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## **Selling in China: Four Ways a Local EMS Provider Can Lower Your Cost**

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## **Selling in China: Four Ways a Local EMS Provider Can Lower Your Cost**

*By Hom-Ming Chang*

Companies that outsource use multiple strategies to achieve lowest total cost of ownership. One strategy that is growing in popularity is sourcing all or most of a product near the end market in which the product is being sold. In China, SigmaTron International sees this strategy helping its customers lower cost in at least four key ways:

- Minimization of logistics/freight costs
- Faster response time to changes in demand
- Lowered material costs
- Lowered inventory requirements.

It is also important to understand the systems and processes which are required to support these savings. As with many countries whose manufacturing infrastructure has grown based on an ability to deliver a low labor cost solution, China has suppliers whose world class processes' deliver superior quality and suppliers whose bare bones approach to manufacturing makes it difficult to achieve customer quality expectations or the operational efficiencies that drive competitive cost. This whitepaper looks at each area of potential savings and the systems that should be in place to support achieving cost savings, quality and efficiency goals.

### **Minimization of Logistics/Freight Costs**

One of the most attractive elements of manufacturing in the country and/or region where a product is sold is minimization of the logistics and freight costs associated with transport of finished goods from another region. Manufacturing in China for sale within China offers the most cost savings, since the administrative activity associated with exporting finished goods is eliminated, as is the impact of any unanticipated delays of finished goods shipments in Customs screening. While there is also a reduction in standard freight costs, the biggest savings is often in the elimination of expedited freight costs driven by unanticipated changes in demand. Similarly, manufacturing in China to support the Asian market, offers freight cost reduction benefits when compared to manufacturing outside of the region.

### **Faster Response Time to Changes in Demand**

Time equals money in most product distribution processes. An empty shelf may represent a permanently missed sale. When the bulk of the resources of production are in-country, expediting to support unanticipated increases in demand can occur faster and at less cost. When Kanban finished

goods inventory must be carried to support variations in demand, it is generally less costly when done at an in-country manufacturer. There are two reasons. First, warehouse storage in a facility that already operates warehouse space is usually less costly than paying a standalone warehousing company to store shipped product in support of a distribution channel. Second, the shorter lead-time associated with an in-country production facility ramping up production, reduces the amount of Kanban inventory that must be held. Similarly, if the product has several model variations built on a common base unit, an in-country facility can often do configure-to-order activities at the end of the line, shifting quantities rapidly as demand changes. Conversely, when product is shipped from another region the exact quantity of each model must be ordered.

### **Lowered Material Costs**

With electronic products, 80-90 percent of most bills of materials (BOMs) can be sourced within China. Some ICs are still better purchased in the US. High voltage power supplies and some precision metal formulations are also typically imported from the U.S. Utilizing an in-country supply chain minimizes the in-bound freight often calculated as part of the component cost and eliminates the lead-time associated with overseas shipments. It can also pay dividends in responsiveness, particularly in the area of plastics housings and sheet metal.

### **Lowered Inventory Requirements**

In-country production with a majority of the BOM line items also sourced in-country reduces both the need for raw material and finished goods inventory, since the shipping lead-time among resources of production and the end product distribution channel is significantly reduced. And, potential drivers of “just-in-case” inventory such as unanticipated Customs delays or freight consolidation lead-time are eliminated for everything but the limited number of parts imported from overseas. This can also improve financial inventory turns, since the in-country supply chain and/or contract manufacturer typically carries the costs of inventory and production resources until the product is shipped to the end market, whereas an imported product would be carried on an original equipment manufacturer’s (OEM’s) balance sheet as inventory from the day it shipped from an overseas factory.

However, achievement of these cost savings require close alignment among supply chain, OEM, contract manufacturer and the distribution point. Consequently, when looking for a contract manufacturer, it is important to look at the contract manufacturer’s strengths in internal systems and supply chain management (SCM), in addition to manufacturing capabilities and ability to deliver superior quality.

SigmaTron takes a holistic approach to its systems strategy with the end goal of having its team act as an extension of the customer’s manufacturing operations, whether it is providing a total solution or

shipping printed circuit board assemblies (PCBAs) or subassemblies to a customer facility elsewhere in China.

SigmaTron uses a combination of proprietary and internally-developed systems for enterprise and shop floor management. The Suzhou, China team was a leader in enhancing traceability and shop floor control, developing a Manufacturing Execution System (MES) system known as Tango to address that in 2013. SigmaTron's IT department takes a distributed approach to continuous improvement in its systems by letting teams at individual manufacturing facilities identify specific gaps in shared systems and develop appropriate software tools. These solutions are then tested at the facility that identified the need and later transferred across all facilities. In this case, Tango was deployed to other facilities beginning in 2014.

Tango use starts in incoming inspection. When the BOM is originally entered in Tango, all special instructions are entered as well. This ensures that handling and storage instructions are always associated with each part in the system. As material is received, the system also creates an internal log number which lists purchase order number, date code and lot code. This supports not only device history recordkeeping during manufacturing, but also a first in, first out (FIFO) system during kit preparation.

Tango also does reel/feeder verification. When production operators load a reel, they scan both the reel and the feeder. The system verifies that reel is correct for that feeder number and that the feeder is loaded into the correct slot in the feeder table.

A strong systems strategy also drives documentation creation and control, and work order scheduling and tracking. Product documentation is transferred electronically from customers, eliminating potential errors associated with more manual processes. Electronic work instructions are displayed on monitors at each workstation. These work instructions include video showing the steps necessary to perform the designated operation, ensuring that operators have clear examples of the optimum way to perform specific tasks. Product is bar coded and tracked through each operation using the Company's proprietary iScore system. Real-time production status monitors display data in each work area, and customers can access production status remotely via the Score portal. The end result is a production environment where all workers have access to real-time production metrics and bottlenecks or quality issues become immediately apparent.

SigmaTron's strong systems strategy combined with standardized key processes seamlessly support either a standalone manufacturing solution or a multi-facility build. This ensures that opting to manufacture in China for sale in China includes no customer visibility or quality tradeoffs.

To execute an SCM strategy that truly involves adding value to the outsourcing equation, a contract manufacturer needs to focus on developing a strategy that highlights exceptions in real time, minimizes the risk of supply chain disruption, can flexibly support customers' changing requirements, and procures competitively priced, superior quality parts.

SigmaTron's model relies on centralized SCM coordinated with its International Purchasing Office (IPO) in Taiwan. The IPO is charged with identifying best sources and monitoring trends in each commodity. Team members are Green Belt-certified and use Six Sigma tools to analyze supplier quality issues.

There is centralized management of key commodity segments such as printed circuit boards, semiconductors (ICs and linear logic), power products, connectors, electronic components (relays, electrolytic, ceramic and film capacitors), plastics and metals. This approach helps minimize supplier count by establishing a core of competitively priced suppliers with the right mix of capabilities. In SigmaTron's model, major commodities undergo periodic review, depending on pricing volatility, to ensure pricing stays competitive. This type of approach provides customers with a clear path to best cost competitive options.

The IPO team regularly helps customers identify alternate suppliers and cost reductions. In one case, the custom display commodity manager found three alternate suppliers that were 20-50 percent below the cost of the suppliers that the customer had identified. In another case, the team audited a customer-selected supplier that looked very well established on the internet, but in reality turned out to be a small shop incapable of handling the customer's projected volumes for a custom mechanical part. The commodity manager was able to identify alternate cost competitive sources that could produce in the required volumes.

The risk with any centralized model is the possibility the unique needs of individual facilities are ignored. Another potential downside can be excess transport of materials which might better be sourced locally or within a specific region.

SigmaTron's SCM model addresses this with local purchasing teams supporting each facility. Consequently, while the IPO is integral to the overall commodity management effort, the Purchasing team in Suzhou has the ability to source locally when that best addresses regional business requirements. The Suzhou Purchasing team also identifies potential suppliers within their region who may be a fit for global or regional sourcing, particularly in the area of maintenance, repair and operating (MRO) supplies.

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## **Conclusion**

With the right systems and SCM support building in China to sell in China represents the lowest total cost of ownership. However, achieving those costs savings requires a strong focus on systems and SCM practices which provide real-time visibility, help ensure superior quality, increase overall efficiency and identify cost reduction opportunities. The process of selecting a contract manufacturer in China to build product for sale in China should focus as strongly on systems and SCM competencies as it does on manufacturing capabilities. The cost of the inefficiency and quality issues that can come with a “bare bones” manufacturing partner, typically outweigh any unit price savings.

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