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Implementation of Manufacturing Tools in Small Scale Industry

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Abstract**—***Implementation of manufacturing tools in small scale tablet tooling industry reduces waste time ,reducing defects, number of workers producing job per day, material intake in tones per month and improvement the activities by using tools like checksheet, FIFO and PDCA tool. In order to apply this manufacturing tools the data is to be collected by workers and to analyze so that it can reduce defects and improving the activities. Our aim is to know number of workers working on which product at what time. TO use materials first which come first and then which come later.*

Keywords—FIFO, CHECKSHEET, PDCA

I. INTRODUCTION

The Project work presented in this paper is based on implementation of manufacturing tools in small scale industry to improve productivity of a tablet tooling manufacturing company. The Company selected to conduct this study is Pacific Tools Pvt.Ltd which is inBhoidapada, Vasai(E). Pacific Tools is one of the leading manufacturers of tablet tooling in India.As company produces N number of punches but we have selected two punches such as shape punches and round punches. These Tools find their applications in Pharmaceutical industries as a Tablet Punch Dies for various operations. Some of the companies esteemed clients are Cipla, Sandoz, Flamingo etc.

II. PROBLEM DEFINITION

After visiting the company for several times at Pacific Tools, it was found that the raw material kept in rack was not used in proper order, there was no implementation of FIFO and there was no proper data of workers. Thus, in order to reduce the inventory. The productivity of the company mainly depends on the accurate supply of required quantity of the materials. The wastage in time and money due to improper supply of material is a threat to growth of the company. Similarly, storage of excess of material than required will also incur in loss for the company. Thus, the inventory must be reduced and maintained in optimum level in order to improve the company's growth with further digging into this matter, following causes were identified.

- Random picking of components
- More space utilization for storage
- Excess Inventory
- No FIFO system followed

III. RESEARCH METHODOLOGY

Manufacturing Tools can be implemented using methodology in order to obtain the desired results. Approach of implementation of manufacturing tools in this project work is discussed in following subsections.

- **Step 1: Identification of problem**

The first step in implementation of manufacturing is identifying the problem that prevents the company from achieving its goal. The problem may be a process, a machine or a policy of the company. First a manual method of identifying a problem will be employed which include walking across the shop floor, interactions with workers and supervisors etc.

- **Step 2: Finding the cause of problem**

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The second step in implementation is to explore the cause of problem that was identified during the first step. Exploring the cause of problem basically highlights more space utilization of the store and no proper data of workers. According to the nature of identified problem following manufacturing Tools will be implemented:

1. FIFO
2. Checksheet
3. PDCA

- **Step 3: Decision**

As we knew the cause of the problem, we decided to implement three manufacturing tools to solve the problem regarding more storage utilisation and improper data by using three manufacturing tools i.e. FIFO, Checksheet, PDCA

- **Step 4: Implementing first tool (FIFO)**

After deciding the tools to be implemented FIFO stands for First-In First-Out. It is a stock rotation system used for raw material storage. Put raw material which are old at the front and place new raw material at the back or other rack. By using a FIFO raw material system, ensure that the old material is use used first. FIFO maximizes freshness and minimizes waste. Implementation of first tool (First in First out) will be carried out in following steps:

1. Locate products with the use-by dates.
2. Remove items that are damaged.
3. Place old material with at the front.
4. Stock new items behind the front stock; those with the latest dates should be at the back.
5. Use stock at the front first

- **Step 5: Implementation of second tool (Checksheet)**

To collect proper data regarding workers and defects in product checksheet is made

Steps to use checksheet

1. Indentify the question.
2. Identify the potential problem areas.
3. Track the problems.
4. Record the problem.
5. Implement the check sheet

- **Step 6: Implementation of third tool (PDCA)**

Plan Do Check Act(PDCA) is a framework that provides a methodical approach to problem solving and continuous improvement.

1. Steps to implement PDCA
2. identify the problem
3. identify the root cause of the problem
4. select appropriate countermeasure

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5. implement countermeasure
6. study the results
7. standardize and plan continuous improvement.

Fig 1. Upper and lower punch for round capsule

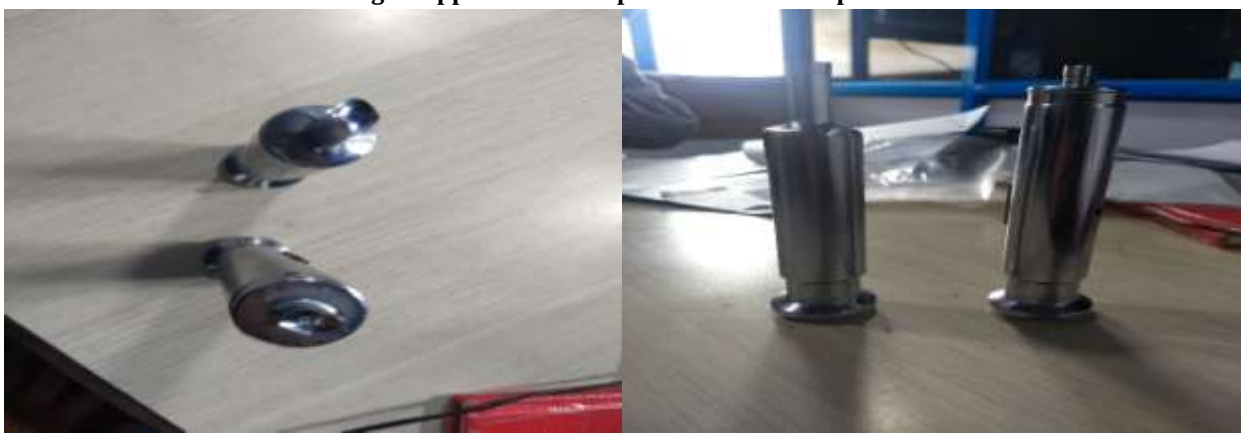

Fig 2. Upper and lower punch for shape capsule

Fig 3. FIFO sheet

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Fig 4. Checksheet

IV. CONCLUSION

The literature represented in this study describes the importance in the field of production. The most efficient alternative in terms of time and money to solve problems and improve the system FIFO is making periodical storage systematization. The storage systematization is done periodically based on the popularity of the product. so that the high frequency material is placed on the front and the low frequency one is placed on the back of the storage system. The implementation of the check sheet helps in collecting the data of the workers performing on shop floor which increases productivity and interests of the worker towards the work. In general terms, it is concluded that the PDCA cycle is a tool that facilitates the detection of improvement opportunities, as well as the development and implementation of the same in lean manufacturing projects. Thus, after carrying out stepwise implementation of manufacturing tools in the company, remarkable improvements in productivity, reduction in lead time, reduction in inventories can be achieved thereby increasing the profit to the company.

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