



The Effect of Variability on Processes

Making The Link Between Process Variability and Business Effects

Show Me The Money



- Lockheed Martin saved \$64 million on the first 40 projects
- Motorola claim dramatic results:
 - Productivity up an average of 12.3% per year
 - Reduced cost of poor quality by more than 84%
 - Saved more than \$11 billion in manufacturing costs
- GE 1995-1998
 - Company wide savings of over \$1 billion
 - Estimated annual savings to be \$6.6 billion by 2000

The Cost of Variability



- There are a few highly visible costs of poor quality performance

Typically 5 to 8% of turnover

- Many more, significantly higher costs are hidden

Typically 15 to 20% of turnover

- Juran talks of 'the gold in the mine'

Variability & The 7 Wastes



□ Correction

- **Scrap & rework costs**
- **Cost of managing the scrap/rework system**
- **Inspection costs**
- **Cost of ‘quality escapes’**

□ Over-Production

- **Allow slack in the system for mistakes/defective production**
- **Maximising production regardless of demand**

□ Processing

- **Extra operations required to achieve quality**
- **‘Finessing work’**

Variability & The 7 Wastes



□ Conveyance

- **To and from inspection, quarantine, rework areas etc.**

□ Inventory

- **Safety stock to cover system weaknesses**

□ Motion

- **Operator, inspector, engineer motion to deal with the above items**

□ Waiting

- **Idle time due to scrapped batches**
- **Idle time due to longer than planned processing times**