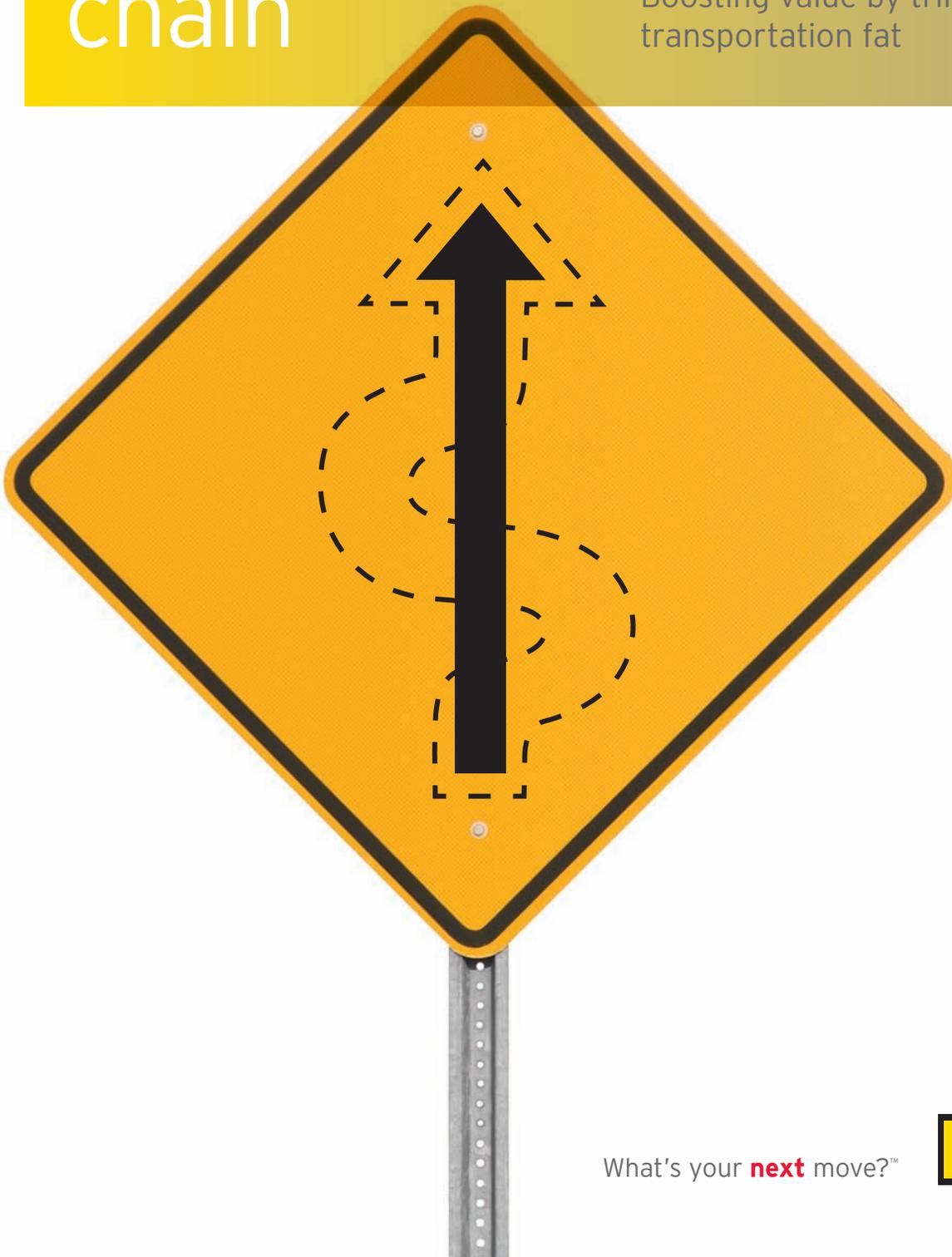


WHITE PAPER

# A leaner supply chain

Boosting value by trimming transportation fat



What's your **next** move?™



## **A leaner supply chain:** Boosting value by trimming transportation fat

### **The approach in brief**

Supply chains are inherently complex and interconnected. And the greater the number of products produced or destinations for goods, the greater the potential for complexity and the greater the necessity for systematic, enterprise-level approaches to preserve value for the company at every link in the supply chain.

In the manufacturing world, lean manufacturing - or simply "lean" - is a useful approach for reducing "wastes" from production processes. The reduction of these wastes can reduce costs, improve productivity and add value to the products being created. Conversely, when such wastes are allowed to remain in place, the results can negatively impact the product's quality and the company's bottom line.

Similarly, wastes can diminish the value of the products and cargo flowing throughout the supply chain. Supply chain waste is not accidental or random and is frequently attributable to ineffective processes or practices - many of which have often been in place for a long time. Identifying, addressing and reducing or removing these wastes is a necessary step to enjoy the greatest benefit to the bottom line.

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## Defining the lean supply chain

The primary goal of the supply chain is to move necessary resources and products where they need to be and when they need to be there. The goal of a *lean* supply chain is the efficient transportation of goods to the end customer while minimizing waste. What's important, though, is not just the efficient shipment of goods to the *final* customer, but that all of the transportation of goods throughout the whole of the supply chain is performed as efficiently as possible with as little waste as possible.

What is *lean*? The lean approach typically refers to optimizing the flow of products throughout the manufacturing process. In service industries (and in supply chains), it can refer to the most efficient flow of any resource or product (even intangibles, such as the flow of information).

**What's the result when the supply chain is lean?** An obvious benefit, one that gets the attention of the financial office, is lean supply chains are a key ingredient for superior financial performance. But leaner supply chains are not just cheaper. They also deliver more value to customers at every stop in the supply chain, resulting in a greater ability to meet the needs of customers and other stakeholders alike.

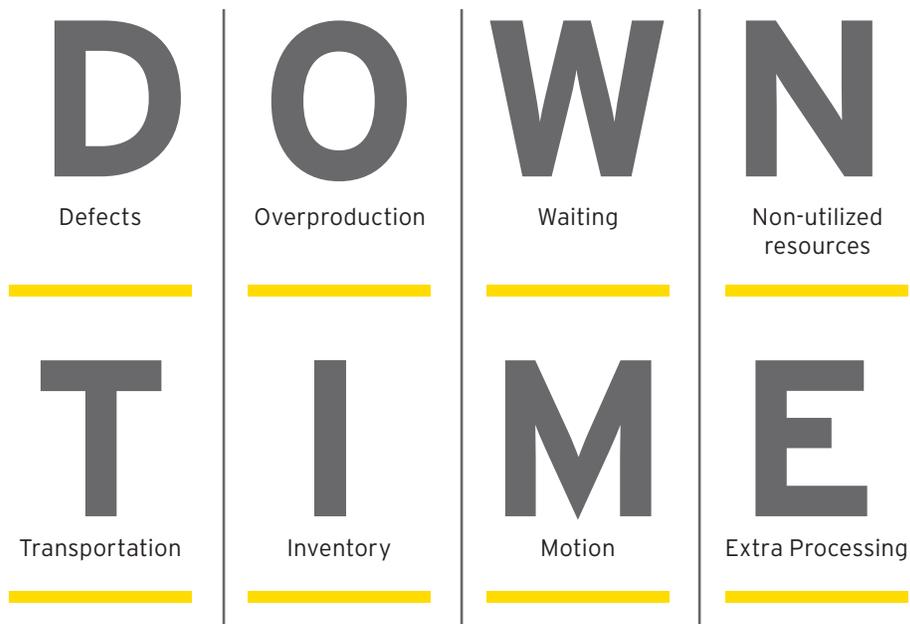
Ultimately, the goal of lean – regardless of the industry in which its principles are applied – is the reduction of *muda*, which is a Japanese word meaning “waste.” In reality, waste can mean anything that does not add value to the final product or service. Simply, if an activity contributes no value to the final product or service, there is no value in that activity.

Establishing a lean supply chain means cutting the “fat” that exists in several categories of waste. A simple way to remember the various waste categories that can be addressed with a lean approach is with the acronym *DOWNTIME*.

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## DOWNTIME wastes

Taking a lean approach means a close examination of wastes that exist throughout multiple processes. In particular, lean refers to eight types of waste, represented by the acronym *DOWNTIME*:





## Defects

Defects are often easy to define in manufacturing industries. Simply, it means something has gone wrong with the product, such as a garment that is snagged during a manufacturing process or an electronic device with a wiring harness installed incorrectly by mistake. However, in the supply chain or other service-based industries, defects mean the service somehow deviates from what the customer wants, needs or otherwise specifies.

It's often easy to spot defects in transportation processes. Late deliveries, incorrect or inefficient routing, excessive empty miles or other unpredictable outcomes often result from process defects in the supply chain.

Addressing defects can be difficult. If the problems are attributed to the wrong cause, they are likely to reemerge again and again, sometimes resulting in a sort of “blame game” that rarely helps eliminate the problem. Continuous improvement processes at the enterprise level can help identify and eliminate root causes, making it less likely for issues to recur.

## Overproduction

In manufacturing, overproduction waste is about making more product than is needed or making more than is needed in a particular timeframe. In a supply chain or any service industry, overproduction is still about producing “too much” overall or too much too soon. But too much of what? In transportation, examples may include shipping more than is necessary or shipping more often than is necessary.

Supply chain overproduction waste can occur when a transportation partner is less than reliable. Concerns about on-time deliveries can lead to tendencies to purchase too much product to build a cache of “emergency” inventory, adding unnecessary costs. Similarly, supply chain problems or less-than-ideal understanding of the supply and demand for products can lead to shipping more often than is necessary, potentially adding unnecessary costs to products. Even a single unnecessary additional shipment can add significant costs to the final product.

In addition to helping identify how much product should be shipped and the timing for doing so, appropriate use of transportation technologies can contribute to greater reliability and less variability throughout processes in the entire supply chain.

## Waiting

Waiting is non-value-added time. It can lead to lost revenue, missed sales and other strains on resources. These resource strains can be financial, such as constraints on tangible assets, or they can exist as constraints on intellectual or other human resources.

Waiting can be catastrophically painful in the supply chain because even a single missed on-time opportunity can be expensive. Other examples in the supply chain are as simple as a shipment waiting in traffic because of poorly optimized routing or the utilization of a less-than-ideal transportation method.

Waiting waste in the supply chain can also be identified on a larger scale. When logistical requirements for moving products through the supply chain are broken down, a single kink in the supply chain can force all the players downstream to wait unnecessarily, resulting in further costs. During the wait time, no value is added, but costs continue to build.

Waiting diminishes the value both to the customer and causes delayed realization of value to the firm as it further delays the financial returns associated with the products in motion throughout the supply chain. The more complex and segmented the supply chain, the greater the potential cost that waiting causes due to the ripple effect throughout the various entities in the supply chain itself.

## Non-utilized resources

This particular form of waste is sometimes referred to as an additional waste – not one of the original seven forms of *muda* – but its potential to drain value from processes is tremendous. Waste from non-utilized resources typically refers to a failure to utilize the full potential of people in a team or organization, but it can also refer to the failure to use any sort of resource effectively – whether the resource is tangible or intangible, human or non-human.

Tangible resources that are not used to their full potential are obvious forms of waste in the supply chain. Assets are associated with measurable costs that can be calculated to determine the specific results from underutilized assets or even assets that lie dormant for extended times. Intangible resources are sometimes harder to measure but can be equally costly in terms of supply chain waste.

The waste of human resources can take multiple forms also. It can be costly to fail to utilize the full creativity and talent of people throughout the team or organization. When creative ideas and solutions remain untapped, the opportunity cost – the benefits that are foregone as a result – can be virtually impossible to measure.

## Transportation

Transportation waste typically refers to unnecessary handling or movement of products or materials, which is often a result of ineffective process design. In the supply chain, transportation waste results when routes are not optimized and cargo must travel further, travel over a longer period of time, or otherwise must be handled excessively. This type of waste might result from poorly designed processes – as it would in any industry – but it can also result from ineffectively located warehouses, suppliers or other stopping points in the supply chain.

The negative effects of transportation waste clearly include increased costs. Any additional miles added to shipping routes result in additional costs, which quickly add up, especially when wasteful solutions are utilized over a longer term.

Less obvious costs have the potential to leach value from shipping solutions as well because transportation waste can lead to a need for greater levels of safety stock and pipeline inventories – especially as the distance between the product’s source and destination increases.

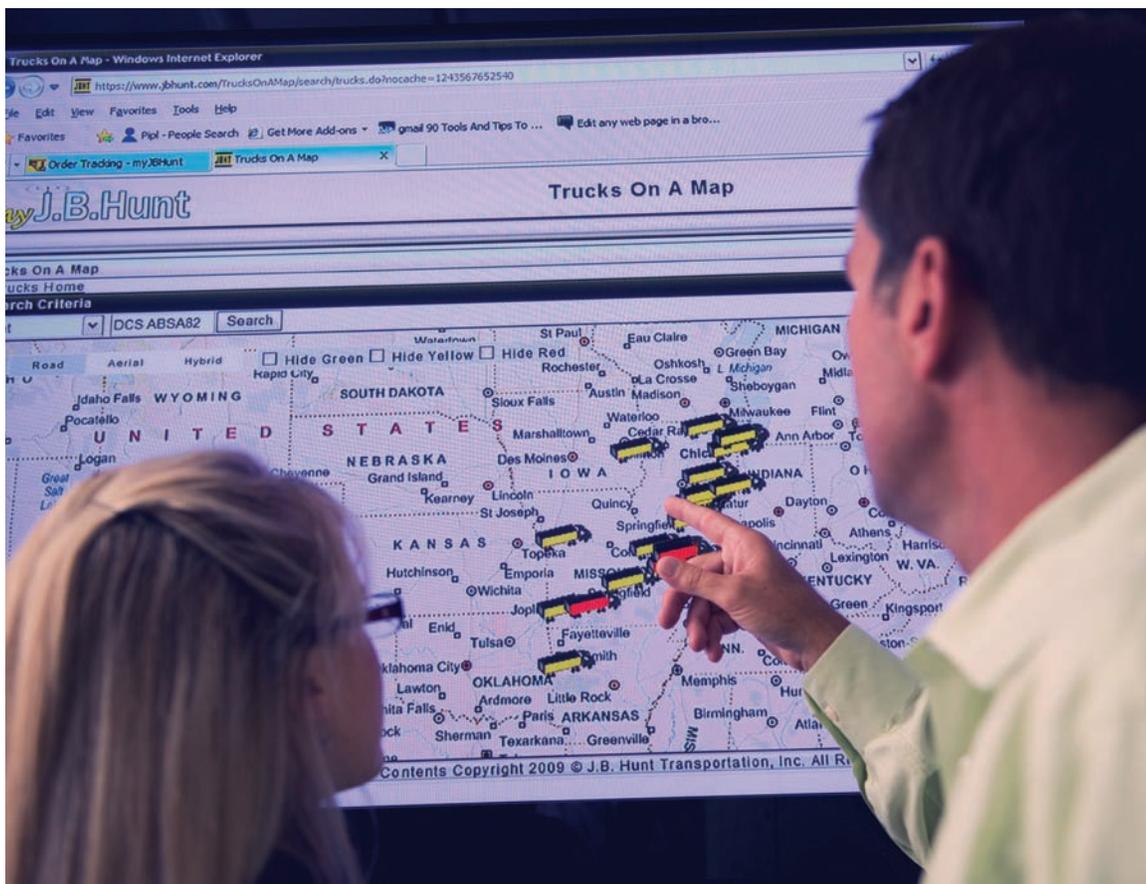
Optimizing routes and reducing transportation waste not only lowers shipping costs for individual shipments, but it also helps reduce costs over the long term as the need for large inventories is diminished.

## Inventory

In manufacturing, “inventory waste” is about finished goods sitting as waste in inventory. In the supply chain, inventory can become “buffer stock,” which happens when trying to ensure products are available when they are not regularly transported in a timely way. This buffer stock is excess inventory that causes serious problems through additional costs, longer lead times and poor quality. Greater buffer stock inventory numbers at various stages in the supply chain are ultimately ineffective solutions as they contribute to sluggishness in supply chain response to changes in demand.

On the other hand, reducing inventory levels helps identify problems or constraints in the supply chain. Imagine the problems as an iceberg, and the buffer stock is the water that surrounds it, hiding most of the iceberg from view. Now, imagine draining the water from beneath the iceberg, and as the water retreats, the magnitude of the iceberg is revealed. Lowering inventory has the same effect by revealing the problems the excess inventory was meant to hide.

Finding an ideal transportation solution with more predictable results reduces the need for buffer stock. In doing so, it greatly reduces the costs of unnecessary and excessive inventory levels.



## Motion

Motion waste refers to non-value-added, unnecessary motion, such as moving cargo unnecessarily. Unlike transportation waste, which is about the product, motion waste is any unnecessary motion in the course of getting the work done – even that of human resources when used unsuccessfully.

Another potential type of motion waste pertains to how necessary information moves throughout the supply chain and the waste that results when such information is not shared effectively. A steady flow of information and data throughout the supply chain – one which includes partnerships with customers and suppliers as well as easy access to the data needed to support appropriate metrics for the business – is essential to finding the most value throughout the supply chain.

## Extra processing

When there are steps in production processes that do not add value, these steps are “extra processing wastes.” In the supply chain, the meaning is similar. Any parts of the supply chain that do not contribute value are also extra processing wastes. Further, when some steps actually *generate* costs that exceed the value they create, they represent even more significant forms of extra processing waste.

Extra processing wastes can be difficult to identify in many cases because well-established processes are often the last ones examined when mining for non-value added activities. Often, the longer a process has been in place, the more likely the process is to be overlooked -- even when wastes are present “because that’s how we’ve always done it.”

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## Cutting supply chain wastes

There are multiple means for reducing and eliminating various supply chain wastes, and each step in the pursuit of a leaner supply chain has the potential for significant improvement as a result. Among the steps to reduce waste are:

➔ **Identify wastes wherever possible.**

Look closely at the supply chain to identify waste in every category. Pay close attention even to long-established routines and trusted processes, which can contain wastes that are easy to overlook.

➔ **Measure what's important.**

Look for the key performance indicators that are important for the business. Mine your processes looking for value, and track the value over the long term. Pursue continual improvement in each category you measure.

➔ **Look for real causes.**

When waste is identified, look for the root cause of the problem to mitigate the likelihood of the problem recurring. Remember that the goal is to do only value-added activities.

➔ **Utilize appropriate tools.**

Many tools can help improve processes to reduce waste and add value. Look for ways to prevent defects, to better match production to demand, to optimize routes and other processes. Most importantly, have an enterprise-level focus on continuous improvement.

➔ **Sustain the improvement.**

Prevention is key to eliminating waste, as preventing a problem is always better than solving one. The goal in every process is to do it right the first time every time.

Realizing the full benefit of reducing waste necessitates sustaining improvement efforts. What steps, measures, processes and controls can you put into place that will ensure the improvement lasts over time? Consider how you might guarantee the controls are sustained throughout the various links in the supply chain.

➔ **Think at the enterprise level.**

When examining the supply chain, consider which parts add the most value to the organization. Look at the greater picture and seek the best value, not simply the lowest cost. Utilize people and resources that net the greatest results.

Consider the firm's value proposition. What does the firm do best? Are there elements of the business that could function better? Outsource when it makes sense to do so.

➔ **Seek supply chain integration.**

Classic lean thinking can solve many supply chain ills, but it is not as simple as eliminating individual types of waste in silos. Often, a best practice for eliminating supply chain waste is the pursuit of integrated supply chain solutions.



Integration of the supply chain means that all of the types of transportation within it function as a single, seamless entity, eliminating waste for the benefit of the customer. In such cases, the elements of the supply chain come together to operate with a singular focus on contributing value with enterprise-level visibility and results.

How could a more integrated supply chain contribute value for you? Consider the wastes that might be reduced by having a single source of transportation throughout the supply chain, with each part working together to find the most efficient means of moving goods where they need to go. The potential outcome is a leaner supply chain, resulting in increased profitability and a greater competitive advantage overall.

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## About J.B. Hunt

J.B. Hunt Transport, Inc. focuses on providing safe and reliable transportation services to a diverse group of customers throughout the continental United States, Canada and Mexico. Utilizing an integrated, multimodal approach, J.B. Hunt provides capacity-oriented solutions centered on delivering customer value and industry-leading service.

J.B. Hunt stock trades on NASDAQ under the ticker symbol JBHT and is a component of the Dow Jones Transportation Average. **For more information, visit [www.jbhunt.com](http://www.jbhunt.com).**





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