

# Problem, or competitive edge?

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## Lead times

There could be many reasons to take a closer look at your lead times. Perhaps you have lost potential orders, or become aware that someone else is filling orders faster. Maybe you would like to enter a segment of the market not open to long lead times. There are many available options for improving lead times, and which one you choose depends largely on the market and the product you produce. The first thing to consider is your manufacturing model. Producing into finished-goods inventory is a viable solution if you have a very narrow product line, a reliable volume forecast and a high, but reliable, seasonal fluctuation of volume. Producing into component stock and assembly-to-order allows for shorter lead times than producing from scratch, but this model only works when you have a product line based on strict standardization with a stable and reliable forecast. The third option is to produce from scratch. Most manufacturers in our industry are faced with this decision. There are, of course, combinations of the above models. For instance, you could produce from scratch, but keep a stock of frequently used parts.

Having minimized your lead time by selecting the right model, you should next look for ways to get more out of it.

There are a few misconceptions about how to achieve a faster factory through-put time. Working faster is one way of doing it. However, this is not a method that sustains shorter lead times. One of the most commonly suggested solutions is to combine orders into bigger batches. Bigger batches boost productivity, and, with the higher productivity, you push production through the factory faster. You may get more volume through production, but your factory through-put time is increasing. Once again, this does not lead to improved lead times.

Consider the problem from another point of view. If you produce cabinets, the average labour content is 2.5 hours per cabinet with a lead time of two weeks. So, if the work is done consecutively, only 2.5 hours of work is spent on the product. What happens to the other 77.5 hours in the two weeks? In this example, the product is waiting for 96 percent of the time. If you combine into bigger batches, the product must wait until all of the the bigger batch has moved through one operation before it can move to the next operation. This demonstrates, in a very simplified way, that combining orders into bigger batches actually increases the factory through-put time.

Sustainable lead-time reduction comes from being able to reduce your batch sizes. However, if you reduce the batch sizes alone, you loose on productivity because of the more frequent set-ups spread over smaller orders. Batch sizes can only be reduced if you can manage to reduce your set-up times. This means more flexible machines, for one thing.

There are many tools in the Lean toolbox that can help you. Single Minute Exchange Dies (SMED) are a systematic and practical approach to reducing set-up time. One-piece flow, cellular manufacturing and value-stream mapping can help you to find the right solution to work towards faster through-put.

Another, often forgotten, method to reduce factory through-put is to increase the operating hours of the factory. To gain a complete picture, we need to consider this factor. Theoretically, when your through-put time is 80 hours, you can achieve this in approximately two weeks of single-shift operation. On the other hand, if you operate in a complete, two-shift operation, the through-put time is approximately cut in half. Of course, there are other issues with running on multiple shifts.

Shorter factory through-put times allow you to be more competitive and to open new markets. It might even allow you to sustain better pricing. Shorter through-put time reduces space requirements, reduces inventory cost, and reduces the management cost of your operation.

With a list of benefits this long, what are the costs? There is, of course, newer and more flexible equipment, as well as computer integration. A lot of these improvements can be made with existing and basic equipment. The most important component is difficult to purchase; it is strategy and organization. These have to be tailor-made for each organization.

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