

# Key Success Factors in Automation Projects

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# Aim of Session

- To emphasise the problems people encounter when undertaking automation projects, and show how to avoid them.

# Most common mistakes

- Process control
- Work flow
- Operator buy in
- Failure to understand/explain the process to the system designer
- Product not designed for automation
- System bought on purchase cost not life cost

# Process control

‘Before we had automation I thought we had quality problems. Now I know we have.’

# Input Variability

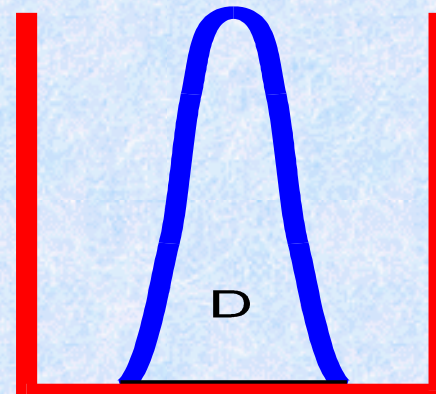
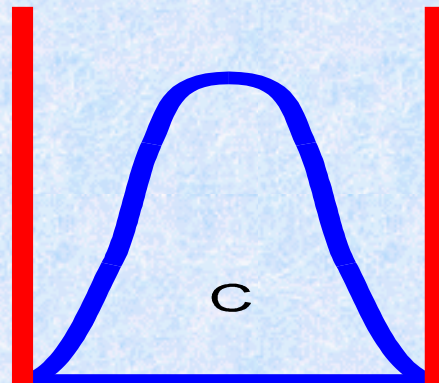
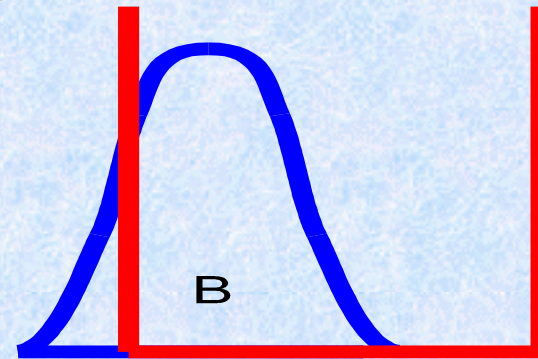
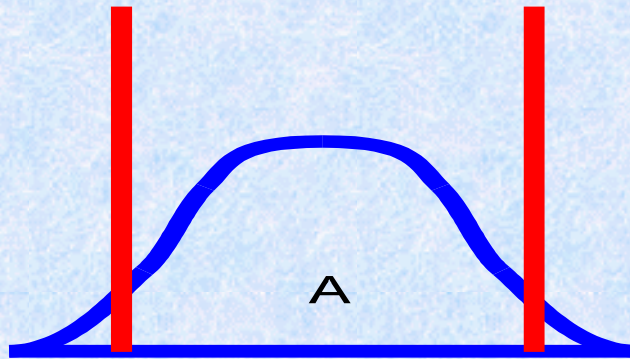
- Automation is designed to work within certain tolerance bands
  - To increase bands costs money
  - If components go outside bands system becomes unreliable

# Process Variability

- Before automating it is essential to understand the manual process
  - What are the operators really doing?
  - Why are they having to do it?
- Often if you get the manual process right the need for automation is reduced.

# What Do Your Processes Look Like

## Like



# Work flow

‘Automating the bottleneck just makes another one become obvious.’

# Automation is Complex

‘Automated systems are generally a lot of simple things that have to work together.

Making sure they will can appear complex.’

# Operator buy in

‘An automation system is only as good as the man running it.’

# Operator Attitude

- ‘I told them it wouldn’t work but they didn’t listen’
- ‘It’s the suppliers fault they don’t understand how we work’
- ‘There’s nothing wrong with this machine of ours’

# When to get people involved

- suppliers
  - design of product
- operators
  - design of system/product
- maintenance
  - system specification

# Failure to understand/explain the process to the system designer

‘If you don’t tell the supplier what the system needs to do, you can’t blame him when it doesn’t do it.’

# What to tell the system supplier

- Tolerances achieved (all the time)
- What the true processes are
- What is likely to go wrong
- What flexibility is required
  - part mix
  - volume

# What the system supplier must tell you

- True production rate (speed and availability)
- Ramp up time
- Skills required to run system
- Component tolerances acceptable
  - trade off between system cost, running cost and component cost

# Product not designed for automation

‘Designing a product for automation can reduce the cost of the system required by 50%.’

# Design for Automation

- Reduce number of parts
  - Unnecessary fasteners
- Eliminate non-value adding operations
  - Reorientation
  - Handling
- Widen acceptable tolerance ranges for components as much as possible

System bought on cost.

‘There is no such thing as cheap  
automation.

You pay now or you pay later’

# Cost analysis

- Cost of failures
- Cost of poor quality
- Residual value
- Marketing value
- Etc.

# Know when **NOT** to Automate

- Processes not in control.
- Finance not available.
- Skilled personnel not available
- Flexibility cannot be achieved.
- Complexity too high.

# Experience

“There are three ways to ruin yourself: gambling, women and technology. Gambling is the fastest, women are the most pleasurable, and technology is the most certain.”

Georges Pompidou