









### 3.7 Kaizen

Kaizen means "Continuous Improvement" [7]. The basis of Kaizen is small-sized, continuous improvements done by especially employees for enhancing working conditions or decreasing costs in manufacturing plants or offices. Kaizen has two sub-topics:

#### 3.7.1 Before After Kaizen

In Before After Kaizen processes, date and location of improvement, problem definition, proposed solution, related employees and photographs of before and after situations of the enhanced location are created and managed.

##### 1. Determining the initial state

Related personnel information, problem definition, location of the problem, entry date, and photograph of initial state is recorded to the system.

##### 2. Approval of problem and determining solution

Reported problem is discussed by TPM committee. If it is decided to be a Kaizen, committee assigns tasks to related employees for solving the problem.

##### 3. Implementation and documentation of solution

Determined solution is implemented. After improvement, photograph of Kaizen location is recorded to the system to compare with the initial state.

#### 3.7.2 Kobetsu Kaizen

Kobetsu Kaizen means systematic improvements achieved by making analysis for decreasing the losses related to material, energy, equipment and manpower on the long view. Kobetsu Kaizen operations consist of 5 steps:

##### 1. Preparing Kobetsu Kaizen Form

Specifications of Kaizen, working model and problem areas are defined in this form. Kaizen personnel team(s) is generated and stored in the form as well.

##### 2. Defining Losses

One or more losses are defined among manpower, energy, equipment and material losses for implementing Kobetsu Kaizen. These losses are also stored in system.

##### 3. Establishing themes and planning

Specific solution theme is established to prevent defined losses.

##### 4. Kaizen Implementation

According to prepared plan in previous step, related activities are defined and verified. Finally, Kaizen implementation is completed.

##### 5. Effectiveness Control and Approval

After completing related Kaizen activity, the results of improvement are checked by the TPM committee. If the improvement is successful, related Kaizen team gain points.

### 4. Conclusion and Future Work

TPM system is a productivity management system created by Japanese to improve productivity and quality. It aims to improve employee morale and job satisfaction as well. The purpose of this study is developing a software and using it for implementing fundamental TPM activities on electronic environment. In the project, also hardware units are developed for collecting production data from manufacturing plant to show instant productivity. After completion, results of the study will be analyzed and published.

As a future work, 6 Sigma and Kanban principles may be integrated to the system. The project may be transferred to a cloud based environment. This model can provide to SME's easy to use, scalable, low cost software solution [8].

### 5. References

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