

# Quality ≠ Sustainability?

## Social Responsibility in a World of Supply Chain vs. Supply Chain

By Bradley A. Feuling

The continued expansion of the world's supply chains highlights how interconnected global business has become. Many people and communities influence a product between the raw material supplier and the end-customer. The influences of upstream processes, such as paint vendor selection in China, potentially reach customers thousands of kilometres away. This reality illustrates how the entire supply chain plays an important role in social responsibility.

As a result of the present world economic downturn, total cost models are being exposed to greater scrutiny. With China accounting for nearly eight per cent of global trade (2007) and experiencing rapidly increasing costs – 11.1 per cent in the first half of 2008 for raw materials, fuel and power<sup>1</sup> – it becomes clear where a lot of opportunity lies. In order to further reduce costs, companies expanding their operations in China must begin to strategically consider error rates, service level and lead time, along with other competitive measurements. In many cases, these aspects are influenced by the capacity utilisation, inventory management, and throughput productivity of their China suppliers. Sourcing and supplier management practices have evolved, yet many companies continue to underestimate these significant areas. In the coming years, these factors influencing profitability and competitive sustainability will rapidly become focal points for Chinese operations. Each of these supply chain considerations also importantly contribute to sustainability initiatives.

As the China supply chain further expands, complexities increase, as do total costs and inherent risks. Three key areas of the China supply chain where greater attention can be paid are demand-production synchronisation, operational efficiency and logistics utilisation.

### Demand-Production Synchronisation

In a 2008 survey of global airfreight forwarders, 92 per cent stated their customer base had expanded by five per cent or more and 24 per cent indicated a 15 per cent-plus growth in new clients, according to *Inbound Logistics* magazine. The carbon footprint for airfreight is widely known to be greater when compared to transoceanic containerised freight. Transportation costs per unit also increase. For transoceanic freight, the expansion of logistic provider services from China for less-than-container load (LCL) shipping shows similar industry signs of growth. Again, logistics cost per

product unit are higher, as are the negative impacts to the environment. Why are these trends counter-intuitive to the sustainability discussion?

Global supply chains magnify challenges related to longer lead times. China's rapid transition to a manufacturing hub has forced the repositioning of worldwide inventory. If inventory placement is not adjusted as suppliers in China are added, the risk of stock-out increases. This commonly results in in-transit expedited freight, created by a need to place the inventory closer to the customer. To improve environmental sustainability and reduce costs, demand and production planning must be synchronised. This involves cycle time planning, lead time mapping, and improved coordination with China suppliers. The benefits of such strategic operations often increase visibility and transparency. Interestingly, respondents noting the importance of these two areas increased from one in ten, to one out of two, between the 2007 and 2008 *Global Procurement Study* conducted by Capgemini.

Another important factor is the Bullwhip Effect<sup>2</sup>. Inventory management challenges are often systemic. For example, inefficient replenishment policies for a China supplier not only potentially lead to an increase in costs for transportation, stock-out, and inventory holding, but also the risk of material substitutions. Substitutions for China suppliers leading to product recalls may erode brand value and contribute to negative environmental impacts. All too often, supplier management in China is done with a hands-off approach, where limited technical and supply chain knowledge is transferred. This extenuates the inherent challenges of the independent operator model, further supporting the need for improved supply chain coordination.

As noted, the trend of increasing LCL shipping from China is influencing the ability for many supply chains to efficiently consolidate, creating a lost opportunity for reductions in emissions. LCL shipping can result from poor demand-production synchronisation. Few supplier managers consider production optimisation, but rather concern themselves merely with product volume ordering. A key consideration again is lead time. To minimise LCL shipments assumes cycle time planning, inventory management and coordination.

1: PRC National Bureau of Statistics.

2: Lee, Hau, V. Padmanabhan and Seungjin Whang, "The Bullwhip Effect in Supply Chains", *Sloan Management Review*, pp. 93-102, Spring, 1997.

These are focal points in improving profitability and environmental sustainability as well. Brown-Forman Corporation is one example of a company who has tied this all together. The company re-evaluated their supplier network considering profitability, inventory, lead time, and procurement costs. The improvements made served both to create environmental benefits, and influenced product quality. Stronger demand forecast accuracy resulted in lower carbon emissions and fuel consumption through a decrease in expedited airfreight shipments. Reductions in inventory, particularly for work-in-process and finished goods, led to a decrease in quality defects with lower material handling, and the cost of goods sold decreased. Profit maximisation with environmental sustainability is the new challenge for global supply chains.

### Operational Efficiency

When environmental sustainability is raised in conversations surrounding China supplier operations, the focus commonly centres on harmful chemical emissions or waste water treatment. Data released in 2008 by the China National Development and Reform Commission (NDRC), indicate signs of improvement; however, more can be done as many pollution reduction goals were not achieved.

Importantly, this discussion must also consider costs attributed to operational efficiency. In China, many manufacturers operate 24 hours per day, seven days per week. Instead of integrating the supply chain to increase productivity, buyers have insisted on lower pricing with higher volume output. Rarely have the effects of over-utilisation been taken into account. This reality has affected the entire supply chain, showing that profit and throughput are parabolic in nature instead of linear. The rising cost of Chinese manufacturing is a direct result of this fact.

One impact of over-utilisation is higher utility costs from required electricity consumption. Further improvement in this area can be made, as one specific target of the NDRC is energy consumption per unit of GDP. If productivity is the focus, greater sustainability is achieved by producing higher volumes in less time, thereby decreasing energy usage. Total overhead costs attributed to the product are reduced. Another advantageous effect is lower production error rates and variability, a common challenge for Chinese suppliers. High utilisation rates create greater wear on machinery, often negatively affecting the quality of products produced over time. When we actively seek supply chain profitability improvements with environmental benefits, we may also find new product innovation.

Companies such as Procter & Gamble realise this. With the decision to concentrate Tide detergent, the company reduced material requirements for both input materials and packaging leading to higher productivity, lower manufacturing utilisation and energy consumption. Quality control

An estimated 20 per cent of the Chinese GDP is spent on logistics



improved based on lower production volumes. In addition, the company estimates two billion fewer plastic shopping bags will be used, 870 million fewer litres of water consumed, savings of 19 million litres of fuel and 60,000 fewer truck shipments<sup>3</sup>. When considering the end-to-end impact, the interconnected nature of the global supply chain is clear.

When discussing manufacturing quality, effects on the environment caused by increased transportation must also be considered. If a product is shipped from China and the quality is poor, the product must be returned or discarded. By improving product quality, tangible environmental benefits are produced. In an ongoing analysis of over 1000 China recall cases it should be noted that many product recalls start with a lack of supplier coordination – everything comes full circle. The cost of quality has both an impact on China supply chain profitability and environmental sustainability.

### Packaging and Logistics Consolidation

For many companies around the world, and in China specifically, cube or container utilisation data is limited. With an estimated 20 per cent of the Chinese GDP spent on logistics, compared to nine per cent in the United States for example<sup>4</sup>, further opportunities for savings and consolidation exist. This is one area of increasing interest as companies consider packaging optimisation. By reducing unused space, transportation costs are reduced as is the impact on the environment. A number of companies are rethinking logistics utilisation. Hewlett-Packard focuses on postponement in final packaging to reduce global freight shipments. Cost savings are USD 3 million per month with an increase in cube utilisation of 250 per cent. This equates

3: Watson, Rip. "Rising Transport Costs Push Shippers to Reshape Packaging". Transport Topics. American Trucking Association. Aug. 2008.

4: China: Logistics and Distribution Industry, JJ Group, 2007.

to a direct reduction in emissions. Fresh Daily C, a fruit juice beverage leader in China, is currently experimenting with packaging alternatives in a similar effort to improve utilisation.

As companies look closer at logistics optimisation, the details of shipping materials themselves become critical. Through in-depth analysis, Dell Computers moved first to slip sheets in their supplier logistics operations, increasing cube utilisation by over 10 per cent. Later, the company identified savings by reducing the slip sheet thickness. As noted, "These thinner slip sheets weigh an average of 0.4 pound less and will allow Dell to reduce their use of plastic by an estimated 720 tonnes annually. Instead of returning slip sheets to a recycler, Dell started to return them directly to the supplier who regrinds them into new slip sheets. By fiscal year 2010, after we expand recycling to Dell factories in Asia, Dell expect to recycle 80 per cent of the slip sheets they use globally."<sup>5</sup>

Costs are a key area of focus for many companies during the current financial downturn. As the China supply chain provides many important keys to the total cost model, supplier operations and logistics, including China, cannot be overlooked. As the 2007 UPS Corporate Sustainability Report states, "Often, greener logistics also can mean more efficient,

cost-effective supply chains that are designed to fulfil UPS's mandate to enable global commerce."<sup>6</sup> Significant opportunities exist when supplier development, logistics, quality and sustainability are carefully reviewed. Companies approaching their China supply chain from this perspective are enjoying advantages not only from their connection to environmental awareness, but also from significant cost savings, and the additional benefits that come with the dedication to fulfilling recent Chinese National Government mandates.

Today, social responsibility isn't solely being driven by customer demand overseas. Much consideration is being given locally within China to the issue of sustainability, as well as the increasing understanding that operational improvements are critical as global competition intensifies. On 10 November 2003, *Computer World* magazine noted, "The classic model of company vs. company is starting to give way to a new model: supply chain vs. supply chain." It could be added that the competition of today is one of sustainability in the world of supply chain vs. supply chain. To compete in the new business landscape, end-to-end operations originating in China must focus on minimising waste, including resource allocation that has a negative impact on the world in which we and our supply chains operate. ■

Profile

Kong and Allan is a unique consulting firm specialising in supply chain operations and global expansion. Located in both the US and the epicenter of development, Shanghai, China, our team will help your company create innovative solutions in all facets of your supply chain. If your company is considering the development or improvement of supply chain, purchasing, process, inventory or logistics management and operations, Kong and Allan builds customised solutions that are structured to fit your company's current challenges. Kong and Allan also partners with an extensive network of global Universities and non-profit organisations dedicated to increasing supply chain knowledge. These global partners enrich Kong and Allan's foundation for continued growth in education and research. Contact us to find out how we can better serve your company. We are always open to learning about your company's supply chain model, challenges, and how we can improve speed, value and profit generation.

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5: Dell Corporate Responsibility Report Fiscal Year 2008.  
6: 2007 UPS Corporate Sustainability Report August 2008.

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