



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.



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DEPARTMENT OF AUTOMOBILE ENGINEERING

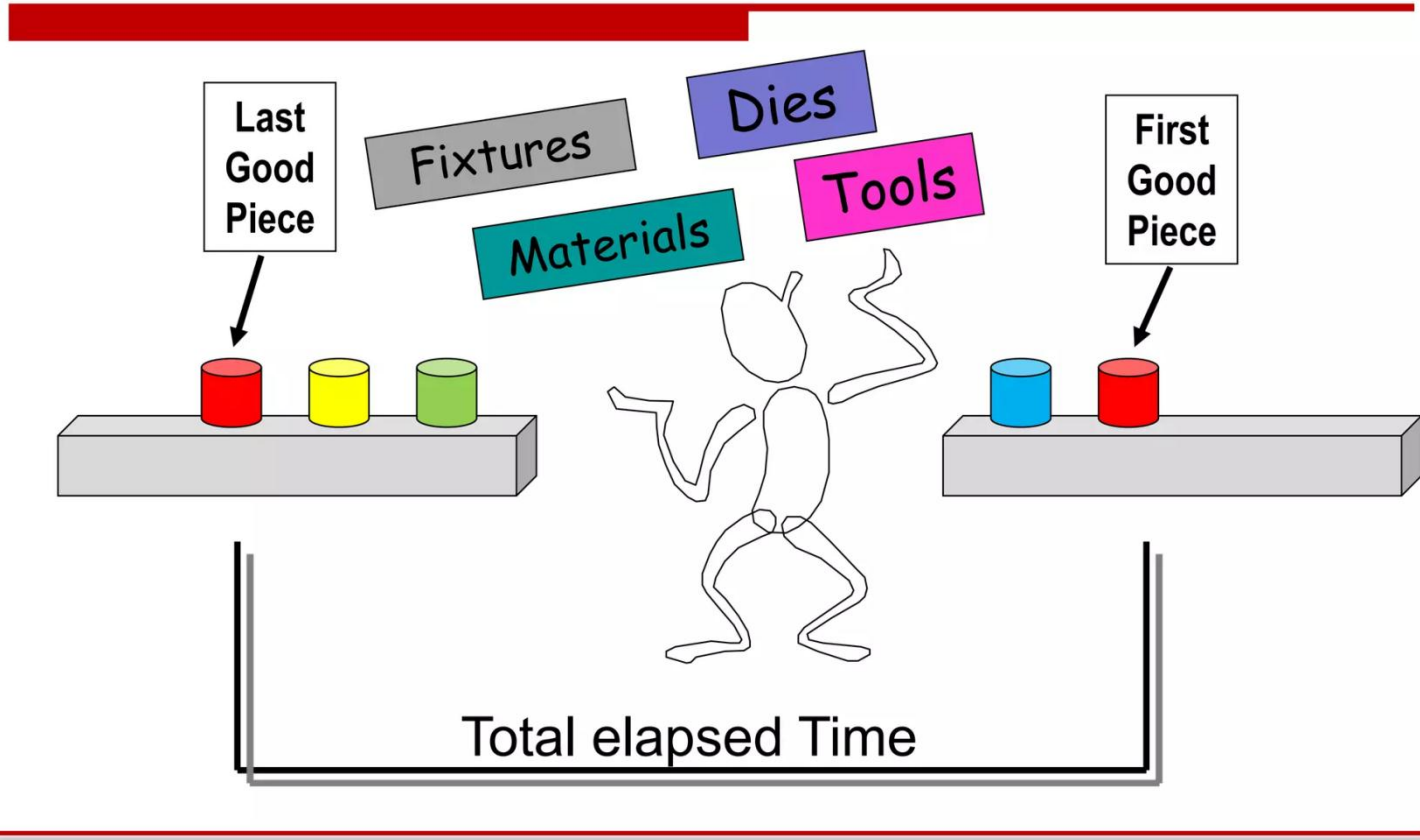
COURSE NAME : 19AUZ405 – LEAN MANUFACTURING

IV YEAR / VII SEMESTER

Topic – Reduction Approaches

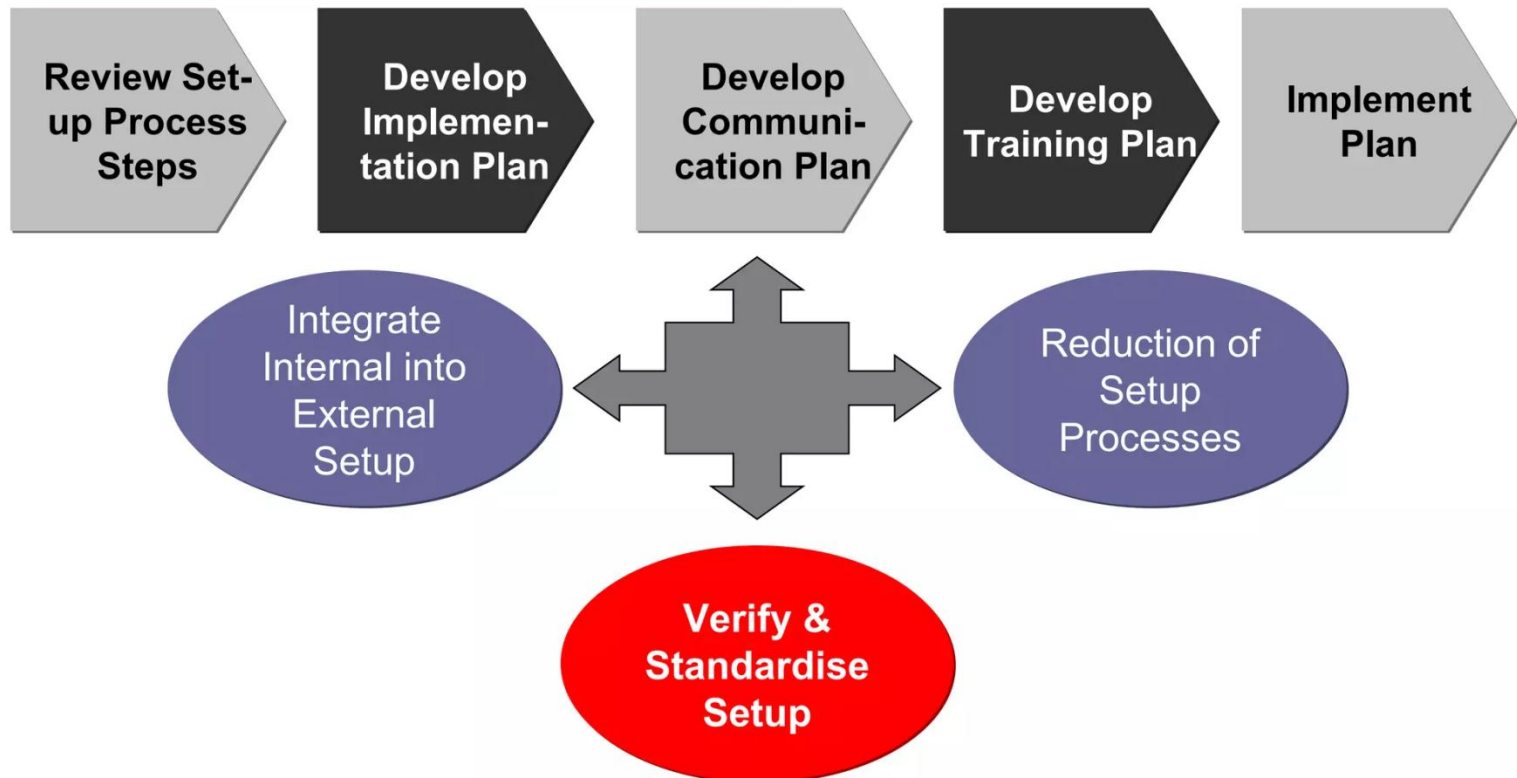


Set-up - Definition



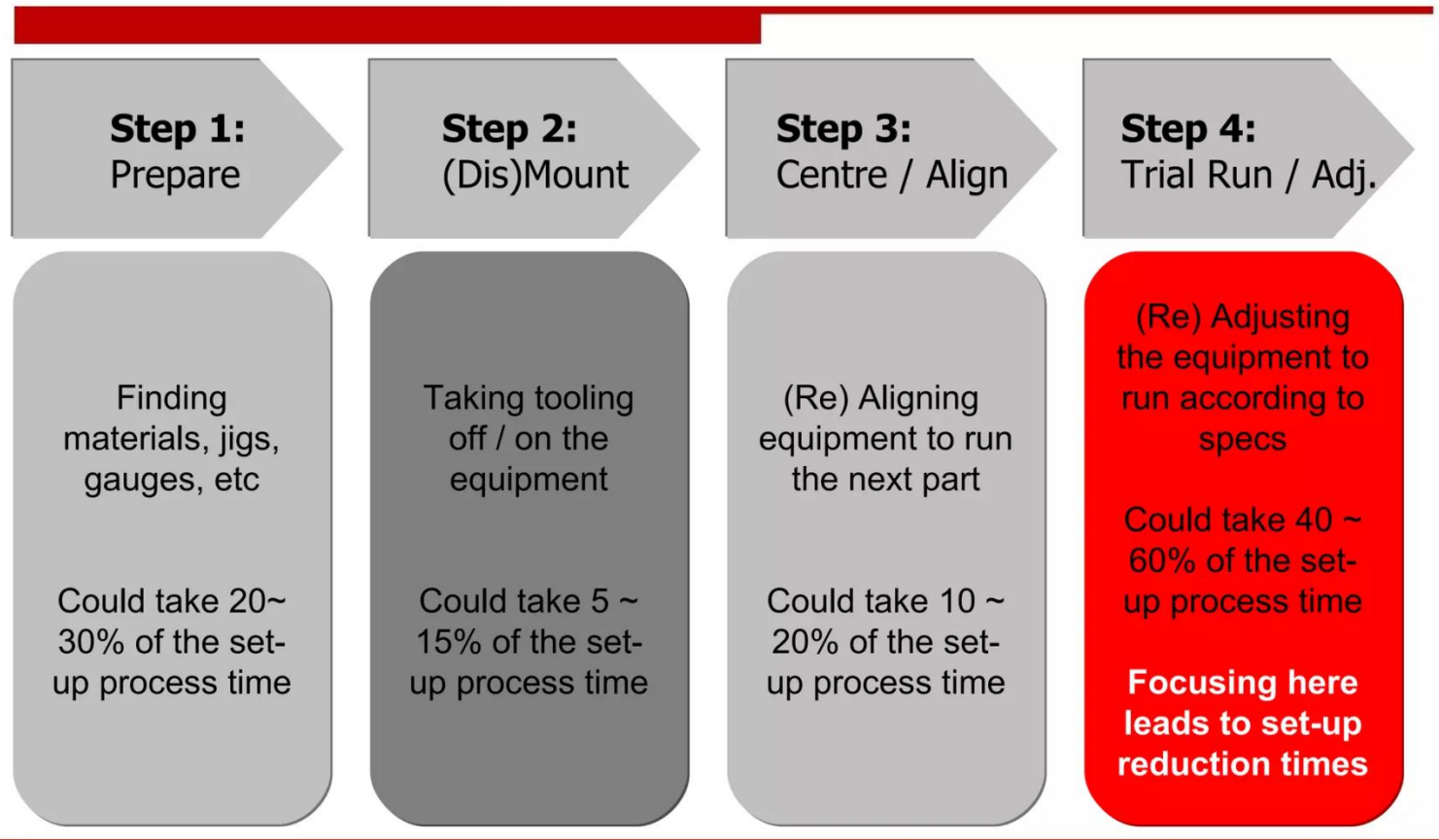


Setup – Implementation Steps





Setup – Process Steps



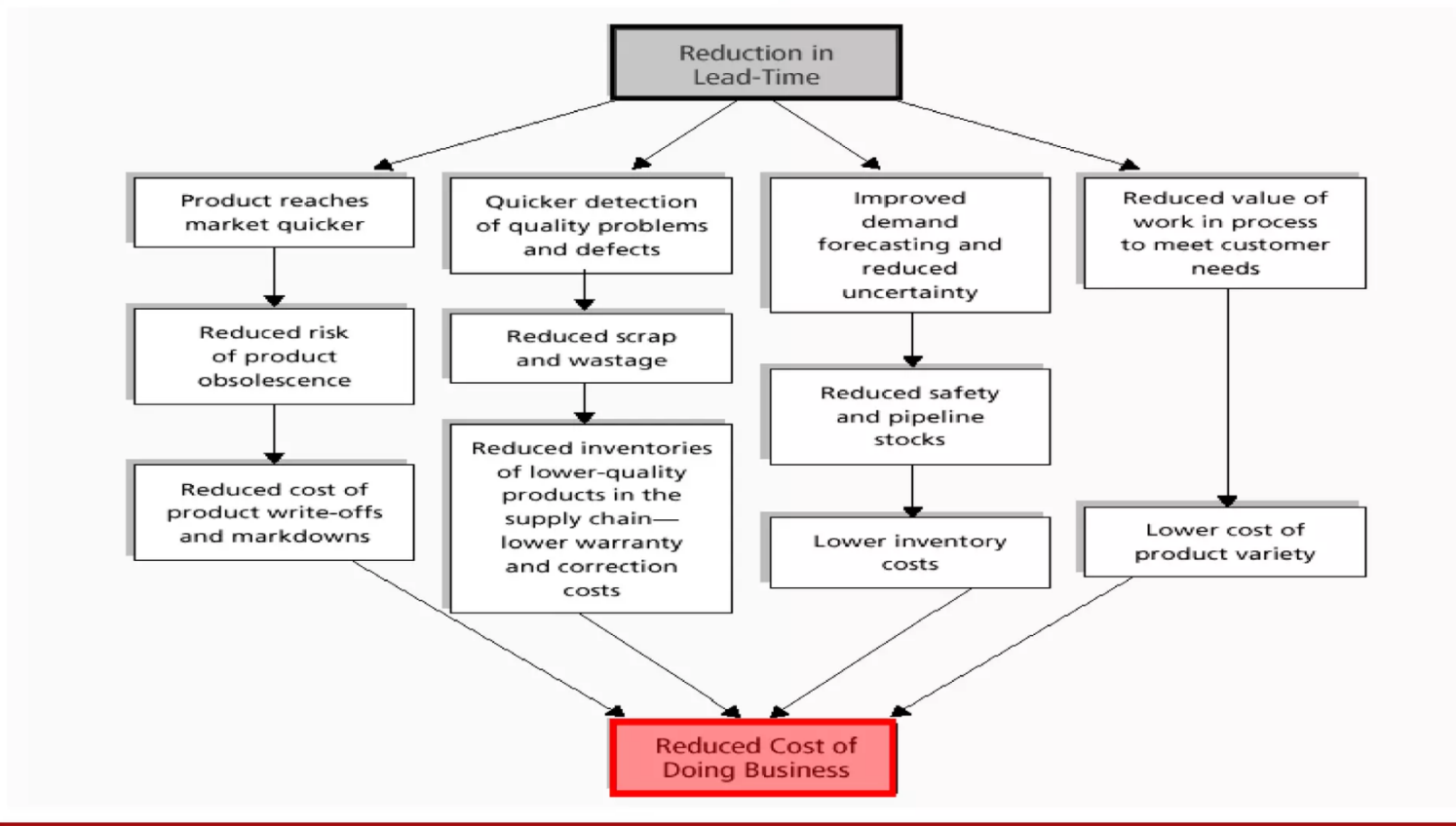


Set-up – Conversion Matrix

- **Purpose**
 - Used to identify specific actions taken to convert internal setup operations into external setup operations as part of the SMED program
- **When to Use**
 - Setup conversion matrix should be used after the setup work sheet (previous slide) has been completed
- **Who should use it**
 - The set conversion matrix can be used by anyone involved in process improvement
- **Expected Benefits**
 - The resultant deliverables will be specific actions aligned with conversion methods to convert internal setup operations into external setup operations

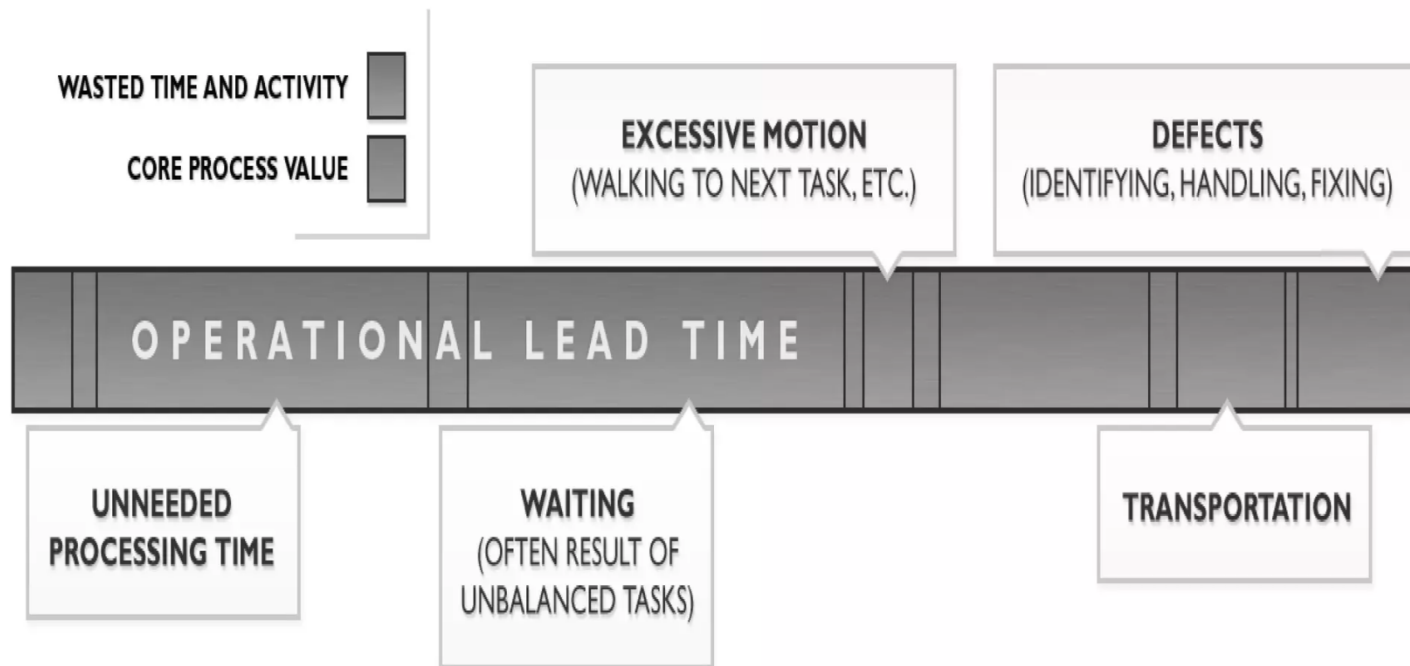


Lead Time Reduction



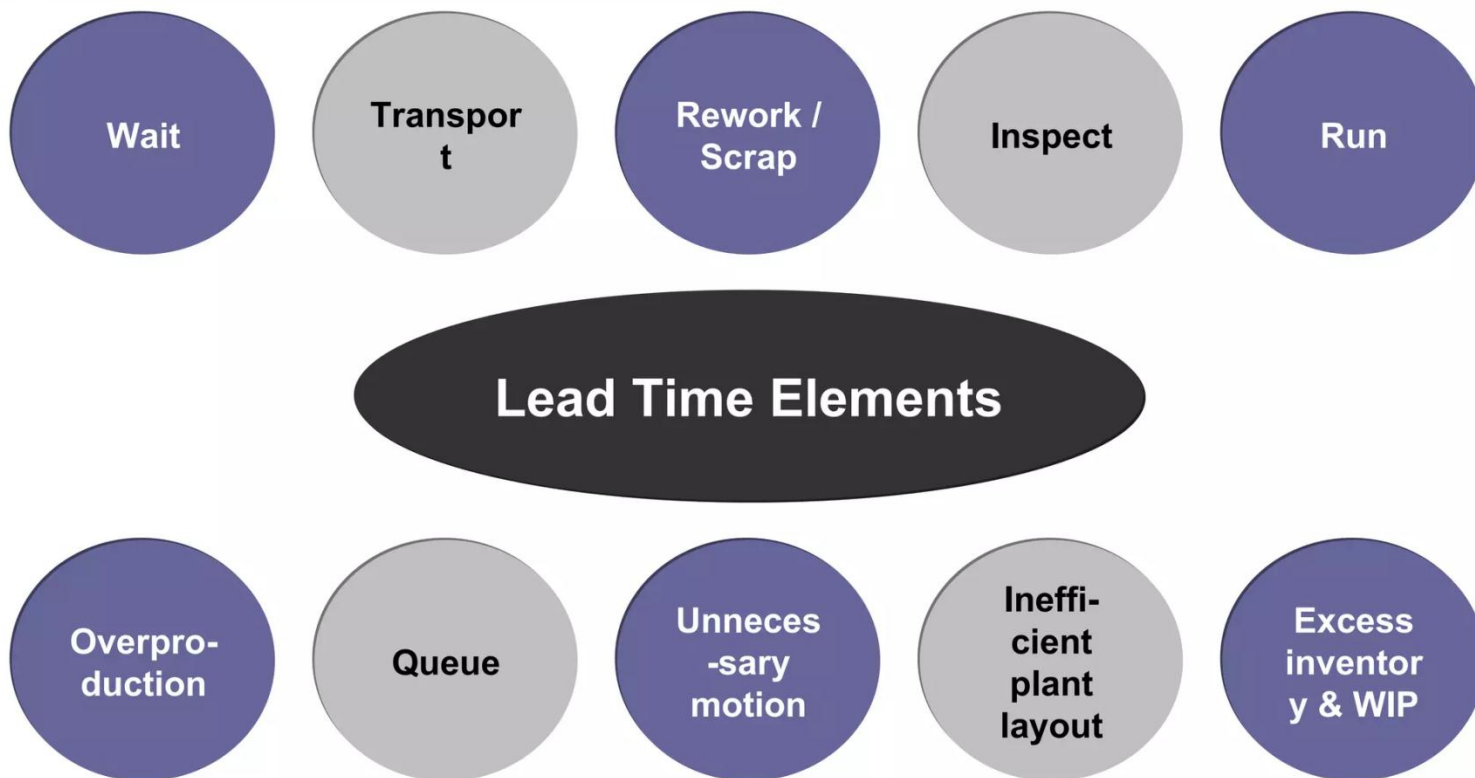


Lead Time Reduction



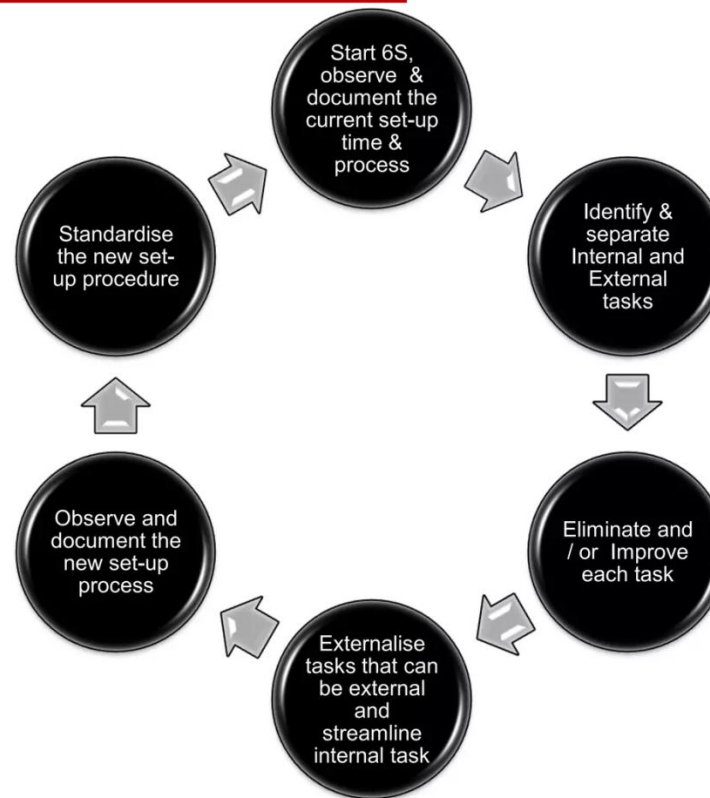


Lead Time Elements





Set-up Reduction – Implementation





Set-up Reduction - Ideas

<p>1) Reduce # of screws</p> <p>10 ▶ 4 fixed screw sights Give thorough consideration to the magnitude and direction of forces undergone</p>	<p>2) C-washer method</p> <p>Don't remove the C-washer</p>	<p>7) Cam method</p>	<p>8) Snap method (for restraining work)</p> <p>Clamp Ball and spring stop screws</p>
<p>3) Pear-shaped hole method</p> <p>Tighten here Attach and remove here</p>	<p>4) U-slot method</p> <p>Fixture Clamp</p>	<p>9) Magnets</p> <p>Contact with workpiece Magnet</p>	<p>10) Toggle clamp</p> <p>Can apply pressures of over 500kg</p>
<p>5) Variation of pear-shaped hole method</p> <p>Bushing cap</p>	<p>6) Wing nut method</p>	<p>11) Taper-type U-slot collar</p> <p>Taper-type U-slot collar Rotating stop</p>	<p>12) Gear slippage prevention</p> <p>(A) using gear box cover</p> <p>Stops</p> <p>(B) One-touch stopper ring</p>



Set-up Reduction – Standards

**Standards are
standard: they are
NOT flexible**



Set-up Reduction - Repeat

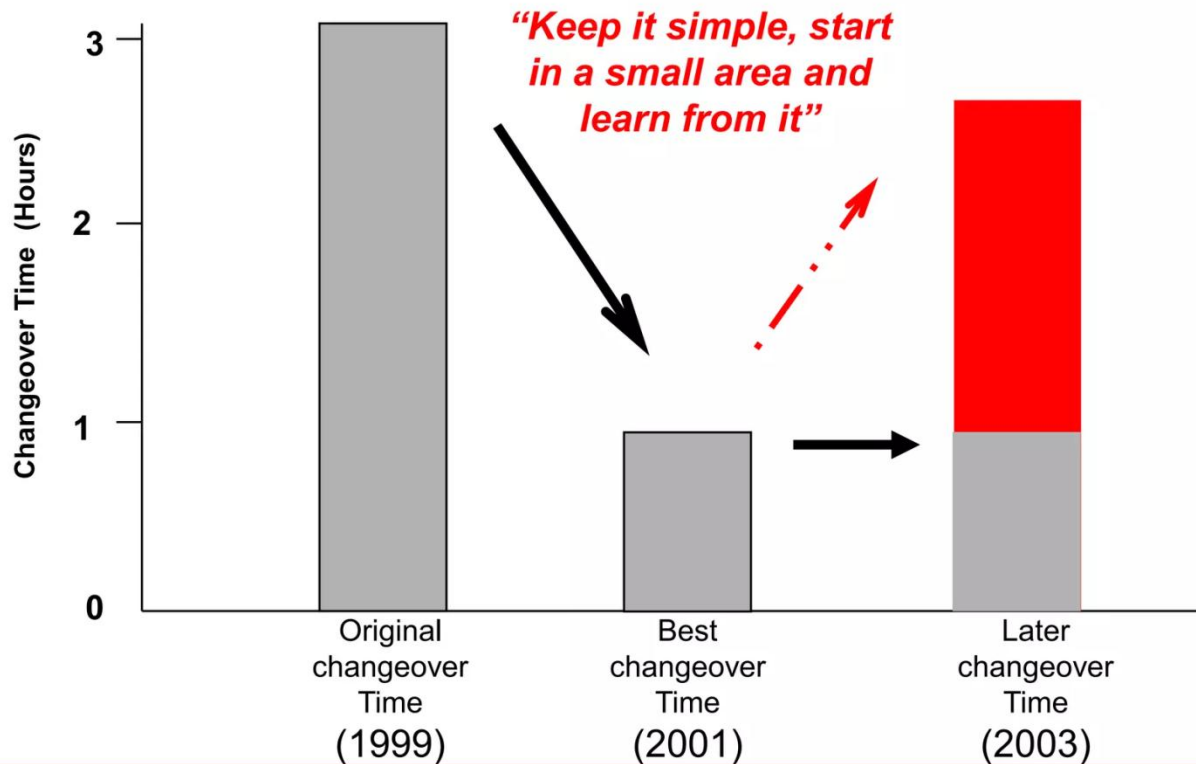
- Input
 - Last set-up reduction Kaizen (updated SOP, checklist, work instructions, trained team)

 - Process
 - Video tape the new set-up procedure and record the set-up time for each element
 - Generate ideas and implement the improvement

 - Output
 - Revised Set-up Operations Standard chart.
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Word of Caution – On Sustainability





Thank You !