

On Continuous Improvement in Manufacturing

Have you been hired as a Continuous Improvement leader and don't know where to start? Don't worry, here I offer you some advice on how you can begin to generate impact and consolidate your new position.

Purpose of Continuous Improvement

Most companies use this position as a generator of savings projects, using metrics focused on savings, the number of projects and, if you are lucky, how many improvement workshops (kaizen) are scheduled per month. Although this satisfies the budgetary part of the business, it falls very short of the real goal of the lean manufacturing professional, which is to seek to generate the value expected by the customer, in the shortest possible time and with the least amount of waste, taking advantage of the contributions of all collaborators, respecting their ideas and input.

As you can see, in this definition there is really no mention of monetary savings, although these are implicit when seeking the elimination or reduction of waste in the value chain. I must note, on the other hand, that in my definition I mention the contributions and respect we must have for our collaborators. In the Shingo model of operational excellence, respect for collaborators is part of the guiding principles upon which the behaviors that eventually allow us to reach operational excellence are based. I advise you to review this model in detail for a better understanding in this regard. Here is the link for their website: <https://shingo.org/>

Creating the Value Stream Map

Thus, the first thing to do is review (or creation) of the value stream map of the manufacturing process. This map must be a collaborative exercise with the different areas, guided by the Continuous Improvement leader. The purpose is not only to have a graphic representation of the manufacturing process, but to discover all those steps where one or more types of waste are observable.

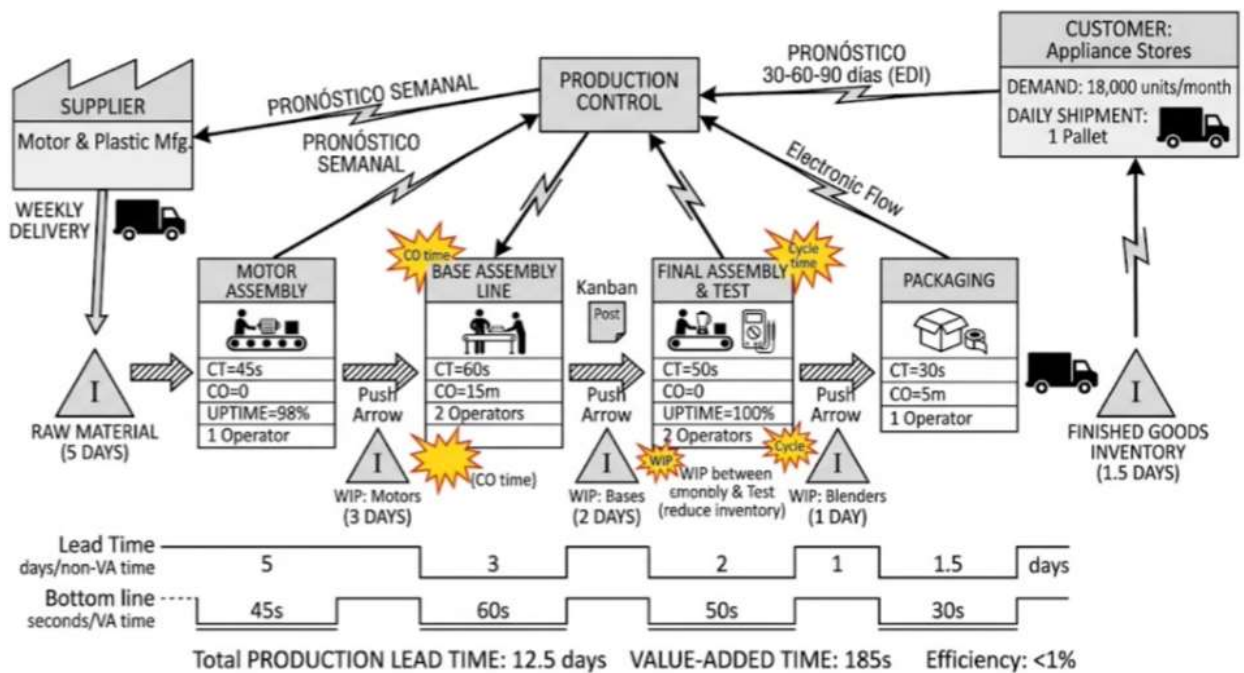
Surely, as it is being built, there may be many easily observable and equally easily eliminable waste; this is the famous "low hanging fruit" that we can take advantage of to start creating the impact required by senior management. Typically, the famous "hidden factory" will appear in one or more steps of your processes, giving you another area to start your work for the application of lean manufacturing tools:

- **5S** – Establishing order and cleanliness as the basis for continuous improvement.
- **Kanban** – Visual control of material flow, through a material pull system.
- **SMED** – Fast model changes.

- **Kaizen** – Continuous improvement workshop.

Once you have the value stream map, in its first version, which is called the "current state," you must be able to identify all the bottlenecks for the "value" expected by the customer (not to be confused with the process bottleneck, i.e., the pacemaker process). Remember that "value" must be defined from the customer's point of view, not the company. Therefore, you must identify where activities that do not add "value" are being performed and where you are having activities that "delay" the flow of value.

Now, the next step is to create the "future state" of your value stream, indicating the improvements you plan to make (eliminating the identified wastes) and in which steps you are going to implement them. Generally, these points are identified as "kaizen bursts" to indicate where work will be done. In the end, your map should look as shown below:



Here you can see, in the lower part of the illustration, the real metrics of continuous improvement: the production time (12.5 days) and the value-added time (185 seconds). Improving these times is really the focus of the continuous improvement professional. Take note that, at no point, are costs or savings mentioned in the value stream map. What do you think about that?

Kaizen Workshops

The next step is to create a calendar to order how you are going to carry out the improvement workshops (kaizen workshops) to attack each of the identified opportunities. This will allow those involved to plan their activities to be able to focus on these workshops when they are

scheduled. Remember that you need 100% participation from them; therefore, having a schedule is essential so they can plan their time.

I recommend planning at least one week to carry out these improvement workshops, and you can divide them as follows:

- **Monday:** Confirm participants, observation of the problem to be solved, and identification of the tools to be used.
- **Tuesday:** Training of participants in the tools, brainstorming to generate possible solutions.
- **Wednesday:** Implementation of the solutions.
- **Thursday:** Implementation of solutions, confirmation of impact.
- **Friday:** Closing of the activity, presentation to senior management, including observation of the implemented improvement, celebration with the team.

A key point: translate the impact of the improvement into money. This is the best way to maintain senior management's support for Continuous Improvement activities and satisfy the usual metrics (savings).

Respect for Collaborators

It is of utmost importance that the list of participants includes personnel who work directly in the area where the workshop will take place. Implementing "improvements" without their participation is simply a waste of time, as they are the ones who have the best knowledge of the problem, the factors that promote the problem, and surely have ideas on how to eliminate them. Using these ideas is vital to ensure that the final solution will be robust and sustainable. Moreover, not using these ideas is what constitutes the "8th" waste that has been added to the seven defined by Taiichi Ohno.

If you follow these points, you will be able to have projects that are easy to carry out, with immediate impact, and a plan for high-impact projects, identified through a value stream map, which will also promote the knowledge of the tools to the plant's collaborators.