Chapter 16
The Set-Up Process

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ABSTRACT

To prepare the machines to make the product that client needs and to give him the product in the necessary moment is the objective of all companies. This means to have all machines prepared to make the product, it means that the productive system has not problems to make the product and this complies the quality standards. To have prepared the machines to make a product at some point it is the objective of set-up process. If this process is correct performed, the machines will make the product without problems, but if the set-up process is not performed in correct way, then the posterior productive step will have many problems. Perhaps, the set-up process is the more important productivity activity. The time necessary to perform the set-up process is the parameter to minimize, with the process cost, and this time says the flexibility level of the productive process of the factory.

INTRODUCTION

The Management has defined production activity in various ways, often depending on the type of business involved. Bueno Jauregui (1991) defined it as “The transformation of some initial goods in other final goods, consumer goods, which are best suited to satisfy certain needs.” However, and although all definitions look similar, since it is your goal; what it does them different is the transformation type is performed on the initial goods. However, perhaps the definition that has been used Shingo (1985) is the best to apply to any kind of productive activity: “Production is a network of processes and operations, phenomena that are arranged along two axes intersect.”

However, all definitions have a common basis that it explains the production as a set of processes and operations located in space and time, they can transform raw materials in new products to satisfy some specific needs. The definition of Shingo (1985). previously required two concepts that go into its definition are identified: Process and Operations. Shingo (1985) defined the process as the flow of
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all actions to transform raw materials in new different products, and the operations are specific actions during the processes.

In general, in any productivity process there are a set of parallel activities, previous and subsequent to the production process that they will complement it or they will allow it to make the new product and they will affect to its cost. Activities such as:

1. The receipt and storage of raw materials to be used in the production process. Storage, both after receipt from the supplier and the temporary storage prior to use in the production process.
2. The raw materials transport from the warehouse to the machine, to be used during the process.
3. Inspections of raw materials and intermediate products, to determine the suitability of such materials, and to determine the evolution of the process. Also, inspections of manufactured products, ready to send the final client to ensure that the process has developed the product to be manufactured for him.
4. The storage of processed products, and their subsequent shipment to clients.
5. The stops to resolve faults and perform machine maintenance.
6. Preparation of machines to make in them the product to be manufactured.
7. The management of orders and the production management.
8. Etc.

Business Management, initially oriented only to the process and manufacture management of a product to be delivered to the client demand, had to adapt to the new demands he will demand. These requirements not only they are referred to the management of a product with a low-cost, but it has others connotations:

- A product of high quality.
- The delivery of the product within the agreed period.
- A product made from socially acceptable constraints: clean process safe for worker’s productive process without the use of illegal labor.

For this reason, the current Management is not only focused on offering a product for a particular market, but to offer a range of products that will satisfy the desires of potential clients. For this it is necessary that the production means are ready to perform its function at the right time and when the client demands it. This group of activities to prepare the machines or production lines, to make in them certain products, has been denominated set-up operations.

The set-up operations are defined as all activities that are performed on a machine or production lines to adapt, to a new productivity process. And, the set-up time is defined as the necessary time to prepare the machines or the production line.

This process has a triple value. On the one hand, it allows to modify a machine to process in it different goods. And So, we can consider the set-up process as the parameter to evaluate the response capacity of the production system to market needs; hence their time permits evaluate the flexibility of the productivity process. On the other hand, the set-up cost will shape the economic lot, defined as the amount that it’s necessary to produce to minimize the sum of the costs of storage and the preparation of the machines.
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