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MARSH MERCER KROLL
GUY CARPENTER OLIVER WYMAN

Mercer on

Transport & Logistics

Insights into the global transportation and logistics industries from Mercer Management Consulting

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The Delivery Crunch

By Mark Kadar and Manny Hontoria

The past 12 to 18 months have brought about a striking reversal of fortune in the financials of many transportation companies. In liner shipping, for example, tight capacity, surging demand, and the strengthening economy—driven to a very large extent by a boom in shipments out of China—have resulted in rising volumes, increasing rates, and continuing major investments in new ships. Liner shipping companies and related sectors, such as port operating companies, are making levels of return (including for the first time in many years, returns on capital employed), higher than in memory. Ship purchase prices (newbuilds and existing tonnage) have reached unheard of levels. Ship charter rates have been increasing daily, and many investors in this sector are reaping unprecedented returns.

At the same time, there has been a tremendous increase in rates for trucking services, especially in the United States and to a lesser degree in parts of Europe. Finally, in North America, railroad capacity is at a premium and cargo movements have been subject to tremendous ongoing delays.

Has the world’s delivery “system” been maxed out? How will supply chains cope with the projected increase in volumes? Will trade grind to a halt? Or, will prices of transportation rise to a point where major globalization trends could begin to see reversals?

While there is significant debate in the press about the supposed long-term capacity crunch, it is very unlikely that any of the “meltdown” scenarios will occur. However, as discussed in this and other related articles in this special edition of *Mercer on Transport and Logistics*, we may actually be facing challenges which exceed those of the last several decades.

1990 Revisited

Consider how things looked back in 1990. Freight players in the industry and their financial backers were pondering the future of

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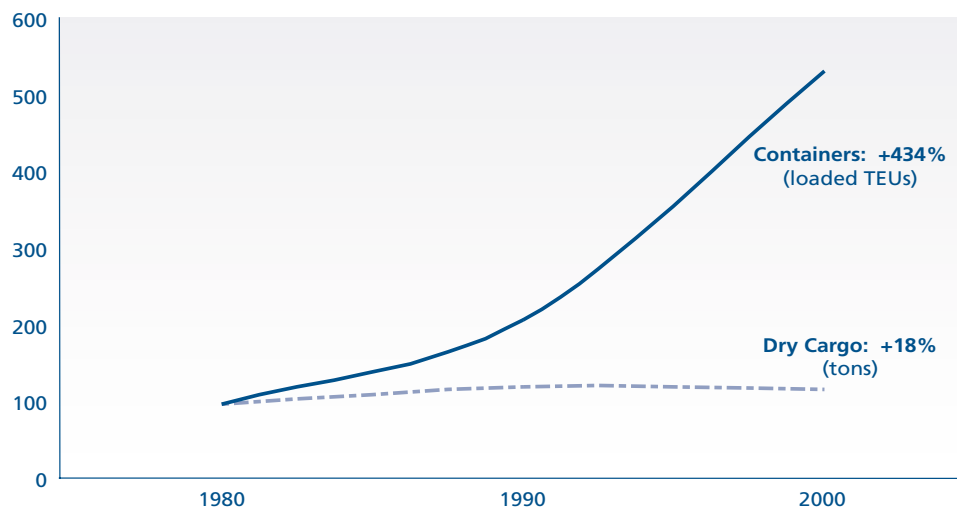
global trade and the consequences for infrastructure and delivery capability requirements over the next decade. Looking forward, they projected trade growth of 6-7 percent per year, meaning that trade volumes would effectively double over the next decade. Such growth would require:

- The building of containerships with an aggregate capacity in excess of 1.6 million TEUs, requiring an investment of more than \$2 billion per year, and corresponding increases in shipyard berths to accommodate this expansion
- More than a doubling of global port infrastructure
- Container handling capability in megaports around the world expanding by as much as a factor of three, requiring significant efficiency improvements and availability of land around the ports
- Improvement in on-carriage capabilities (trucks and railroads) to match this growth
- The building of millions of additional square feet for warehousing and distribution
- Perhaps most importantly, significant change to overall industry returns to make investments in the sector attractive

It appeared in 1990, just as it does now, that the requirements to sustain projected trade growth might be insurmountable.

The reality, of course, is that those 1990 projections were actually conservative, and growth in demand for international transportation was much stronger than anticipated, particularly for containerized trade (Exhibit 1). Equally, all of the required infrastructure investments were made (and then some, given that the industry has periodically suffered over the last decade from chronic high capacity in all sectors).

Exhibit 1 **Indexed Growth in Container and Dry Cargo Trade, 1980-2000**
(1980=100)



Source: Mercer analysis of UNCTAD and Drewry data.

How was this phenomenal growth in transportation and distribution capacity achieved?

- In *shipbuilding*, huge investments in vessels have taken place, fueled in part by advantageous tax regimes such as the infamous German doctors' and dentists' investment schemes. Shipyards worldwide expanded their capacity and capability to build larger and more efficient vessels. The last decade has seen significant growth in Chinese shipyards that now compete very effectively with the longer-standing Korean and Japanese yards.
- Ports improved their efficiency significantly by modifying land use plans to better use spare capacity; investing in sophisticated software to improve operations; and installing faster, higher-capacity container cranes while utilizing much denser container stacking. In addition, entire new ports have been developed, to the point where certain areas (e.g., the Mediterranean) had significant overcapacity by the end of the decade (particularly true of transshipment port development).
- *Other transportation providers*, including railroads and motor carriers, increased their capacity by investing in new equipment, improving efficiencies, etc. At the same time, railroads significantly reduced their networks to streamline service and improve financial performance.
- Significant new *distribution centers* (e.g., in the Netherlands in Europe; Savannah, Georgia on the US East Coast) have been developed, in many cases substantially changing traditional distribution patterns and trade flows.

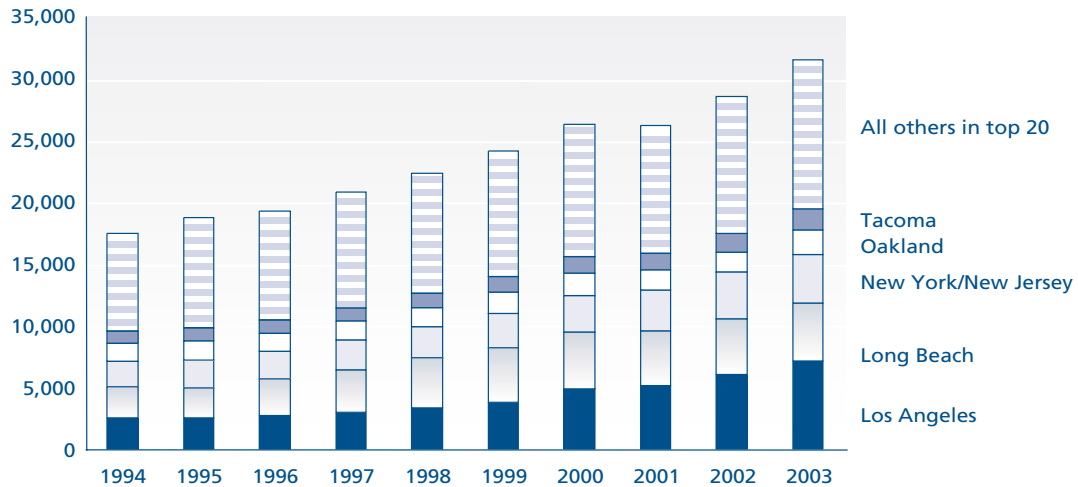
Coping with Growth Constraints

Will the next 10 years see the same level of major—but primarily incremental—growth in infrastructure and investments as was witnessed in the last 15? Certainly, trade forecasts call for continued growth at the rate of 7 percent or more per year. At such a rate, container imports into North America (currently about 40,000 per day) would double again within 10 years, to more than 80,000 per day.

Despite the transport system's historical ability to absorb significant increases in volume, however, we may now have reached an inflection point where constraints on growth could appear. For inland transportation, especially rail, significant increases in capacity will not be possible without major investments in infrastructure and difficult and complex changes in operating processes. Equally, booming traffic means that major hub ports (see Exhibit 2) are increasingly reaching their space limits, while investment in alternative ports has not kept pace with demand.

If the overall supply chain, including ports, railroads, and other inland infrastructure, is indeed beginning to reach its structural limits of capacity, the implication is that further rounds of infrastructure investment will need to start soon. This will not be a straightforward or easy process, as it is much harder to develop a new terminal or get funding for dredging than to simply order a new ship.

Exhibit 2 **Growth in TEUs for Top 20 US Ports, 1994-2003**
(000 TEUs)



Source: Containerisation International, Mercer analysis.
Note: No data for Tacoma 1997 (1996 data used).

Additionally, shippers and transport carriers likely will have to develop different ways of dealing with each other that involve less reliance on ongoing efficiency improvements and cost reductions without longer-term commitments. We may need to see an emphasis on more direct relationships and integrated processes between carriers and shippers, longer-term agreements, co-investment structures, and potentially even much more complex public-private partnerships in order to achieve the needed infrastructure build-out. The dollars involved are considerable, both in terms of capital as well as the resulting impact on the economy and world trade.

A New Role for Government?

Because of the large sums and many interests involved, governments may have to step up their role in planning and support, at least at a regional level, if not a national one. Government involvement may be necessary to attract private investment and to help set priorities, such as which mode to invest in (e.g., port versus rail) or which projects in what order.

There are examples in Europe and Asia where government involvement has been central to coordinating major transportation infrastructure projects, such as the Betuweroute rail corridor in the Netherlands and the enormous advances in port, rail, and road infrastructure made in China in recent years. But in North America and other regions, infrastructure investments have generally tended to lag demand, and it's not clear whether the political imperative will be strong enough to change this stance.

Government structures will also need to change in order to achieve better stakeholder alignment and to permit necessary public-private co-investments. Again, this will take more aggressive and creative initiatives than are currently being demonstrated in this sector on a regular basis.

Of course, it's possible that 10 years from now, we may look back and see that all of the additional traffic and the requisite investments were made and absorbed without any significant change to the overall transportation business. But current capacity constraints and bottlenecks are so much larger than ever before that we believe the next decade is likely to be different. At stake is the competitiveness of national infrastructure as well as the growth of local port economies.

It is likely that the cargo will continue to move somehow, but if it is to continue to move efficiently—and if national economies are to benefit from ongoing trade growth—far better long-term planning and far more proactive investing are likely to be required.