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## Achieving a Green Supply Chain through Lean Manufacturing

*Phil Friedman -- Supply Chain Management Review, 4/10/2008 10:54:00 AM*

With growing media attention, increased consumer awareness, additional regulatory scrutiny and the growing consensus within the scientific community on the link between human activity and climate change, issues focusing on environmental and social responsibility are not a fad, but a core business issue for manufacturers.

To be successful, it is imperative that suppliers throughout the supply chain view sustainability as a core business strategy. Establishing initial goals for manufacturing efficiencies, including maximizing machine and material utilization, and of course reducing waste and then creating a continuous improvement program is the cornerstone for reaching both a green and efficient supply chain. Companies must take a top-down approach and have their leadership committed to sustainability targets. For companies that do not begin to implement sustainability initiatives on their own, they will soon find it being required of them by shareholders, retailers, federal and state agencies and most of all the consumers.

### ***Does my supply chain need to change?***

Manufacturers and their partners must ask themselves a series of questions to determine where they can improve operational effectiveness and resource (materials and natural) across their supply chain and the benefits they will see. These questions will help determine if technology can make their company more sustainable and lead them down the path to make the decision that best meets their business needs. These questions are:

- Where should I place my emphasis and commitment?
- I know I have to leverage my manufacturing capabilities and processes, but how do I reduce material requirements?
- Can I reduce waste by improving material utilization and machine effectiveness?
- Can I improve my transportation planning?
- Can I redesign packaging to maintain content levels, but lower the dimensions, weight and use of resin-based materials?
- Once I reach my target point can I still have continuous improvement?

According to a recent report from the Grocery Manufacturers Association internal drivers such as cost reduction, commodity risk management, and upholding corporate culture are factors driving sustainability for many consumer manufacturing companies.

Other manufacturers are feeling the pressure from their retailers. Wal-Mart, a trend-setter in the retail industry, has raised the bar for itself and its partners by setting waste reduction goals across its supply chain. Wal-Mart CEO, Lee Scott, who spoke at the Twenty First Century Leadership conference on October 24, 2005, said, "Being a good steward of the environment and in our communities, and being an efficient and profitable business, are not mutually exclusive. In fact they are one in the same."

It is this attitude of looking beyond a company's four walls to find ways to reduce waste and create a more efficient process that will allow manufacturers to truly go green and make a difference to the environment while reducing material costs

The reduction in material utilization and reducing waste is at times overlooked or its importance minimized in determining the benefits of a sustainability program. For typical consumer goods manufacturing two percent reduction in waste coupled with a 3 percent improvement in direct material can add drive up to 1 percent additional profit to the bottom line. Given a typical multiple for these industries it is feasible to see a stock jump of \$1/share or more. Truly a win-win situation

### ***We're committed, but now what?***

Manufacturers and their customers are realizing that improving production processes reduces use of valuable and expensive resources. That technology can lead to better utilization and reduction of transportation costs, plus reducing carbon emissions and fluke consumptions and even help reduce product packing with can lead to more shelf space.

Inefficient production planning and routing of transportation units can lead to enormous amounts of wasted fuel and time. For instance, optimizing routing and maximizing both front loading and return deliveries translates into a direct reduction of fuel consumption and carbon dioxide emissions. Additionally, if we are able to tightly couple product development with packaging design, a 20 percent reduction in packaging for dry goods can result in a significant addition to desired shelf space without brick and mortar. Again, all of this leads to more products sold and a stronger bottom line.

But going green doesn't mean you have to spend a lot of green on new products or solutions. One way to create a sustainable supply chain is through collaboration with each of your trading partners. Companies can get more return on their green initiatives if they involve their partners and examine the entire upstream and downstream supply chain—not just their part. When companies begin to look outside their four walls and collaborate with their partners, they will see an even stronger supply chain that is friendly to the environment.

The Grocery Manufacturers Association has identified four enablers for a successful supply chain; strategic collaborative alignment, governance, continued process improvement, and operational effectiveness and efficiency. These four enablers will benefit partners throughout the supply chain and allow companies to reduce waste and better utilize existing resources.

Strategic collaborative alignment and operation integration are the two areas companies should focus on first. When companies focus on collaboration and integration they can bring their partners on board to create a cohesive green strategy that streamlines multiple aspects of the supply chain from materials management to transportation management to product management. These strategies will support the processes that will create the foundation of their program and will help the company drive continued improvement.

Collaboration must also take on a new face, and that is collaboration with their consumers. In many case green may mean more concentrated product in smaller packaging or even increased prices. Manufacturers must create an awareness program that ensures consumers feel that they are getting value for cost while supporting green.

### Going Lean – Putting Your Supply Chain on a Green Diet

While it can be simple to create a game plan that includes your partners, it's not always as easy as flipping a switch and becoming green. Companies are challenged with finding ways to facilitate better communication and create streamlined manufacturing processes that don't slow down current production or add additional cost to the final product. One way for consumer-based manufacturing companies to enable sustainability across all the various processes in their organization is to implement lean manufacturing. The underlying principles of lean manufacturing are to build effectiveness and efficiency across the entire supply chain and help companies maintain success through continued process improvement.

Lean manufacturing can help identify overall requirements and align need to capacity. This will ensure production lines are optimized, maximizing energy and raw product utilization. Lean manufacturing also can provide consumer companies with the ability to tightly align packaging material to specific production events or promotional campaigns. This will result in more efficient use of materials, reduce waste and improve line and machine utilization.

Implementing a lean manufacturing solution provides the tools needed to support enhanced supplier and retailer collaboration, ensuring the right product is made at the right place at the right time. And it provides the ability to reduce short run times, which adds valuable production cycle capabilities, and better utilization of natural resources while reducing expenses. The ability to make many products while shipping only once can significantly improve truck utilization and reduce fuel and other related costs while reducing carbon gas emissions.

In addition, the use of a transportation system in conjunction with a lean manufacturing strategy allows alignment with key shippers and the generation of global regulator documents. This ensures that direct and indirect materials arrive on time and at the right locations reducing lost potential spoilage and improving manufacturing effectiveness and efficiency.

And finally, a lean manufacturing solution ensures that plants, lines and machines are running at peak efficiency. This is a key component of enabling sustainability. It also ensures spare parts are aligned with product management initiatives, product management requirements are flagged when required, and that repair downtime is minimized.

### Lean, Mean and Green

The factors that drive green manufacturing will only increase as companies are further pressured to be good environmental stewards and asked to do their part to keep the planet healthy. Companies who implement lean solutions will not only meet the green demands of their consumers and board members, but they will also see a benefit on their bottom line as they reduce waste and create a more efficient supply chain.

Partners will be more apt to work with companies who are embracing lean technology as the benefits will impact their businesses. In addition, they are able to create and receive finished products faster and for less money.

While the issue of sustainability continues to mature and evolve in the consumer industry, companies looking to take a leadership position and enhance their business advantages can get started by implementing lean manufacturing solutions that are ideal at addressing the many aspects of meeting their sustainability targets.

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