

Overseas Manufacturing May Be Costing Your Firms Millions

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Nike now manufactures its apparel at 800 facilities in over 50 countries. HP outsources 100% of its consumer PC production to global partners. And overall US manufacturing statistics follow suit. Since 1970, manufacturing employment has declined 22%, now holding at 17% of GDP. In this decade alone manufacturing has lost jobs for 32 straight months. Why the decline in US-based manufacturing? Low cost labor from Asia and Latin America has created extreme price pressure. Manufacturers are especially hard hit, as these price pressures are compounded by ongoing brand erosion due to private label growth of major retailers. To respond, many have outsourced certain product lines to these lower cost regions. ***But is this the right decision?***

US firms have always struggled with the decision to shift production outside the US due to the political and PR implications. They are bombarded with boycott threats and “Made in America” chants from lobbyists and protestors trying to influence their decision. And while the financial rewards *appeared* beneficial, this may not be the case any longer. Global instability is increasing the risk of doing business overseas. Volatility in interest and currency rates is increasing the cost of global sourcing. Heightened security risks are driving unexpected surcharges to shipments and increasing replenishment lead times. US Customs recently introduced the 24-Hour rule – a regulation that requires detailed descriptions of the contents of each US-bound sea container 24 hours prior to loading that container at the originating dock. It will increase security, but at a cost. According to a survey conducted by BDP International in February 2003, the majority of global shippers indicated that the rule will have a moderate to extreme impact on their costs.¹ And to manage their supply chains accordingly, a third are adding extra cycle times to their supply chains rather than risk further delays or fines.

But its not just instability or rising costs driving firms to question overseas strategies– it’s also decisions based upon faulty analysis. Often a firm will discover that the total cost of its goods sold did not decrease when it outsourced production -- the unfortunate result of failing to consider costs holistically. These decisions are often “knee-jerk” reactions to declining performance and result in crude analysis which is heavily influenced by a “follow-the-leader” mentality – where low cost competition often dictates the strategy. Without evaluating these decisions along with other strategies that could improve performance, America’s manufacturers often erode millions of dollars in shareholder value through both increased cost and increased risk.

Whether contemplating outsourced manufacturing or re-evaluating existing supply chain strategies, US-based manufacturers need to be aware of ***three common mistakes that lead to flawed analysis:***

Failing to factor cross-country transits in its outsourced manufacturing decision ended up costing one manufacturer millions.

Arbitrary allocation schemes may reduce costs on paper, but actual operating expenses increase.

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- 1) **Total delivered cost.** A simple concept that most people understand yet still do not follow. Total delivered cost is the total cost for shipping product from origin to final destination including product acquisition, transportation and handling fees, duties, tariffs, and all accessorial charges. Often, firms still calculate it based on inaccurate assumptions. Using trade management software to provide true costs associated with international shipments is a good start, but this still doesn't factor costs beyond the port or point at which product enters the distribution network.

The problem? As firms manufacture overseas, they not only face additional, international shipping costs, but also incur significant increases in inter-facility costs to reposition product from ports to regional manufacturing and distribution points -- a cost many firms fail to consider. And these costs add up quickly. One manufacturer attempted to reduce material costs with overseas production, but the strategy backfired. Failing to factor the cross-country transits it would encounter to fill its heavy eastern demand, it outsourced manufacturing to Asia, bringing outsourced product into West Coast ports. But this strategy -- that required breaking down and redistributing shipments to eastern facilities and then customers -- ended up *increasing* costs by millions. To avoid this costly mistake, the analysis should be based on total costs -- not just to the port -- but to the customer. That means evaluating the changes in inbound, outbound, and especially inter-facility logistics costs that will occur as sourcing point are changed.

- 2) **Proper use of activity based costing.** Many manufacturers use variable activity based costing to determine if they should move a portion of production overseas, because the method of assigning variable costs to products makes the comparison of outsourced to internal costs easy. While most firms consider these variable costs when choosing to outsource, they often make a decision based upon standard product costing and not true cost behavior. And herein lays the problem. Accounting standards categorize certain costs as variable on an *arbitrary* allocation scheme when they are actually fixed overhead. And the result is simple: “paper costs” may decrease, but actual operating expenses go up.

For example, standard costing indicates you can manufacture a product for \$1 domestically or source it in Asia for \$.90. Sound like a bargain? Not exactly. When you shift production volume to an overseas supplier, not all variable costs disappear. Why? Because some “variable” costs are actually fixed -- they decrease in discrete chunks rather than linearly with each unit or don't disappear at all. Fixed costs like production supervisors, schedulers, engineers, and facility maintenance repair costs can rarely be eliminated with the movement of some production offshore. So if you currently allocate \$.15 per unit for these costs, they won't disappear when volume declines. The line -- and the associated management, support, and maintenance requirements -- is still needed for other production. After factoring these *true activity-based costs*, this \$.10 a unit savings actually becomes a cost increase of \$.05 -- 5% more than if you had done nothing.

- 3) **Pipeline inventory.** All firms expect to increase inventory when they move production overseas, because as lead time for replenishment grows so does the associated pipeline and cycle stock inventory. But often, firms forget to factor the lead time variability associated with these longer shipments -- a number that substantially increases safety stock requirements as well. When a company goes from domestic, ground transportation to international, ocean -- where the average shipment involves 27 different parties -- it substantially increases the length and variability in its lead time.

Consider this example. A company is considering outsourcing a domestically supplied product with a week-long average lead time and average variability of 2 days. Due to the length and uncertainty associated with ocean shipping, the

overseas source would triple the lead time to 3 weeks and increase the variability to 4 days. Seem like a modest increase? It's not. In order for this company to maintain the same service levels, it would have to increase its safety stock by 92% on top of tripling in-transit inventories and likely increases in cycle stocks. What appears to be insignificant variability amounts to a huge impact on carrying costs. And if the company had just based its decision on lead time alone – failing to factor an increase in variability -- the safety stock requirement would appear to only grow by 13%, a hugely false assumption.

A jump in inventory associated with a decision to move production overseas can represent a huge knock to the balance sheet and inventory turns. As a result, firms need to determine safety stock increases on *the combination of lead time and lead time variability*. In general, the greater the average demand, the greater the influence of lead time variability on safety stock levels. The greater the variability of demand, the greater the influence of lead times. In all situations, but especially when high valued or highly seasonal products are considered for outsourcing, firms must carefully examine the tradeoffs between increased inventory carrying costs and faster, more reliable modes of transportation. To insure that the analysis is complete, firms need to:

- 1) Evaluate the decision holistically. Managers need to factor total supply chain cost from raw materials to end customers. This includes evaluating the ripple effect on existing manufacturing and distribution infrastructure that results from decreased asset utilization and increased inventories. These strategies must also be evaluated against opportunities that could make domestic operations more attractive like an investment in more efficient equipment or technology, relocation to cheaper domestic markets, or an outsourced component strategy.
- 2) Continuously analyze strategies. To avoid outsourcing programs that promise savings but don't deliver, companies need to reevaluate your strategy on a periodic basis. As product volumes and costs fluctuate, managers should insure that previous decisions are still valid under these new conditions. Significant shifts in currency exchange rates, cost of capital, or even transportation costs can quickly make existing operating models obsolete. Continuous analysis and the agility to adapt to changing market conditions can insure market leadership.
- 3) Consider an investment. If you're outsourcing a core product and the cost advantage is real, managers should consider setting up their own operation or even a joint-venture. This strategy will accomplish two objectives. One, it will force firms to manage the operation holistically – trading off international allocations against domestic capabilities. Secondly, it will incent managers to invest in capital equipment and technologies which can drive even greater efficiencies in an overseas operation.

To factor true supply chain costs, a firm must consider the ripple effect on existing manufacturing and distribution infrastructure that results from decreased asset utilization and increase inventories.

ⁱ According to the February 20, 2003 study by BDP International's Centrx Consulting Unit, "Shippers Increasing Supply Chain Cycle Times to Meet U.S. Customs Cargo Security Rule", 53% of global shippers expect a moderate to significant impact on their cost due to the 24-hour rule that was enacted by the C-TPAT program under U.S. Customs.

Chainalytics, LLC provides leading companies with advanced consulting and outsourcing services to improve supply chain performance. Specializing in the application of advanced decision sciences technology, Chainalytics supports improved strategic and tactical decision-making in the areas of supply chain strategy, transportation planning, and inventory planning. The company's powerful combination of expertise, technology, and continuous approach enables clients to achieve and sustain double-digit cost reductions and customer service improvements. Chainalytics serves mid-to-large size enterprises with complex supply chains.