

Time and Motion Study in Grinding Wheel Manufacturing Company: A Case Study

About the Client

- Client is a company pioneered the manufacture of grinding wheels in India in 1941.
- Client businesses include: Abrasives, Ceramic Materials Businesses (Silicon Carbide and Performance Ceramics & Refractories), Performance Plastics and ADFORS.

Client Challenges

- Work standard development and validation.
- Capacity calculation for plant.
- Cycle time calculation by cyclic/non-cyclic activities.
- Manpower Calculation.
- Work Distribution.

Aims/Objectives

- Work content Measurement using time study.
- Capacity calculation.
- Cycle time standardization.
- Manpower Optimization.
- Evenly work distribution.

PMI's Approach

The study was organized in a 3-stage process:

1. Data Collection - Video shooting of all activities on the line.
2. Estimation & Data Analysis – Preparation of Process Flow & Schematic Layout , Elemental detail preparation using Time Study technique, Work content estimation ,Work distribution with Man machine chart , Analysis & Manpower calculation.
3. Making client time familiar with PMTS study technique for easy understanding.
4. Validation of observed processes data, elemental details, analysis from Client representatives .
5. Results and Conclusion – Sheets for work content estimation, fatigue reduction, improved productivity, improved manpower utilization, identification of NVA work content.

Involvement of Associates –

- PMI – 1 Project Manager, 2 Engineers.
- Client – 2 Project Co-ordinators.

Data Collection-

- Visit to client site and understanding the plant before starting data collection.
- Shooting of videos using high tech cameras for better capturing of data collection.

- Interaction with client to understand process from videos.

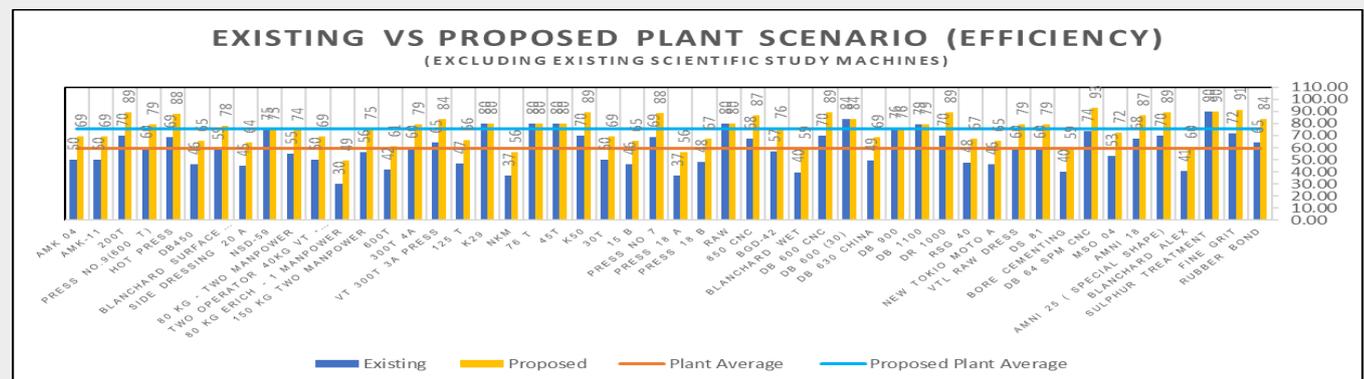
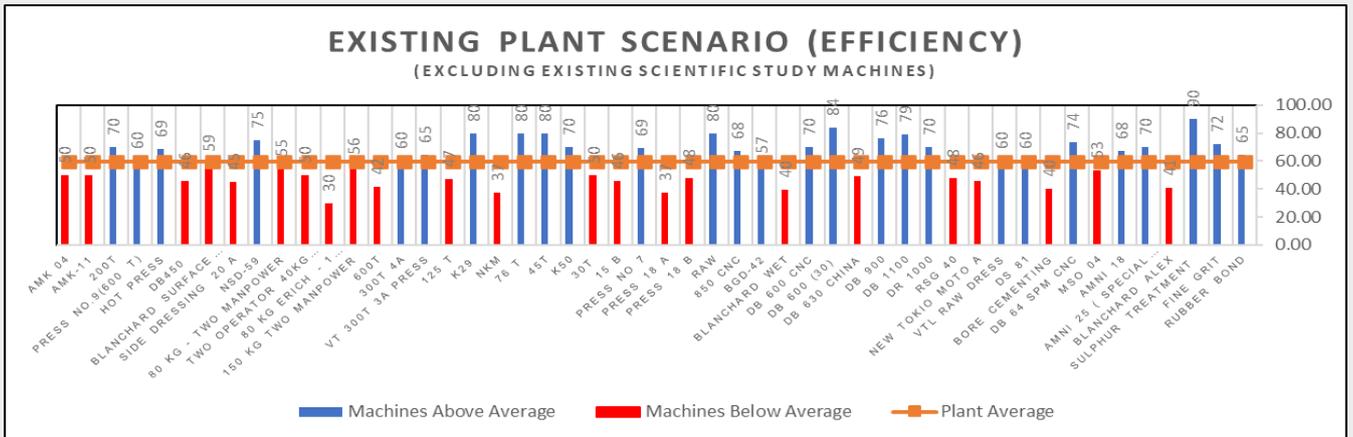
Data Analysis -

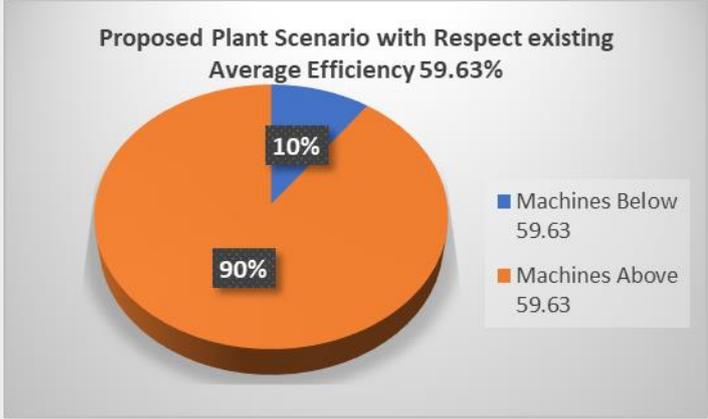
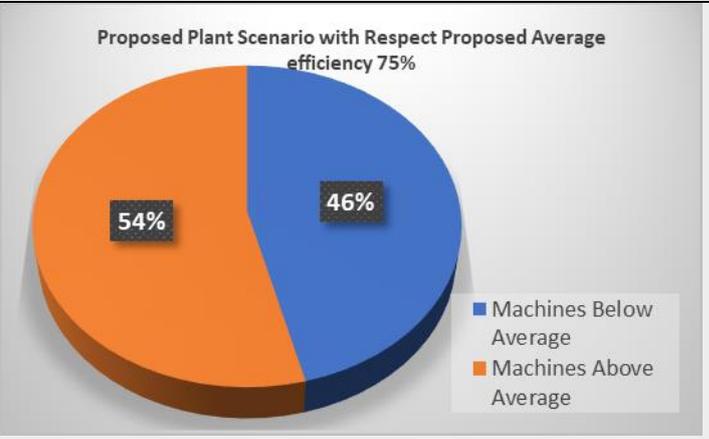
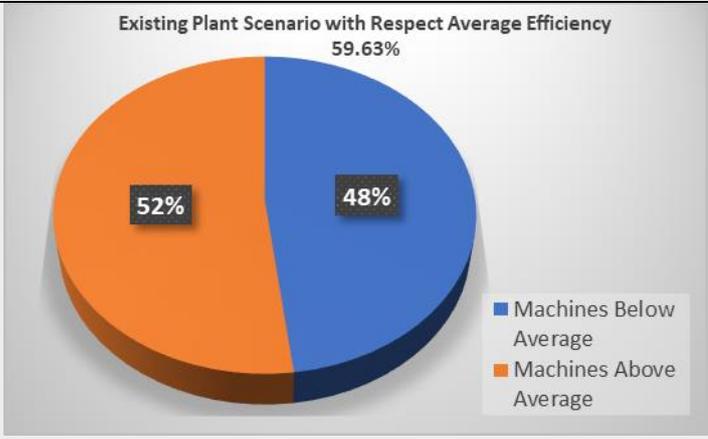
- Preparation of sheets of Time study using appropriate technique and validation by client.
- Analysis (Optimum manpower utilization & identifying cycle times and capacity of plant).
- Work content sheet preparation for cycle time as per demand.
- Improvement & suggestions for fatigue reduction & making existing system better.

Results & Conclusion

After doing analysis and evaluation following results were obtained –

1. Based on 50 machines data, average efficiency of the plant is 59.63%
2. As per existing plant average i.e. 59.63% (24 machines are below average & 26 machines are above average.)
3. For proposed plant average i.e. 75% (23 machines would be below average & 27 would be above average)
4. Existing unit per man per shift is 8 (16 Inch) & proposed unit per man per shift is – 11 (16 Inch), thus productivity improvement would be 37.5%





*Data shown here has been modified to protect client confidentiality

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