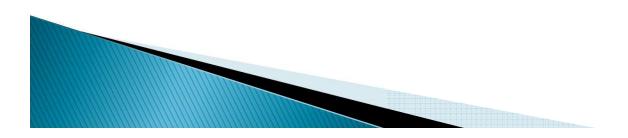
#### The cost of Implementing TPM

# SMN 4842Sem 2 20102011



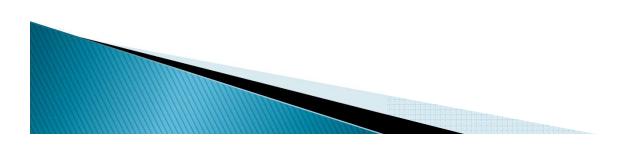
#### The cost of Implementing TPM

#### • The Major Cost elements:

- Direct cost of TPM team member
- Direct cost of other company personal
- The cost of external resources
- The cost of spare parts, materials and other purchase items
- Training and consultancy support costs
- Lost production cost revenue resulting from the need to stop the process whilst TPM activities take place

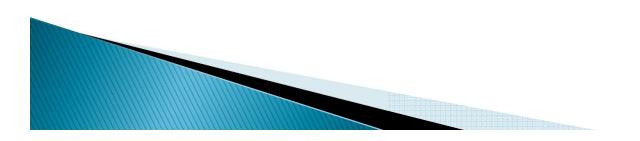


- OEE is direct measure of earning capacity of facilities, can be used to measure the financial benefits arising from TPM applications
- The process in the company add value (value added) to materials or parts



- Example of a press machine used to produce parts from blank sheets
  - Cost of blank sheet = RM 5
  - Value of pressed part = RM 7
  - Added value = RM7 RM5 = RM 2 / part
  - The process has earned RM 2 for the company. If the expected throughput is 50 panels per hour, the added value per hour is

added value/hour =  $RM2 \times 50 = RM100/hour$ (expected throughput is the theoretical cycle time)



Due to six major losses, the effectiveness of the press machine is only 70%, then the actual value added per hour is
 Actual value added per hour = RM100 x 0.7
 = RM70/hour

 The loss of added value due to six major losses is
 = RM100 x (100% - 70%)
 = RM30



 If the press were used on a single shift basis and operated on average 35 hours per week and 48 weeks per year, The average loading time/year = 35hrs x 48 wks

The average loading time/year =  $35hrs \times 48$  wks

= 1680 hrs/year

Annual loss is a calculated based on the loading hour and loss per hour

Annual loss =  $RM30 \times 1680 = RM50,400/year$ 



- The implementation of TPM will increase the OEE, therefore will increase earning capacity of the process.
- For each 1% improvement in OEE the earning gains is,

Loss of effectiveness = 100% - 70%

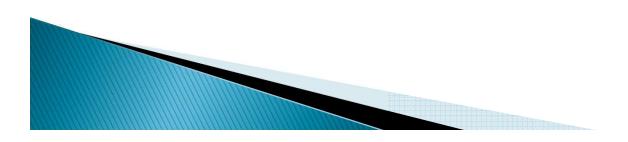
= 30% = RM 50,400

1% improvement = RM 50,400/30%

= RM1680/per cent

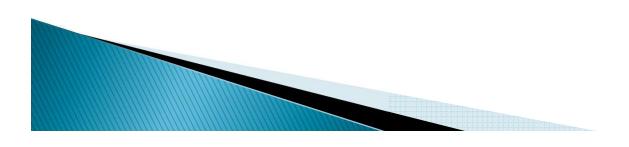


- For improvement in OEE is at 5%
  - The increase in earning capacity =  $RM1680 \times 5$ = RM 8400
  - If improvement in OEE is at 10%, the increase in earning capacity is RM 16800.



- Let say the cost of implementing TPM is;
  - The direct cost of TPM team member = RM 1300
  - The direct cost of other company personnel = RM 360
  - The cost of external service = RM 250
  - The cost of spare parts, materials and other purchaced items = RM 500
  - Training and consultancy support costs = RM 2500

• Total cost = RM 7710



- The financial justification for undertaking TPM on the press machine can be based by the pay back period for the investment in TPM
- 5% improvement = RM7710/RM8400
  - = 0.92 year (11 months)
  - 10% improvement = RM7710/RM 16899

= 0.46 year (5.5 months)

