

"Cheap oil: a thing of the past"

Professor Yossi Sheffi, Director, MIT Center for Transportation and Logistics, shares his observations on the oil crisis and its impact on global supply chains.

Dr. Yossi Sheffi is a Professor at the Massachusetts Institute of Technology, and Director of MIT's Engineering Systems Division and the MIT Center for Transportation and Logistics. His areas of expertise are supply chain management, risk analysis and systems optimization.

Besides writing and consulting, he has launched five successful companies

Crude oil prices have more than doubled from the summer of 2007 to the summer of 2008: from a little over US\$60/bbl at the beginning of July 2007 to over US\$140/bbl at the beginning of July 2008. As a result, motorists, especially in the US, are painfully adjusting to this new reality, and markets are moving to internalize the change. While there are some short term causes for the price increase – including tensions in the Middle East and speculative trading – the fundamental reason is the significant increase in demand, especially from the developing economies of China and India, and the lag in supply. Even as high oil prices, especially if they are seen as permanent, encourage new exploration, it will take many years to bring new oil to market, and this will come at a high cost. Furthermore, environmental concerns will block new oil fields, as well as increases in refining capacity.

Adjusting supply chains

Thus, supply chain executives have to plan for a world where cheap oil is a thing of the past. And logistics services providers have to follow their customers and enable the changes in services which their customers will be looking for. So how will the supply chains adjust?

One of the more obvious areas of adjustment will be in increased inventory. The reasons for this are two-fold – network design and changing inventory/transportation trade-offs. As transportation costs increase, one can expect a move away from centralized inventory towards more regional distribution centers. In other words, more direct delivery routes, thus saving on transportation costs at a cost of requiring more safety stock to maintain the same level of customer service. In addition, in an effort to save on transportation costs, shipping departments are likely to insist on larger loads: truckload instead of less-than-truckload; rail shipping instead of truckload, etc. This

means larger shipments which require longer time to be "sold off" at the customer location – resulting in yet more inventories.

Closer to home

Many observers have predicted that higher oil prices would lead to a reduction in international trade, and specifically, less Chinese manufacturing. While this may happen on the margin, I do not expect this to turn into a stampede. Labor costs in Far East factories are still attractive and overwhelm any current increase in transportation costs – especially if the market adjusts to bigger loads and higher load factors. On the margin, one may see some movement "closer to home": Mexican manufacturing for the US market; Romanian manufacturing for the European market, etc. But Chinese and Indian expertise and increasing design prowess and quality manufacturing are likely to limit this counter-trend.

Another trend which transportation companies will have to deal with is the decrease in the use of plastics – especially for packaging. Not only will heavier material (glass, metal) be used for bottling and as part of the products' design, but packages may have less wrapping material in them in order to save space and get more product per pallet. The result may be heavier freight and more difficulty in handling.

Finally, more companies will be looking to unbundle the fuel component in freight charges from the price of the move. Several US shippers have been asking carriers to submit transportation bids excluding fuel costs, which the companies intend to pay according to an agreed-upon fuel index. This is just one aspect of the increased scrutiny that transportation costs will be getting as the price of energy keeps increasing. ●

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EXTERNAL VIEW

MIT PROFESSOR
Yossi Sheffi looks
ahead at some of
the implications of
rising fuel costs