

Lean Distribution:  
Applying Lean manufacturing to Distribution, Logistics and Supply Chain

by Kirk D. Zylstra

*a review by Alan Briggs*

According to Mike Eskew, Chairman and CEO of United Parcel Service, in the ten years leading up to 2005, by increasing the efficiency of their supply chain, U.S. companies had reduced their business inventories by over 4.6 trillion dollars. This fact has played no small part in the amount of attention that UPS pays to its Supply Chain Solutions business unit as it has staked both its customers' and shareholders' futures on the emergent principle that modern distribution is brimming with inefficiency. Despite their notoriously low margins, logistics operations and supply chains are veritable oases of opportunities to reduce waste. As a management employee of UPS, I have been indoctrinated to believe in these opportunities. For this reason, Kirk Zylstra's *Lean Distribution* appealed to me immediately.

At \$48, the book was overpriced, but I know Mr. Zylstra was not counting on making the New York Times Bestsellers' list. Much to my wife's chagrin, I purchased the book, and I expect to keep it as part of my personal library. There is not a subject or topic that more appropriately addresses both my occupational and my academic career to this point.

*Lean Distribution* is extremely well organized and begins with a high-level vision of how the author intends the book to be used. Although he points out that each chapter need not necessarily be taken in context, he admonishes that "covering all [perspectives] is important to ensure that [they] are well understood prior to designing the Lean solution." This particular idea is a fundamental principle of Lean, and by including in the first chapter, Mr. Zylstra establishes a firm lean footing for his succeeding text. Throughout the book, it is evident that the Lean points submitted are not altogether novel, but that they are merely alternative interpretations and applications of conventional Lean wisdom.

The opening four chapters are designed to provide a context and background for Lean practices. Mr. Zylstra briefly introduces what he calls the *lean framework*, and returns later in more detail. The initial chapters are really a collection of current trends or issues which should induce a logistics manager to consider the Lean approach. One issue which is particularly compelling is the use of radio frequency identification (RFID) in logistics environments. Some suggest that RFID technology will be the next big thing in logistics, due to its seemingly endless tracking abilities. However, Mr. Zylstra takes a more contrarian view. He agrees that there is value in RFID; but, he contends that this value is in the supply chain and cannot necessarily be passed on to consumers. This is congruent with the commonly held lean principle that value is determined by the consumer.

To provide context for Lean implementation, the author discusses an optimization framework. Within this framework, there are three critical components: structuring and optimization of the network; design and automation of the processes; and the operation of processes and network. Given that most distribution networks are well established, the structure

and optimize phase is typically excluded. The problem with omitting this preliminary step is that organizations get far beyond their initial structuring, and without periodic review, their structure may no longer serve their needs. It is therefore important to periodically review how the distribution network is structured, and ensure that it continues to be optimal for the current needs. Another important consideration is the structure of the assets themselves. Mr. Zylstra uses a 2 x 2 matrix to plot number of locations against ownership. This offers an excellent illustration of four common asset structures. From top to bottom and left to right there are outsourcers, owners, concentrators and operators—each yielding different strengths and weaknesses.

Returning to the lean framework, Mr. Zystra states that “the *Lean Distribution* framework provides a comprehensive and cross-industry guide to the Lean journey”—journey being another important reference to a fundamental lean principle. He goes on to say: “[the framework] starts with the business trends and drivers leading to the need for new approaches in distribution and then uses customer service expectations to initiate the Lean design.” In effect, there are five important parts to consider. At the base, providing the foundation for lean improvement are the lean capabilities: pull replenishment, summing demand, etc. Following are three steps to assist in the transition from conventional-operation to lean-operation: a buffer strategy, replenishment and the pull approach. Capping it all off is an emphasis on customer service.

A distribution requirements planning (DRP) system can be dramatically improved by applying a few simple Lean principles. Traditional DRP systems begin with customer forecasts, customer orders, inventories and various other planning parameters. The idea is that these are programmed into a system and then used to execute an ordering system. Although such a system allows for modifications to be made, the system is designed to run autonomously, placing orders as specified and then asking for approval to go above and beyond. It is good that such a system is designed to increase its orders to keep up with demand, but Lean as a system is equally interested in slowing down an ordering system to meet demand. Surplus, being a waste, should be continually eliminated. Therefore, applying a lean approach to a DRP would include parameters to allow replenishment based on pull—pull being one of the critical elements of a just-in-time system. Additionally, a Lean DRP might utilize safety stock as buffer inventories to accommodate variability.

Customer service is considered to be the cornerstone to implementing Lean in a logistics environment. More specifically, the author references having a strong customer service policy. Though he does not say so specifically, this is an illustration of *hoshin*. He states: “an explicit service policy that describes customers’ operations and service processes is necessary for the organization to understand and provide excellent service.” Additionally, Mr. Zystra recommends that customers are broken down into another 2 x 2 matrix, plotting strength of linkage against demand stability. From top to bottom and left to right, there are collaborators, partners, planners and buyers. They each have their own strengths—principle among them—“their ‘will’ to make the supply chain better.”

The author discusses many well-known Lean principles. Although some take a different form or title (DRP), many of them could be excerpts from a book about Lean manufacturing (*hoshin*, pull, JIT). Moreover, citing that the book should be taken as a whole, Mr. Zylstra pays

tribute to the fact that Lean is a journey, and not a destination. I find that although many books claim that Lean methods can be applied across industries and disciplines, very few give practical examples outside of traditional manufacturing. To that end, anyone wishing to learn about logistics, supply chain management and distribution, and more specifically, implementing complementary Lean solutions, this book will serve that purpose quite well.