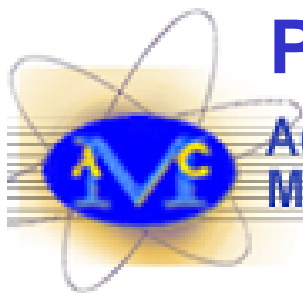


Total Machine Effectiveness



Peter Fisher, Associate

**Advanced
Manufacturing Centre**

Total Machine Effectiveness

- How much would you save if every machine worked first time every time, with no waiting or looking for parts/information, no breakdowns, no losses due to changeovers, no short term stoppages or quality problems, and always at the optimum speed?

Measuring Against Standards

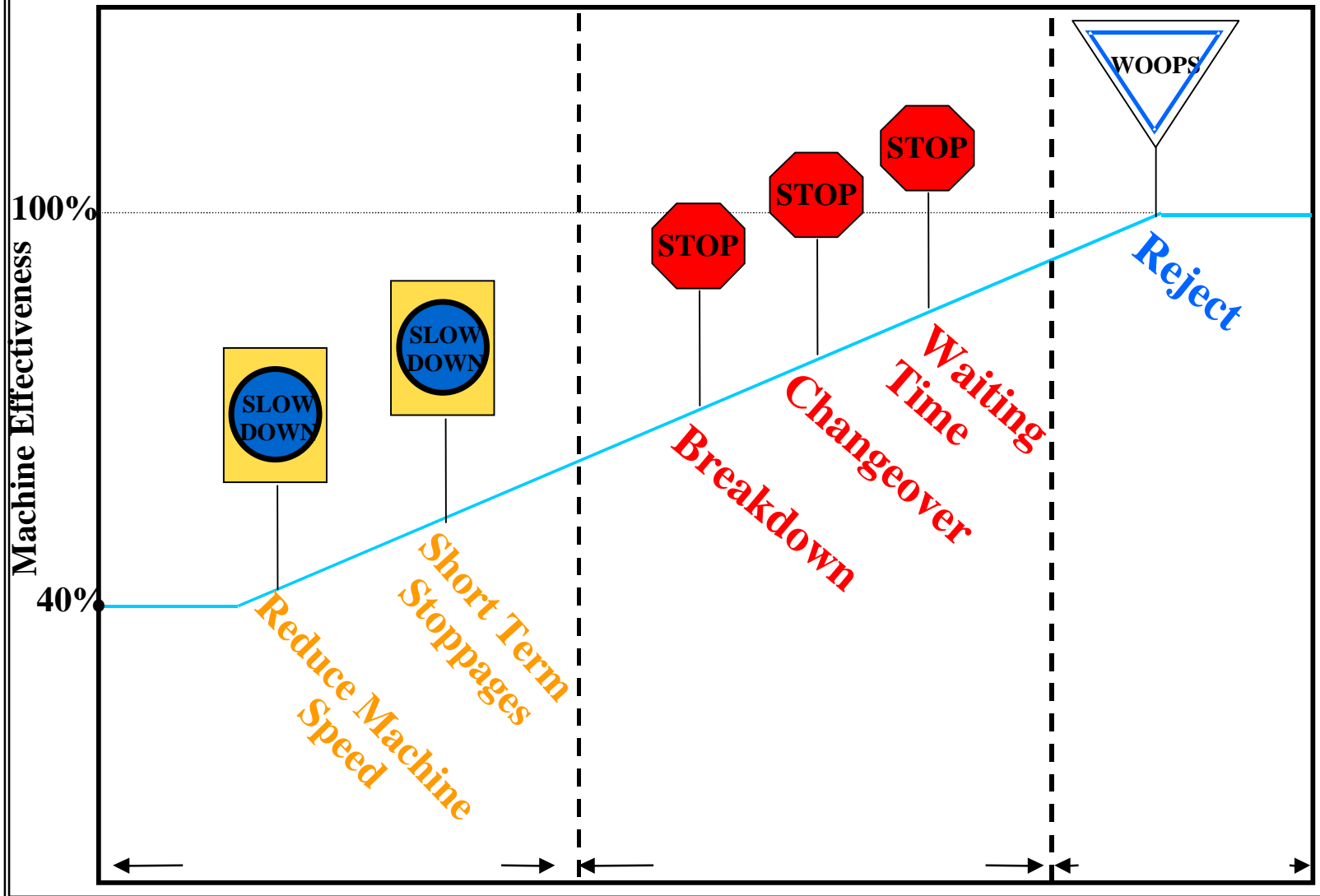
It is useful if we want to compare efficiency over periods of time, and often serves this purpose well

BUT

Measurement against standards gives no indication of the scope for improvement, as standards have all sorts of losses allowed for, so.

**We Need to Measure
Against Perfection!**

TOTAL MACHINE EFFECTIVENESS



Establishing Your TME

- Measuring Total Machine Effectiveness is relatively easy = Actual/ theoretical
- Measuring **Unambiguously** what causes the losses takes careful measurement – for a short time!

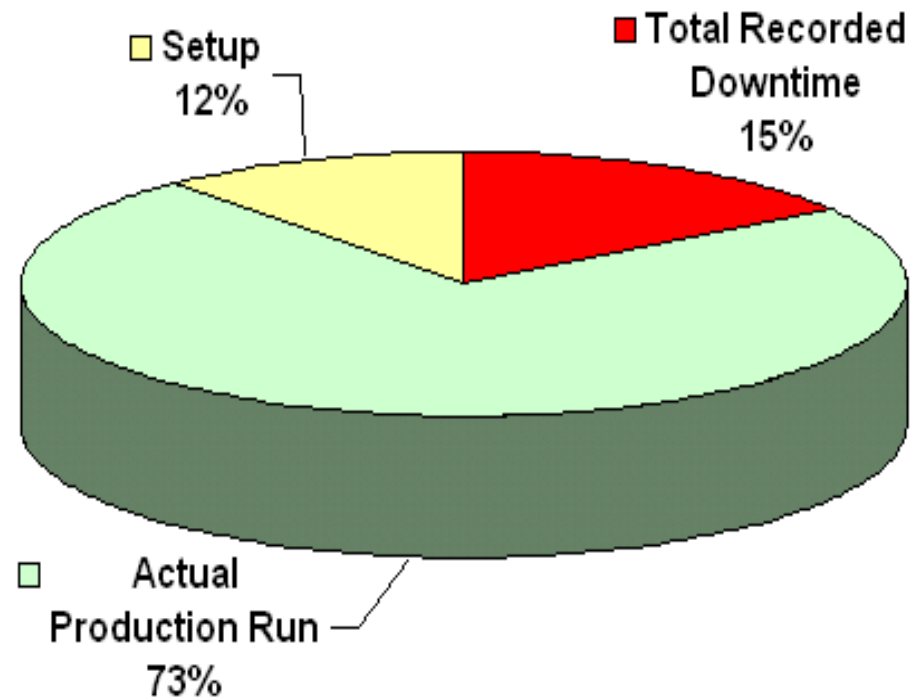
Part of a Day in the Life of an Operator at ??

TABLE 2: Product – Stoppages Observed Tues 10th March (2.00-4.50pm: 170 mins)

Problems	Possible Causes	Frequency	Lost Time (mins)	Lost Potential Production
Unplanned Stoppages				
Filling Unit	•No stoppages	0	0	0
Feeder	•In between carton erector & paddle machine •Due to new shift operator resetting the line	1 1	10 min (2min) (8 min)	92.5 boxes
Carton Erector	•Jam due to sensor malfunction -Operators use cardboard to get electric e ye.	2	3 mins (3 mins)	27.75 boxes
Carton Closer	•Glue wraps around box and hits rollers as carton turns, this in turn causes a build up of glue on the rollers which causes a carton jam •Box didn't turn 90 degree •Wrong Belt – Operator changed belt •Due to operator not tucking in packets well in carton	4 1 2 1	10 mins (5 min) (1 min) (2 min) (2 min)	92.5 boxes
Packing •Box Jam •Glue	•Box (carton x 8) stuck due to rollers not clean or having sticky glue on them. Causes machine to stop and operators to manually dislodge them	1 1	5 min (4 min) (1 min)	46.25 boxes
Planned Stoppages				
Roll changeovers	•Rewind	4	12mins (3 mins)	127.75 boxes
		Total Lost	39mins	336.75 boxes

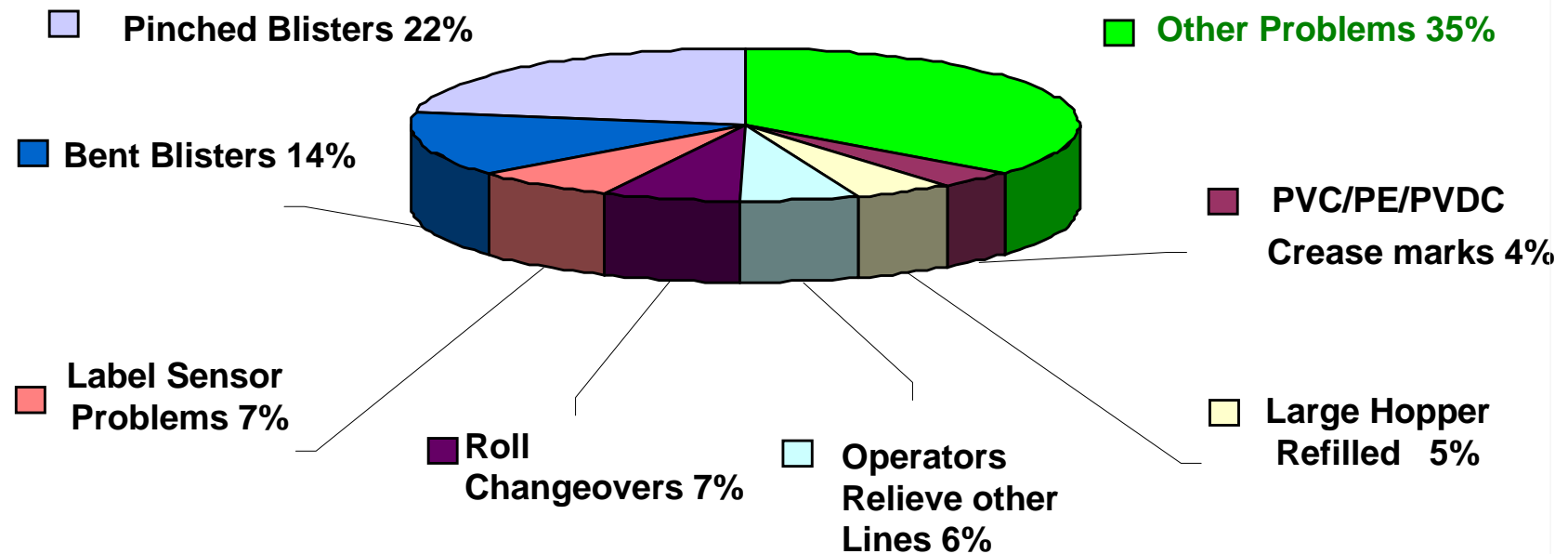
Key Indicator: Low: 1-30 boxes Moderate: 31-50 boxes Highly Critical: >50boxes

Overall Line Performance over a Month (June)



What are the Opportunities?

**Total Time Losses (excluding product changeovers)
Observed in our study**



Who Will Make This Happen for You?

Measure Performance/ Perfection (+ ongoing measure)

Establish The Team

Establish Buy in From Key Players.

Establish Key Losses (who, how long)

Identify Technical and People Issues

Link This project to Strategic Objectives and Day to Day measures

Establish Leadership Roles (area manger, support person who have commitment, authority and respect)

