



or a production area, reduction of lead times or improvement of administrative processes. The map can be developed on the macro (big picture) or on the micro level (a part only).

Depending on the goal, a team will be established consisting of value-stream-trained engineers, operators and, maybe, employees from shipping, administration or purchasing.

Once the focus area is set, the team starts counting parts, mapping process steps, measuring cycle- and change-over times and interviewing operators.

In macro mapping, the team looks at the entire stream of the order, starting with the customer transmitting the order and ending with receiving of the good. In micro mapping, the team is focused on processes directly linked to a part or part family. This reduces the complexity but allows the team to get more into details.

All such tasks as counting and measuring can be done independently, and are therefore easy to manage by the team leader. But it is very important to stay focused and not get lost in details. The drawing can either be made by hand or on the computer. However, it is efficient to draw a draft by hand during data gathering and create a computer graphic at the end.

### Value stream as communication tool

The value-stream map now provides anybody with valuable information about the current state of the mapped process(es). Many companies using the process realized the advantage of having a map as discussion basis a long time ago and developed their own rules and templates to create a process flow map. Many of these systems even show significant advantages over value-stream mapping. However, the advantage of value-stream mapping is its standardization over all industries.

Having similar mapping principles, as well as one terminology, improve internal and external communication significantly. New employees, suppliers, consultants and managers can now understand your processes in a short time and will more easily understand follow-up conversations and meetings.

Constraints discussed in those meetings can now be pinpointed, and targets can be defined and visualized on the map allowing managers to follow up the improvement progress.

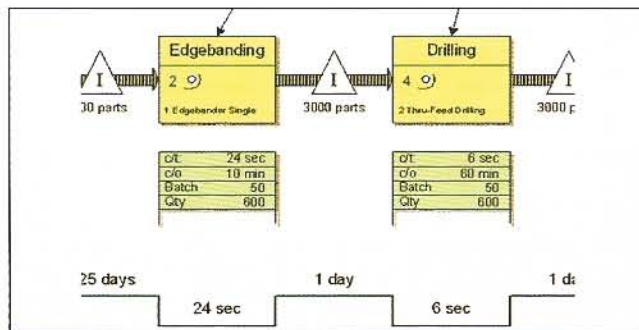


Figure 2

This figure visualizes a detail of a process typical in a woodworking plant. A part arrives from a previous working step - cutting - and gets edgebanded and drilled. Inventory builds up between all the working stations. Skilled value-stream mappers see instantly why inventory has to build up. The different cycle times of the process steps result in waiting queues in front of the machines and make continuous flow impossible.

A reduction of the lead time and WIP by decreasing batch sizes seems impossible because of the high changeover time on the drilling machine. Also, both working stations are working from a production list - often a push system, instead of a lean, pull system.

The improvement team can now agree on reducing set-up times as a first step toward improving the WIP situation. Such activities as Kaizen events can be scheduled and marked on the value-stream with a lightning burst. Also, the target can be used to develop the current status. Reducing changeover times on the machines always seems to be the ultimate method to improve processes.

Often, lean training aids conclude by recommending the reduction of changeover times. There certainly is a lot of potential, but we have to understand it is difficult or impossible to reduce changeover to zero while still maintaining efficiency, accuracy and safety - especially without big investments. Experience shows in Figure 2 that the team should be able to reduce changeover to 30 minutes without any investment.

### Taking Advantage of the benefits

To implement value stream mapping, it may take time and money to train the people and create a working basis. It is important to have management's full support. Management has to understand the tool and its advantages. However, once implemented value-stream mapping aids competition. These results were achieved in companies in the wood and panel processing industry:

- 70-85 percent WIP reduction
- 50-65 percent lead-time reduction
- 30-40 percent quality improvement
- 60-75 percent productivity improvement
- 40-50 percent floor space utilization improvement

For all production difficulties, the advantages of value stream mapping as visualization tool for improved communication or as management tool are obvious. That is the reason, why for more and more companies, this tool becomes a standard and is used on a daily basis as part of their lean journey.

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