

# Costs control: not a zero-sum game

**Former EMS executive offers a plan for reducing manufacturing costs without sacrificing quality, flexibility or responsiveness**

BY CHARLIE BARNHART

*This is the second in a four-part series on pricing within the electronics industry.*

As discussed in Part 1 of this series, pricing for electronics manufacturing services is based on four elements—three dealing with cost and one providing the opportunity for profit.

## The three cost elements of price are:

- the cost of producing the product—called the cost of goods sold—which includes the materials, labor and overhead necessary to manufacture the product;
- the corporate costs known collectively as sales, general and administrative expenses, which include administration (finance, legal, human resources), sales and marketing, information systems/information technology and other similar tasks; and
- other corporate costs, for such elements as research and development, interest (or the cost of money), one-time expenses and taxes.

The fourth element of selling price is called margin and is applied as a markup to the three underlying cost elements.



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Therefore, in the simplest of terms, the selling price of an EMS product is the combination of cost plus margin.

But the price an OEM pays for EMS services is not the total of the above four items, since the costs of delivery and ownership need to be added. These additional costs are called landed cost and cost of ownership. A breakdown of the two follows.

## Landed cost

### The fees constituting landed cost include:

- shipping, insurance, handling fees and surcharges;
- brokers' fees and commissions;
- customs duties, value-

added taxes and equivalents, such as the goods-and-services tax (GST);

- port fees, taxes and charges; and
- nonregulatory fees (such as product-specific fees and/or intended-use fees).

## Cost of ownership

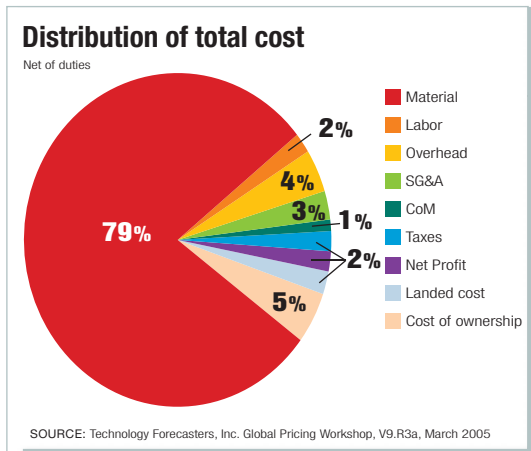
### These charges are part of the cost of ownership:

- procurement management, planning and execution;
- supplier selection and support;
- exchange-rate variations;
- financial planning, execution and control;
- the opportunity value of the cash cycle; and
- the cost of quality.

In today's complex global environment, it is especially important for companies to understand, and accurately estimate and track, their total cost when formulating, structuring and executing an outsourcing strategy.

## Companies need this skill for two reasons.

First, as seen in the figure on page 24, which breaks down the total industrywide cost of an EMS project delivered to an OEM, landed cost and the cost of ownership combined account for the largest portion of total cost after materials. And second, these costs are direct-



ly addressable by the OEM.

Starting with landed cost, which is shown above, after duties are deducted, these logistics-related costs are roughly equal to the labor portion of an outsourcing project but seldom receive the same level of scrutiny. (Skeptical? How many times have you heard of a company's restructuring its outsourcing strategy to minimize

its supply lines by shifting most of its on- and near-shore manufacturing requirements to off-shore solutions. In the process, parts and materials end up traveling more miles than the space shuttle.

People travel the same supply lines as the materials they manage. When a company outsources the design, manufacture or fulfillment of its product, it cannot leave any element of the process to chance; each aspect must be managed, and much of that management needs to be done on-

site. But does being on-site automatically mean that people need to travel halfway around the world?

**Step 2. Consider customer proximity**

A practice of virtually every OEM sales organization is to locate its people near its customer base. Companies consider in-geography representation, with local knowledge of markets, customers and regional customs, elemental to the business development and customer support process. But this practice is rarely incorporated by the operations or outsourcing groups within most OEMs.

**When questioned about this disparity of approach, one of three reasons is usually given:**

is to chart the complete logistical course of the materials contained in the product. More often than not, the results are shocking. It's no mystery why third-party logistics companies have been the fastest-growing and most profitable enterprises since the downturn began in 2000.

The electronics industry has extended

- The procurement and/or supply-management function of the company needs to be located close to the design-engineering function, since product development and manufacturing are intertwined and are therefore highly co-dependent.
- The skill set or knowledge base is resident at one location (usually near the corporate or business-unit headquarters), and the manufacturing is done elsewhere.
- It is more efficient to keep supply management resources closely aligned, since they are highly leveraged; or, alternatively, it is not cost-effective to implement regional support, since the supply base is global.

Those are all well-thought-out, seemingly rational explanations. Thus, they should be easily validated by applying the analytical tool of reciprocal applicability (that is, "what's good for the goose is good for the gander"), with the sales function as the test case:

- The sales function of the company needs to be located close to the design-engineering function (rather than close to the customers) because design and sales are intertwined and therefore are highly co-dependent.
- The sales knowledge base is resident at one location, even though the customers are located elsewhere.
- It is more efficient to keep sales resources closely aligned, since they are highly leveraged; or, alternatively, it is not cost-effective to implement regional sales, even though the customer base is global.

Huh? Maybe reciprocal applicability doesn't apply. Or does it? Since every company's supply

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shipping costs, as opposed to moving manufacturing in pursuit of lower-cost labor?)

Lower labor costs can and usually do favorably affect the cost of materials, but how carefully are those savings weighed against the added costs of operating in regionally remote geographies? Are you shipping raw materials, parts or assemblies transcontinentally to support labor-savings initiatives?

There are three steps managers must take to keep their costs in line without sacrificing quality, flexibility or responsiveness.

**Step 1: Chart the logistics course**

One of the most enlightening exercises a supply manager can perform

solution is unique, it is impossible to generalize on what in-geography support might cost any individual OEM. Based on industry-comparable data from Technology Forecasters Inc.'s Global Pricing Workshop, however, it is possible to approximate the premium that OEMs spend on remote vs. local representation and thereby to determine the financial viability of in-geography support.

The numbers in Figure 2, below, represent a cost multiplier for supporting standard life cycle tasks for each of the geographies listed, as opposed to what a U.S.-based company would spend to support the same task locally.

By way of example, if a U.S.-based OEM spent \$1 in "general support" of an outsourcing relationship with a local EMS provider, it typically would spend \$1.50 supporting the same activities with an EMS located in Mexico (upper lefthand corner of table). Or, if that same company spent \$1 supporting warranty with a local EMS, it would spend \$3 supporting the same activity with an EMS located in Southeast Asia (lower-righthand corner of table).

Obviously, these numbers compare the indirect or overhead costs of the activities for such things as travel and per diem—not the direct or purchase costs of products or services.

**Step 3. Commit to quality**

Every company includes quality in its operational metrics, and for

good reason. Quality is not an option; it is an absolute. Consumers expect the products and services they purchase to be first-rate, and the electronics industry has set the bar very high. When was the last time you purchased an electronic product that didn't work out of the box? If something does come to mind, it's because it's such a rare event.

This is no accident: It is the result of countless hours of work and a massive commitment by all parties involved. Everyone involved in the electronics industry deserves recognition for this accomplishment, and this writer believes it is one of our industry's most underacknowledged success stories. Just consider that less than a decade ago, quality escapes (undetected failures) were measured in percentage points rather than the parts-per-million used today. So, dare we risk changing our approach to outgoing quality?

Certainly, lessening our commitment would be foolish. But given the level of expertise the industry has achieved in quality assurance, are there operational dividends that have yet to be leveraged?

To date, the least-outsourced task by OEMs is final systems test. According to Technology Forecasters, at least 65 percent of the total available market for this task remains in-house.

The most common explanation given by OEMs is that they combine customer or product configuration functions into final test and therefore need to maintain the task locally to assure the highest possible level of control and flexibility. Additionally, many OEMs mention final testing of

**Three ways to reduce cost:**

- 1 Chart movement of materials and eliminate waste**
- 2 Locate support functions close to the supply source**
- 3 Leverage local EMS facilities for fulfillment services**

their end products as their primary core competency and main manufacturing value-add.

These arguments are compelling, and some OEMs will never relinquish direct control of these processes. But there are dozens of underutilized EMS facilities, located in close proximity to their OEM customers throughout North America and Western Europe, and many have significantly lower cost structures than their customers' internal facilities. That's a huge potential cost savings for the electronics industry, especially considering that the average savings to OEMs on services of this type runs at about 5 percent of the total production costs.

So there you have it: three ways to reduce cost without compromising quality, flexibility or responsiveness—and without asking your suppliers for pricing concessions.

*The next installment in this four-part series on pricing is titled "Material acquisition, liability and ownership: approaches, alternatives and implications." Look for it in the September issue of Electronics Supply & Manufacturing. ■*

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**Manufacturing support costs**

	General Support	NPI	Production	EOL	Warranty
<b>Mexico</b>	1.5	2	2	2	3
<b>E. Europe</b>	3	5	3	5	8
<b>India</b>	5	*	5	*	*
<b>China</b>	5	6	3	4	8
<b>S.E. Asia</b>	2.5	3.5	3	3	3

\*Insufficient data available at time of study  
SOURCE: TECHNOLOGY FORECASTERS