Avoiding Common Pitfalls of Value-Stream Mapping

In 1997 I co-authored the book *Learning to See* with my colleague John Shook. Our goal was to help people on the lean path widen their perspectives from a then pervasive and limited focus on process-level improvement to the overall flow, or value stream. After years of improving individual processes it was the right time to also start thinking about tying those processes together and improving the flow from dock to dock.

The value-stream perspective represents a shift from traditional vertical thinking to horizontal thinking. This means looking across the silos of individual functions and departments to connect activities in the stream of value flowing from suppliers through the organization, and on to customers. In other words, looking at overall flow means also looking at system efficiency rather than at only the point efficiency of individual elements in your organization.

While our book has helped many thousands of people expand their perspectives -- it has even been translated into 15 languages -- any publication is subject to various interpretations by its readers, which can lead to some pitfalls. Here is a look at some we have observed, and how you can avoid them:

Some readers appear to think that value stream mapping is in itself a goal. They tell us, "We are drawing maps of all our value streams!" This may lead to a better understanding of your flows, but not necessarily to any measurable improvement. Improvement comes from trying to take steps toward a target condition; a condition that goes beyond what is possible today. Value stream mapping can be a useful tool in this pursuit, yet it is still only a tool, not the actual improvement itself.

Instead of mapping everything and expecting good things to happen, it is more effective to start by improving one value-adding process in a value stream -- typically the assembly process -- with rapid PDCA cycles. Then progressively migrate into more of the value stream and support functions <u>as is necessary</u> to be able to further improve that assembly process. This way you will always be working on what you need to be working on.

In this sense there are two general categories of mapping:

1. A rapid walk through, or scan, and sketch of a value stream (say in one day or less) in order to get oriented before you deep dive into one value-adding process as described above.

2. A detailed analysis and future-state design, typically two to three years out, in order to drive several shorter-term improvement projects that will ultimately link together. These sorts of maps take more time to prepare and become increasingly useful as you migrate from assembly into the value stream.

Generally I tend to begin with a scanning map as described in 1 above, because otherwise you easily get into too much information and end up staying at too much of a surface level.

Stay at a 50-ft. altitude the first few times you walk through a dock-to-dock flow.
If you immediately get into to a very detailed level of analysis at every process you encounter you'll lose the overall flow perspective. Instead, begin by walking through at a "high altitude," and then progressively drop down to add detail as necessary on successive walk-throughs. The first walk-through may only take an hour and will result in just a rough sketch of the current-state flow. (Sometimes I tell mappers that during their first walk-through they may walk faster or slower, but they are not allowed to stop moving.)

Avoid an overemphasis on tallying inventory.
Lead time is a great metric, and you should strive to reduce it. (Note that outsourcing lead time does not equal reducing it.) It is fun -- like a scavenger hunt -- to find and tally inventory accumulations and useful to use this data to estimate the lead time from dock to dock. But don't let this become more important than understanding why the inventory is there.

Inventory accumulations tell you where the flow of value has to be interrupted because of process problems. When you find such breaks in the flow a good question to ask is, "What is causing us to hold this much inventory here?" Inventory is always there for a reason. Go after the reasons.

Don't reach too far out into the future.
If you have drawn more than about six kaizen lightning bursts on a future state map you are probably getting ahead of yourself. Instead, sketch out where you would like to be in two or three years to give a sense of direction. Then draw up a target condition anywhere from a few weeks to no more than 12 months out; depending on your level of improvement experience and capacity. As you work toward this target condition step-by-step you will gain experience and insights that will influence the next target condition you set for yourself.

Continuous improvement requires the challenge of target conditions.
Mapping helps you see the big picture, but you also always need a specific, measureable and challenging target condition for any process that you want to improve. With that defined you can ask yourself two elegant questions: (1) "What is preventing us from achieving the target condition at this process?", and (2) "What is our next step for moving toward the target condition?"

Roll up your sleeves, observe the process carefully to understand the causes of the problem, get creative, and use PDCA (trial and error) to develop solutions, one problem at a time. If you hold fast to your target condition and keep asking

those two questions you can find solutions that you once thought impossible. This, in a general sense, is how Toyota moves forward.

And once a target condition at a process is achieved you need a next target condition, or else continuous improvement will stop and performance will tend to slip back.

So I wish you and your team some interesting challenges, at both the process and system levels.

About the author
Mike Rother is the co-author of two groundbreaking LEI workbooks, *Learning to See: value-stream mapping to add value and eliminate muda*, which received a Shingo Research Prize in 1999 and *Creating Continuous Flow: an action guide for managers, engineers and production associates*, which received a Shingo prize in 2003. He co-developed the accompanying "Training to See" kit that teaches facilitators how to run value-stream mapping workshops. Mike studies Toyota and is affiliated with the University of Michigan Department of Industrial and Operations Engineering and the Lean Management Institute in Aachen, Germany. Mike began his career with the manufacturing division of Thyssen AG in Germany. He lives in Ann Arbor, MI, and Cologne, Germany.