

Is Your Supply Chain Ready for the Congestion Crisis?

Updated 23 June 2015

A few years ago one of us (George) and his wife decided to sell their large house in the center of Toronto. With only one of their six children living at home, now was the time. But who in this age of smaller families would want our house? To our surprise, it sold in 20 minutes for 25% more than the asking price. A childless couple who lived 20 miles away bought the house because they were sick of commuting into the city!

Longer commute times are just one sign that congestion is creeping into our lives. Highways and bridges are in desperate need of repair, making travel slower—and more dangerous. Our overburdened air-traffic-control system struggles to deal with increasingly crowded skies. Port congestion is a growing problem, exacerbated by the new super-size container ships that take far longer to unload than older, smaller ships. “Expect delays” has become the recurring theme of our transportation system.

With growing congestion a global megatrend, companies have a choice. Either accept it (and its higher costs and lower profits) or take control of your fate with strategic, game-changing actions that cut time and costs from the supply chain.

A looming crisis. First, it’s important to understand the magnitude of the coming congestion crisis and its underlying drivers. These include the following:

Not enough port container capacity. Until the summer of 2008, container ports on both the west and east coasts of North America were nearing capacity as imports and exports soared. Then the recession hit, and the problem receded as port traffic slowed. But now the problem is back with a vengeance. Shipment volumes through North American ports, which fell 20% in 2009 from a record peak in 2007, are now higher than they were in 2007, and port-expansion plans from Vancouver to Los Angeles/Long Beach are bogged down by political wrangling.

Railway systems are near capacity. For instance, the average transit times to move containers from the ports of Los Angeles and Long Beach to Chicago grew from 84 hours at the end of 2004 to 120 hours by early 2015.

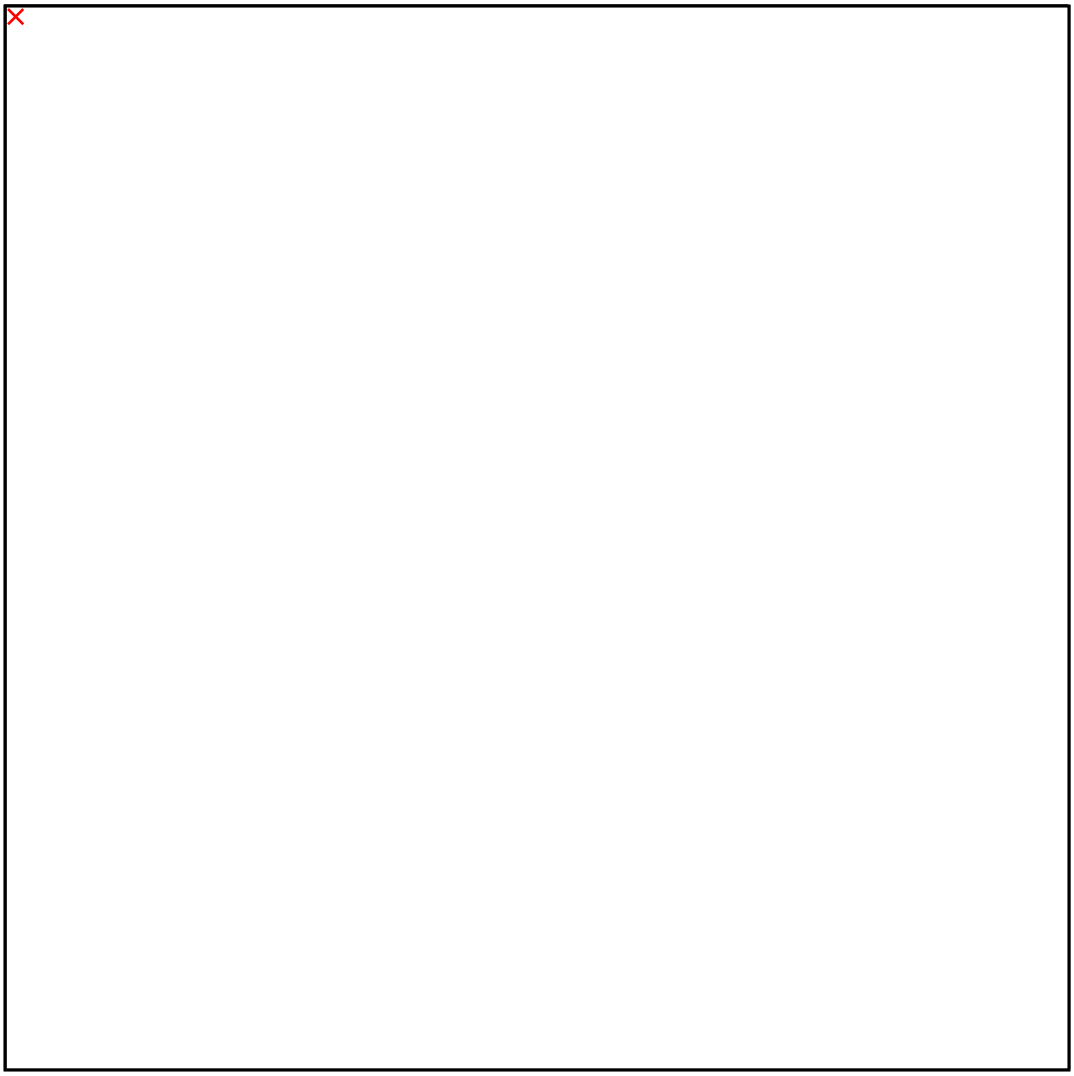
Highways can't keep up with demand. The highway systems in North America andWestern Europe are also feeling the strain. The United States greatly expanded "lane miles"—one measure of capacity—in the 1950s, 1960s, and 1970s but not much since then. Meanwhile, the load factor on the system has been doubling every 30 years. Today, the load factor (total vehicle miles traveled divided by lane miles) is growing more than 10 times faster than capacity is.

Air freight isn't the answer. Airports in North America are slowed by outdated traffic-control systems, limited runway capacity, and a shortage of fuel-efficient air freighters. In the last 40 years, only three major new airports have been built in North America: Dallas-Fort Worth, Montreal's Mirabel, and Denver International. All of them replaced existing airports. Expansion of runway capacity in the United States also has been limited. Since 1975, just 41 new runways were planned, and only 25 were actually built, each with an average construction time of about 11 years! Lobbying by special interest groups got in the way.

The impact on supply chains. The shortage of transport capacity relative to demand will have a profound effect on businesses. For instance, Procter & Gamble's logistics costs already exceed such key value-adding costs as manufacturing, even though the company mainly ships by land. Longer supply chains also increase inventory levels and carrying costs related to financing and warehousing.

These are just the first-order costs of congestion. The second-order costs are even greater. Companies can easily match supply and demand if demand is steady over time with no change in volume or mix. But as soon as demand changes, supply levels at each step of the chain must adjust. Given the lag time before changes in demand are actually felt by different players along the chain, their effects are amplified when they hit, leading to inventory shortages or pile-ups. Then, companies tend to overcompensate by stopping or increasing production lines, and inventory levels can fluctuate wildly. This is the "whipsaw" effect, and congestion can exacerbate it.

The associated costs can be significant: Lost profits from a stockout equal the gross margin of a product—generally in the range of 20% to 50%. Product overstocks result in discounted prices, which are usually about half to two-thirds of the gross margin. Congestion-driven losses from stockouts and overstocks are overwhelmingly greater than the direct costs of congestion but often remain hidden because they may not be measured or called out.



The bottom line: Companies must redesign their supply chains or become victims of the direct and indirect costs of increasing congestion.

What companies can do. Companies can minimize the business impact of congestion—and gain a strategic advantage over less-prepared competitors—by enhancing their supply-chain performance in four critical ways:

Improve process efficiency. Speeding up value delivery can result in remarkable performance improvements. For instance, a 25% reduction in the time needed to deliver a product or service can double the productivity of labor and of working capital. And our experience over the years at BCG is that a business that can deliver value twice as quickly as its competitors will grow twice as fast and be three times more profitable.

Improve information flows. Supply-chain speed and agility sharply increase when information is shared across the network. Walmart's Retail Link offers an electronic bridge to the retailer's suppliers, providing data on sales and inventory levels and allowing them to download purchase orders. This close integration gives suppliers a better sense of true demand, which can reduce the effects of congestion throughout the supply chain.

Reduce variability. The longer your supply chain is, the greater the risk of variability. But much supply-chain variability is self-inflicted, the result of inadequately informed planning and needless complexity in processes, products, and portfolios. As noted above, improving process efficiency will reduce cycle times, a good first step toward reducing variability. But companies should also look for ways to shorten and simplify their supply chains by shifting away from high-volume, world-scale plants that make just a few products to smaller plants that make a wider range of products closer to local markets. Increases in unit-production costs are often offset by lower logistics costs, faster replenishment cycles and fewer stockouts and overstocks. The same logic can apply to distribution logistics when global distribution centers are replaced by regional warehouses.

Compress transit times. Besides improving process efficiency and shortening their supply chains, companies can improve cycle times by rethinking how they transport their goods. One tactical approach is to make more use of air freight. Air cargo costs per ton are four to six times greater than on-ocean shipping costs, which account for 0.5% to 2% of the shelf price of most products. For the right products—those with high margins, a limited shelf life, or short product life cycles such as fashion and technology items—the added costs of air freight are more than offset by the positive impact on profits of fewer stockouts and overstocks. Air freight can cut weeks from the time it takes to ship from China to North America and Western Europe.

In the end, the above four are just tactics. Real benefits—growth and profits—come when these tactics are employed in a differentiating strategy that exploits congestion. For example, one possible strategy is building dominant share positions with those customers who value faster, more reliable responses from their suppliers.

Such tactics and strategies for improving supply-chain performance can increase market share, reduce costs, and dramatically improve profitability. Companies that take action now can turn the looming congestion crisis into a major strategic opportunity. Use it against your competitors before they use it against you.

This blog first appeared on Harvard Business Review on 06/22/2015.

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