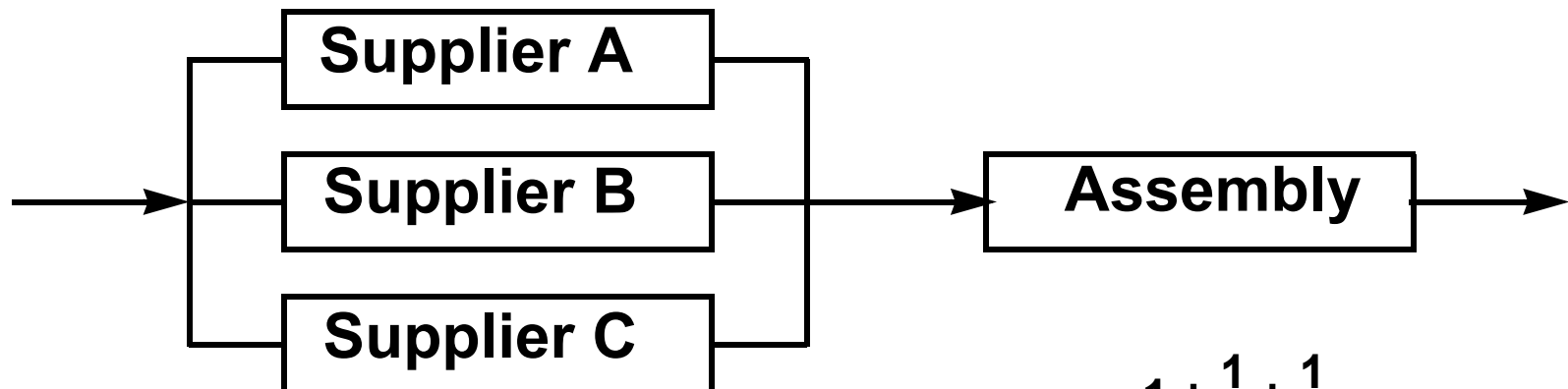
# **Point 4: "End the practice of awarding business on the basis of price tag"**

- **Look at more than price when selecting a supplier**
- **Avoid adverse relationship between customer and supplier**
- **Multiple suppliers - viewing this from a S/N standpoint**
- **Reduce number of suppliers - closer relationship with those that remain (cooperation)**





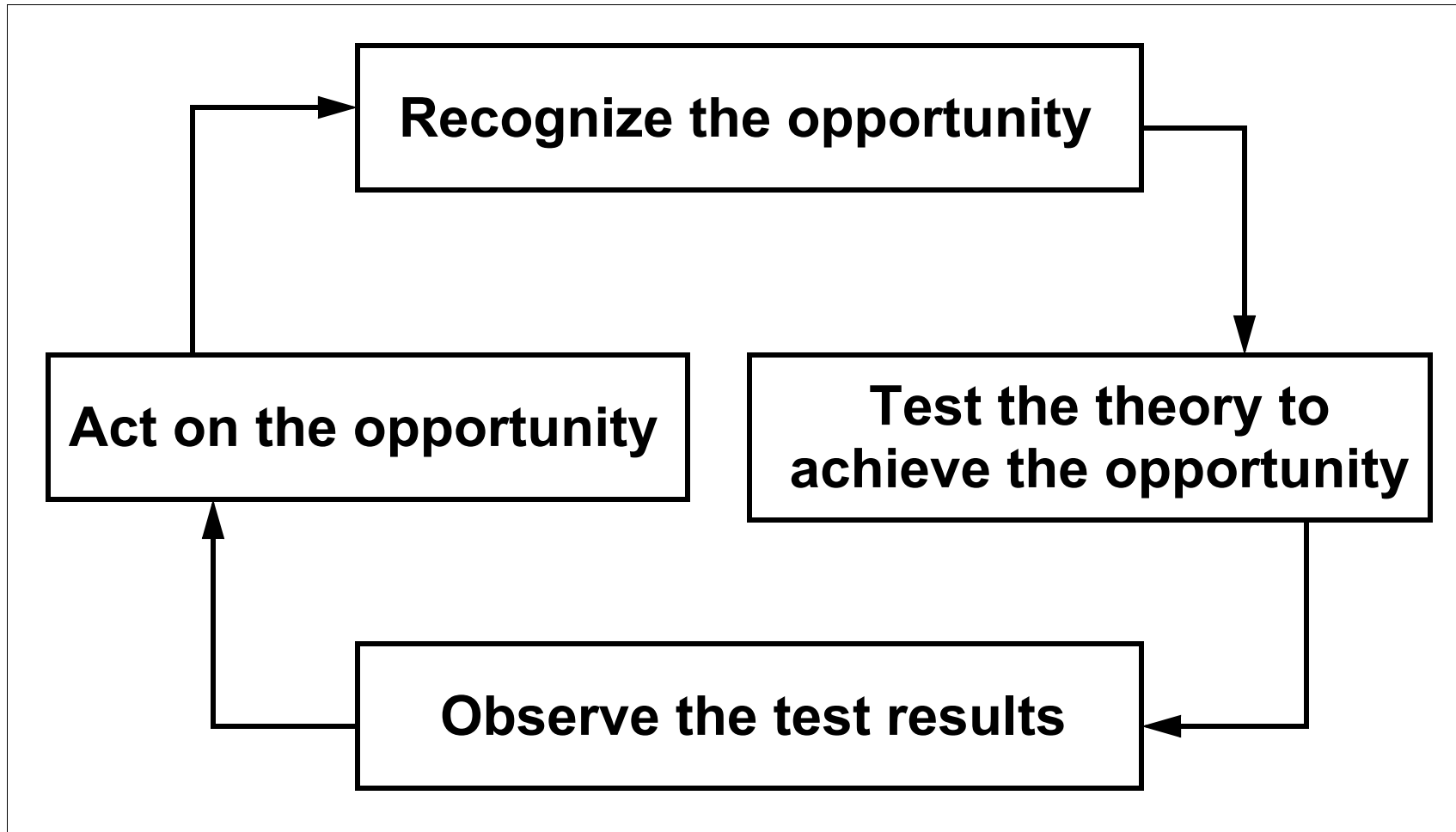
$$\text{MTBF} = \frac{1.0}{\phi}$$



$$\text{MTBF} = \frac{1 + \frac{1}{2} + \frac{1}{3}}{\phi} = \frac{1.83}{\phi}$$

# **Point 5: "Improve constantly and forever the system of production and service, to improve quality and productivity, and thus constantly decrease costs"**

- **Never-ending improvement**
- **Deming / Shewhart cycle**
- **New philosophy is not a project - more a way of life**



**PDCA or IPDA**

## **Point 6: "Institute more thorough, better job-related training"**

- **Workers must have the right tools in order to do their job. Often people have no training in how to do their job.**
- **Common excuses**
- **Training budget often first thing to be cut - should be last**
- **Bill Conway example - (Bill and Jack) - motivation is important, but not enough**

# Point 7: "Institute leadership"

- At one time: "improve supervision"
- Need individuals who are coaches, mentors, and teachers
- "Catch people doing something right rather than something wrong"
- Should manage people, not things - help people achieve maximum performance
- "Management by objective" may promote mediocrity

# **Point 8: "Drive out fear, so that everyone may work effectively for the company"**

- **Maybe the most important point**
- **Fear has a tremendously negative influence - very pervasive**
- **Fear has negative impact on communication**
- **People that are afraid over-react, act to avoid failure, don't seize opportunities**

# **Point 9: "Break down barriers between departments"**

- **Teamwork is critical**
- **Vision may be helpful - keep everyone on the same page**
- **Break down "empires"**
- **Performance appraisal systems may be one of the greatest inhibitors to improvement**
- **Grading on a curve**

# **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**