The "Perfect Storm" in Logistics – and That's Not Just a Cliché

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2005 has suddenly become a replay of the fall of 2004: shippers scrambling for trucks and rail cars, spot prices for truckloads going up sharply, and widespread delivery delays. Those who thought that the nightmare of 2004 was an aberration were wrong… in a big way!

The last 3 months of 2004 saw the near meltdown of the U.S. freight transportation network. Over 50 container ships sat outside Los Angeles Harbor unable to unload due to jammed up rail and highway routes. Truck availability on less than 4-5 day notice was practically impossible. Then in early 2005 things eased up and everyone breathed a sigh of relief. Until last month… Suddenly freight demand (and carrier capacity utilization) spiked up even more sharply and farther than it had in 2004. The crisis has left Logistics and Transportation Managers frantically searching for available trucks and railcars – and shipments waiting helplessly on the dock.

We find ourselves in the worst crisis to hit the transport industry since World War I, when the U.S. government seized the clogged railroads to avoid collapse of the War effort. This is big… This threatens U.S. economic growth, the profitability of thousands of companies, and our global competitiveness!

What happened? Is this the portent of worse to come? This week, several thousand Logistics and Supply Chain professionals in attendance at the CSCMP Conference in San Diego took a close look at these questions. The picture isn't pretty. Everyone agreed, this is just the beginning. It will get worse. The nation's supply chains better get ready! What are the causes? How do we cope? First the causes…

Cause 1 - The Rise of China

Everyone is aware of the tidal wave of Chinese manufactured goods flowing into the U.S. But despite the anxiety over the sizeable loss of U.S. jobs in the last 4-5 years, the biggest impacts have been on Mexican, Caribbean and African manufacturers. This has had a huge impact in the patterns of U.S. domestic freight flows. West coast ports, especially Los Angeles and Long Beach have seen double-digit percent increases in volume yearly for the last 5-6 years. At the same time eastern port volume has been relatively stable. The result… freight is moving to eastern consumers thousands of miles farther than in the last years of the 1990's. More miles per container translates into huge additional demand for both rail and truck capacity. There is no indication that this trend will slow for many years, even if both the U.S. and Chinese economies cool off a bit. What's worse, this huge up-tick in ton-miles happens mostly in a 3 month period – September through early December when consumer goods move to retailers for the Christmas buying frenzy.

Cause 2 - The Shrinking Workforce

A striking statistic: in 2004 the Union Pacific Railroad, with 25,000 employees, brought in and trained 9,000 new hires. This is stunning by itself, but the punch-line is, the total employment of the railroad rose only by 2,500… so massive was the rate of retirements. In 5 years almost the entire employment of the railroad is expected to turn over in much this same way. For the railroads this is a huge headache in training and in retaining safe methods and processes, but their union-level wages at least do draw applicants. The same cannot be said for motor carriers experiencing the same retirement attrition: over 200,000 truck drivers are expected to retire in the next 7-10 years. Where will their replacements come from?

For the last 20 years over-the-road driver wages have fallen in real dollar terms by 35%! These jobs, with their long hours away from home and unpredictable schedules are simply not drawing new applicants. What's worse, recently adopted Federal hours of service regulations have reduced the effective trailer miles per month that the remaining drivers can produce.

This startling wave of retirements went into high gear almost simultaneously with the sudden upsurge in freight ton-miles caused by the shift of manufacturing to China. The carriers have seen the problem, and have been working hard to expand the ranks of drivers and rail crews, but demographics are working against them: the size of the cohort of 25-35-year-olds who are prime candidates for these jobs is at its lowest level in 15 years and won't see a meaningful up tick for another 10.

Cause 3 - The Productivity Crisis

From 1950 to 2000 the motor carrier industry experienced an unbroken string of annual productivity increases. The Logistics industry enjoyed truckload rates that fell steadily in constant dollar terms and even showed no growth in nominal dollar terms in the 20 years from 1970 to 1990. This astonishing record was the result of the completion of the Interstate Highway System, dramatic improvements in tractor design, ever-larger truck trailers, and the elimination of trucking freight rate regulation. Then the impossible occurred: in 2001 motor carrier productivity declined for the first time in 50 years. It has gone down every year since!

The culprits are rising fuel costs (leading to lower line haul speeds to conserve fuel), rapidly increasing highway congestion, and the new hours of service regulations. As we will see below, things won't be getting better soon, especially regarding highway congestion.

Cause 4 - What About the Infrastructure?

"There's always the railroad." That was the response to tight motor carrier capacity in past years. The railroads had overbuilt massively in the 19th and early 20th Centuries, and even with aggressive disinvestment after deregulation in 1980, there was still plenty of line-haul capacity, despite some brief crunches in rail-yard capacity. Like so many of our "givens" in transportation, this too has changed dramatically. As the railroads enjoyed annual volume increases of 2-3 percent in the 1990's they invested in maintaining

facilities but little in expansion. By 2003, expanding volumes had hit the capacity limits of the key main lines throughout the nation… just when the volume of incoming containers from China was skyrocketing.

It is estimated that the railroad's current rate of capacity expansion is barely ½ of what is required to handle the increases in traffic called for by moderate projections of economic expansion… this despite annual investment budgets for each of the large Class-I carriers in excess of $1 billion. With an industry-wide return on invested capital in the 6% range, it is not clear how willing Wall Street will be to continue to pump money into railroad capacity expansion without significant increases in rail freight rates and profitability.

But, you say, we have the highways. Here too the picture isn't good. With the current rate of highway capacity expansion, even considering the recent Highway Bill, highway congestion is expected to increase nearly 5-fold in the next 7 years, with average speeds for highway tractor-trailer rigs falling below 45 mph on key lanes in the next few years (for the first time since the 1950's). Addressing the highway infrastructure deterioration and required expansion in capacity will require a doubling of highway spending for the next 20 years by both the state and Federal levels. Any thoughts on how likely this will be?

What Can You Do?

This recent confluence of rapidly increasing demand for ton-miles, shrinking workforces, stagnant productivity, and inadequate funding for rail and highway network expansion will stay with us for at least 10 years or more, even if suddenly the political will were to emerge out of nowhere to make government economic policies more freight transport friendly. But the freight must move. As Supply Chain Professionals we will be expected to cope and continue to support the "Lean Manufacturing" and high performance customer services that our companies regard as crucial. Some suggestions:

- Help your carrier partners be more productive – Streamline loading and unloading operations at all your docks. Work with your customers and suppliers to do the same – tracking and reporting reductions in trailer dwell time. Make carrier scheduling easier by operating docks longer hours, especially opening for night and weekend hours when highway congestion is considerably reduced. A self-service appointment scheduling system increases productivity while reducing wasteful telephone and fax communications. Where possible, move to trailer pools which permit "drop and hook" programs, which greatly expedite driver scheduling – but track those trailers carefully and help carriers ensure rapid turnaround times. Perhaps most importantly, make sure your carriers know what improvements you are making and use them as leverage to obtain capacity commitments.
- Share your requirements in advance – Carriers give priority to shippers who are able to provide them with reliable advance notice, especially for promotional events and seasonal spikes in volume. Advance notice allows the carrier to reserve capacity or source the outside capacity necessary to meet the shipper's requirements. The key to this strategy is to communicate changes in your requirements as soon as they become known. Nothing will sabotage this practice

quicker than for a shipper to cancel loads that carrier have gone to great length to cover.

- Create Incentive-Based Contracts – Shippers and carrier negotiate in good faith with each other for price and service. Normally in return for freight in preferred lanes, and in periods of soft demand, carriers will cover the shipper's freight in period of tight capacity at favorable prices. Frequently neither side honors the lane and volume commitments made. Shippers need to negotiate incentive-based contracts and insure that these contract commitments are meet. This ensures that the carrier can plan on receiving the volume committed to him, and this dependability, combined with advanced information in terms of forecast volume, allows him to better react to unusual volumes when they occur.
- Implement self-invoice and payment with your carriers – Carriers operate on thin margins where dependable cash flow is vital. Self-billing was first identified as a best practice at the beginning of deregulation in 1980 because it reduces administrative cost and greatly speeds up cash flow to carriers. Fast and dependable payment allows the carrier to plan and manage his finances more effectively and reduce unnecessary borrowing.
- Stabilize your shipping patterns – Is your company afflicted with "end of month disease" where half your monthly (or quarterly) volume is shipped in the last 3 days of the month? You are going to have to change this pattern – the spare capacity to handle your poor planning is no longer available, so you might as well start introducing the key scheduling and policy disciplines that ensure predictable steady product flows – and guess what, your internal operating costs will likely go down too.
- Re-evaluate your network strategy annually – What would your ideal warehouse network look like with freight rates 20% above current levels? Where do you have round trips that can keep dedicated fleet trailers in continuous motion? Where can you use pool distribution or cross-docking to drive greater use of lower-cost truckload services? Just a few years ago companies figured that a network review once every 5 years was more than adequate, but rapidly changing demand patterns and cost relationships today dictate at least annual optimization of network design. By the way, this means more than just a few minutes with an Excel spreadsheet; instead, it dictates the use of modern optimization and modeling tools to test the what-ifs and find the best, most resilient network strategy.
- Utilize transport assets more aggressively – What is your average truckload load factor? Remember a 2% point increase in load factor translates directly into a 2% reduction in costs! Both weight and cubic dimensions determine how effectively your company is using trailer capacity. It may take a complete review of your product line to determine what really, physically constitutes a "full truckload". Once your know the facts, you can drive higher capacity utilization both by setting up load factor KPIs for your operations management and by fighting for pricing policy changes that reward customers for buying a "real" full truckload.
- Tap into information technology – Modern TMS (Transportation Management Systems) provide benefits in two key ways: 1) at-your-fingertips information on the best rate and transit time options for every shipment, and 2) powerful

optimization engines that can build multi-stop truckloads from many smaller LTL-sized shipments at up to 15-20% cost savings. Where once a TMS installation meant lots of disruption and bumping into internal IT priorities, new web-based systems are quicker and cheaper to get going and far less disruptive to existing systems.

- Drive improvement by relentless measurement and corrective action – Logistics is one of the last frontiers of "Six Sigma" thinking, where measurement and feedback mechanism contribute to processes that are under control and achieve very high levels of quality performance and cost control. In companies where measures of manufacturing performance are highly refined, often only the most rudimentary measures of logistics performance, like overall percent-of-sales, are expected to provide insight into rising logistics costs. From the simplest of metrics like cost per pound to more sophisticated indicators like mileage-weighted load factors and cost of non-compliance with low-cost carrier selections, consistent Key Performance Indicators, agreed-to by both executive and operational management, are the only way to ensure that corrective action and management attention is directed to the highest priority areas for cost containment and service performance improvement.

These "to-do's" include little that is new. What is new, however, is the importance of gaining the support and attention of executive management to focus corporate resources on the problem, enlisting the cooperation of manufacturing, marketing, and customer service to cope with this "Perfect Storm" in logistics.