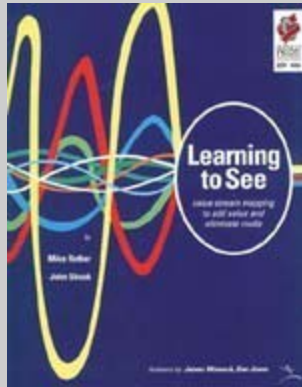


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**Learning to See:  
Value-Stream Mapping to  
Create Value and  
Eliminate Muda**

**Mike Rother and  
John Shook**

**The Lean Enterprise  
Institute, Ver. 1.3, 2003.  
\$50.00, 105 pages**

**Paul Harmon**

In the past two months, there have been several articles on BPTrends on the nature of process notation, especially notation suitable for use by business managers who aren't interested in automation. This discussion reminds us again of the fact that the business process improvement community is, in fact, made up of many different groups who pursue the general goal of process improvement in different ways.

One of those communities is the Lean community, which is made up of business process analysts that rely on workflow streamlining techniques originally developed at Toyota to improve business processes. Most process people associate Lean with the now classic book by James Womack, Daniel Jones, and Daniel Roos, *The Machine That Changed The World: The Story of Lean Production: How Japan's Secret Weapon in the Global Auto Wars Will Revolutionize Western Industry*, (Harper Perennial, 1990) an MIT study of the practices employed at Toyota.

In the past couple of years many readers have probably begun to associate Lean with Six Sigma as most of the Six Sigma consultants have sought to expand their quality control approach by incorporating Lean workflow streamlining techniques into the Six Sigma curriculum. As the publication date of *The Machine That Changed The World* suggests, however, Lean has been an independent technology for well over a decade and has its own established methodologies and techniques and its own organizations and literature.

One group that has been promoting the Lean approach is the US is the Lean Enterprise Institute, a non-profit group that was founded by Dr. James Womack in 1997. ([www.lean.org](http://www.lean.org)) The Lean Enterprise Institute provides training courses and has published a series of books and workbooks to help analysts learn about specific Lean techniques.

Some Lean gurus divide lean into two broad concerns, which this book terms "Flow Kaizen" and "Process Kaizen." In essence, Flow Kaizen focuses on improving the flow of the high-level value stream while Process Kaizen is focused on the elimination of waste. As a further generalization, Flow Kaizen is the concern of senior management while Process Kaizen is the responsibility of the line workers.

The chief tool of the Flow Kaizen practitioner is a high-level diagramming technique called Value-Stream Mapping. Womack and Jones complain in their Foreword that too many Lean practitioners skip value stream analysis and jump right to identifying specific sources of waste and removing them. Unfortunately, as they note, this often results in local improvements, but rarely results in significant overall improvements in the overall value stream or in improved products for customers. To really have an impact, you need to begin by streamlining the entire value stream, and only after that, drill down into specific processes to eliminate waste. *Learning to See* is a book designed to provide analysts with the skills they need to undertake Flow Kaizen.



*Learning to See: Value-Stream Mapping to Create Value and Eliminate Muda*, is a workbook written by Mike Rother and John Shook, with a Foreword by Jim Womack and Dan Jones. In this case the workbook is designed to teach people to do Value-Stream Mapping. The workbook starts with an explanation of the technique, then offers exercises to help the reader learn how to create his or her own Value-Stream Maps. The table of contents is straight forward:

- Foreword
- Introduction
- Part I: Getting Started
  - What is Value-Stream Mapping?
  - Material and Information Flow
  - Select a Product Family
  - The Value-Stream Manager
  - Using the Mapping Tool
- Part II: The Current-State Map
  - Drawing the Current-State Map
  - Your Turn
- Part III: What Makes a Value Stream Lean?
  - Overproduction
  - Characteristics of a Lean Value Stream
- Part IV: The Future-State Map
  - Drawing the Future-State Map
  - Your Turn
- Part V: Achieving the Future State
  - Breaking Implementation Into Steps
  - The Value-Stream Plan
  - Value-Stream Improvement is Management's Job
- Conclusion
- Appendices that provide data for exercises and definitions of icons.

A quick aside. When the authors refer to a tool, they refer to the mapping technique. They do not refer to software. Indeed, they go out of their way to say that software tools should not be used, since they distract managers from focusing on the work of developing a high-level map. Value-Stream Maps are to be developed with a pencil and paper. It helps, in the authors' opinion, to keep this a managerial "tool" and to keep the managers focused on developing a high-level overview.

### **Value-Stream Maps**

Figure 1 illustrates a Value-Stream Map. The first thing to notice is that it provides a view an entire Value Chain (which Lean practitioners usually refer to as a Product Line). In designing a Value-Stream Map, one begins at the upper right, with the customer (Distribution in Figure 1). The customer begins the process with weekly orders. In a similar way, the process ends with the Daily delivery of product to the customer. Thus, the Value-Stream Map shows a complete product cycle, from order to delivery.

The second thing to notice is that this is a very high-level view of processes. The entire value chain is broken into 8 subprocesses – represented by the bold boxes.



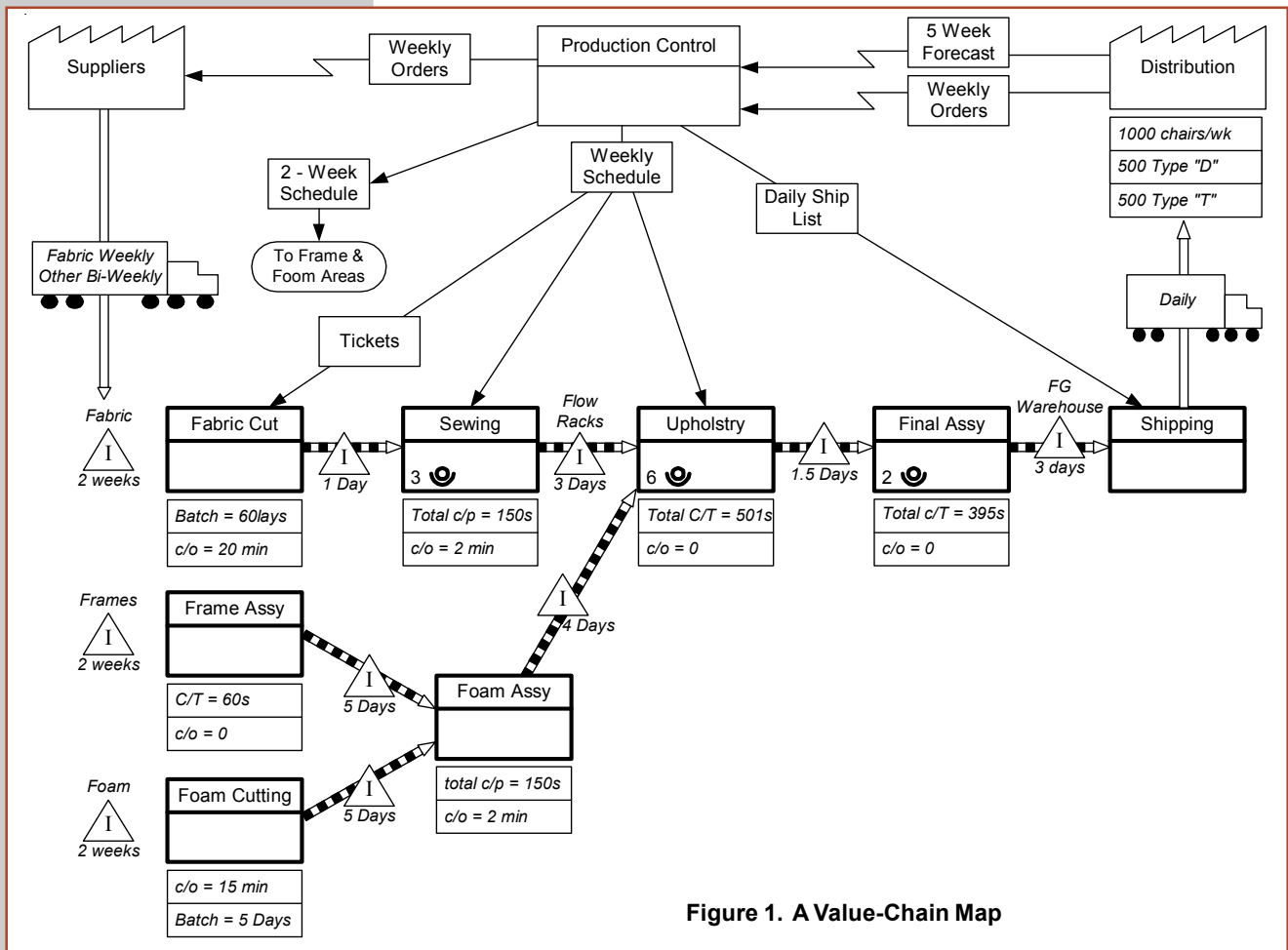


Figure 1. A Value-Chain Map

A Value-Stream Map tracks two different types of things. The bold boxes and the wide arrows track the flow of actual product. The thin arrows and boxes track the flow of information (orders, commands, decisions). In addition, there are symbols for customers and suppliers and transportation. The bold clear arrows indicate that the item is “pulled” by the upstream subprocess. In other words, the item is moved on demand. The bold, striped arrow indicates that the item is “pushed.” In this case the subprocess is a batch operation and forwards items in groups, as they are finished. This makes it almost impossible to establish a smooth flow, and Lean practitioners routinely focus on eliminating PUSH processes, replacing them, when possible with Just-In-Time processes. The straight, thin arrow indicates that information is passed between people, while the thin arrow with a kink in it represents an electronic information flow.

The pyramid with a box represents Inventory, and, in most cases, the Map shows what is stored and how long an item is in storage. In some cases icons are placed within the process boxes to indicate how many operators are involved in a process. Finally, beneath each subprocess box there is a secondary box that contains measurement information. In the map in Figure 1 there are, arbitrarily,



only two measures per subprocess (and two under the customer box), but there could just as well be more.

Although it isn't shown on this map, Value-Chain Maps often place time lines across the bottom that indicate how long product is worked on within each subprocess, and how long product takes to move between subprocesses. Similarly, there are a number of symbols that could be added to indicate where Kanban activities occur. (Kanban activities involve the systematic use of cards to help schedule and manage the flow of products.)

It's hard to imagine that anyone could work their way through *Learning to See* and not come away with the skills needed to do create a Value-Chain Map. The explanations are straight forward and the pace moves from one step to the next, providing exercises when they are needed. I'd strongly recommend this book to any Lean practitioner who wanted to learn how to develop a Value-Chain Map.

Non-Lean practitioners might want to read a more generic book on Lean, first, as an introduction, before reading this book. Like the Six Sigma folks, the Lean gurus are really into jargon. For example, the title suggests the book will help you eliminate "Muda." Unfortunately, the authors never bother to define this term – which context suggests is related to waste. (In fact, a quick check of a couple of other Lean books didn't result in a definition for "Muda," so I conclude that it's a piece of Lean jargon particular to the Lean Enterprise Institute. There are some other examples of this, which will frustrate some. In the end, however, I simply just ignored "Muda" and a few other terms like it, and don't think I missed much as a result. The basic concepts are clear enough and I am certainly able to draw Value-Stream Maps.

More important, I understand how Lean practitioners approach streamlining processes, and appreciate their emphasis on the importance of push and pull and continuous flow and will certainly incorporate those concepts in my own value chain work. As a result, I recommend this book without reservation to any business process analyst who wants a high-level overview of how to analyze and improve a manufacturing value chain. The book doesn't make any effort to suggest how to apply these concepts to service industries and the reader will probably find it a bit harder to see how some of these concepts will generalize, but it would probably be worth the effort to just study this approach and then think about how to generalize these ideas.

The Lean Enterprise Institute offers some other workbooks and I plan to delve into them in the near future. Meantime, if you want to learn about Lean value-stream improvement techniques or how to create Value-Stream Diagrams, this would be a very good place to start.

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Mike Rother and John Shook's book Learning to see is perhaps one of the most well known books on Value Stream Mapping. From Shook's time at Toyota, where he noticed the process being used, the book utilizes a series of workbook style examples to help take the reader through the construction process of a value stream map and how it is applied within a lean environment. Learning to see is so often cited by Lean practitioners that it has become a staple for anyone looking to start working with VSM and you'll certainly see consultants using it as a study guide. Learning to see. Learning to See... Learning to See, written by Mike Rother and John Shook, is the book to read for Value Stream design. In every Lean implementation, it is important to understand the current process design and the way the design influences the flow of products through the factory. After understanding the current state of production a structured approach is needed to get to an improved, future state of the value stream. Traditionally in value stream design, a team thinks of random improvements to reduce inventories or increase throughput, which can result in a lot of kaizen events which hardly really improve the