

The Toolbox by David Taylor, C.P.M. **May 2007**
“Total Cost of Ownership-Inventory Materials”

As promised last month, I continue my summary review of a June 2001 article in *Purchasing Today*, ISM’s predecessor publication-- *Inside Supply Management*. The author of the above article was Mary Lu Harding, C.P.M., CPIM, CIRM, then president of Harding and Assoc., Lincoln, Vt.

Definition: “Total cost of ownership (TCO) is an assessment of all costs involved with an item over its useful life and that of the products into which it goes.” Even then, (in 2001) it was suggested when establishing guidelines for evaluating TCO, you should utilize a small, cross-functional team to determine the parameters and measureables. In other words—let each of the involved parties or departments have a chance to give input, include their issues and voice their concerns on hidden costs or missed factors.

As I continue, think of what your supplier rating systems today consist of, and the weighted measures you include to derive a quarterly or annual supplier rating. Poor quality and missed deliveries are now recognized as generating excessive costs, which many companies now include in their definition of **Cost of Quality**. You may even see regular charge-backs from your customers, for each documented reject they have to process. In a normal quote/bid analysis, do you consider these added and sometimes hidden costs when you evaluate bids from three companies--all with different supplier ratings and historical performance records?

Ground Rules

- Determine the items to be included and where they are used
- Define the suppliers that will bid—how are they comparable and how do they differ
- Estimates or forecasts of usage and release quantities, how to be handled & stored once received
- Areas of cost to be included in the analysis
- Define formulas or factors to use in calculating the hidden or additional costs

Inventory items may be low-to-moderate dollar value per unit and may be classified as A, B, C or D inventory items based on their combined volume and dollar impact to your operations. Stock-out of an A or B item, and everyone in the organization hears about it! Set up a simple spreadsheet with the various factors down column A, and your Suppliers A, B, C or D as the Column Headers across the top.

Cost Factors These may include:

- Quoted Price
- Shipping cost per package or lot quantity
- Specialized packaging or dunnage- coming more into play for exports with the new world-wide standards requiring heat treated pallets/lumber to avoid pest infestations, or landfill limitations which may disallow or regulate use of certain packaging components such as Styrofoam
- Discounts which may apply or be available for prompt payment

Performance Factors don’t ignore a factor just because it is a penny or ½ cent per unit. If you consume a million units in one year, half pennies add up quickly-- \$5,000. Here a weighted average might yield surprising results. (Eg: assume your item is quoting in the 10 to \$12.00 range)

- On-Time Delivery Eg: Supplier A is on-time 85% of the time add \$1.50 to unit cost. Supplier B is on time 89% of the time so add \$1.27 to unit cost, while Supplier C is 100% on-time and gets \$ 0 added to the unit cost.
- Quality-- look at the supplier’s frequency or % of rejects received Eg: Supplier A 13% reject rate= \$1.30 per unit, Supplier B 8% rate= \$.92 per unit, Supplier C 0% rate –no added cost
- Lead-time: for each additional week of lead-time, you must consider adjustments to safety stock and average stock you need to maintain operations. You also must be able to adjust or compensate for drop-in requirements or schedule changes, inside your required lead-time in order to meet schedules. Eg: add in 1% of the supplier’s quoted price for each week of required order lead-time you must give them. A \$10.00 quoted price with a lead-time of 10 weeks then has an added cost of \$1.00 per unit. An \$11.50 quoted price with a lead-time of 9 weeks has an added cost of \$1.04 and the highest price item at a quoted price of \$12.00 with only 7 week lead-time only requires an added cost of \$.84 per unit. The little factors like Lead Time, Quality, Service/Customer

Satisfaction can really add to the total cost of what at first glance might appear to be the cheapest or lowest price quoted.

Policy Factors – these may reflect business or social policy directives from your management or corporate group. Examples might be “green” environmental considerations on paper products, diversity supplier concerns or requirements. Other examples might be brand loyalty or resistance to the shop’s preferred brand such as 3M, or Bic vs an economy pen, Kleenex vs Puffs vs store-brand facial tissue.

- Recycling or environmental issues
- Disposal costs as in hazardous chemicals, spent batteries old computer monitors, etc.
- Brand name preferences or demand for product from specific manufacturers may lead to higher quoted costs but yield lower actual costs long-run when quality, lead-time and performance of the product are in fact different than for the competitor’s item.
- Hazardous components may require special storage consideration such as safety cabinets for chemicals or paints. Janitorial chemicals can have hidden costs when the MSDS sheets show an ingredient that requires special handling or storage such as caustic items. Do you already have suitable storage and containment barriers or will your selection of this particular product require new cabinets for safety concerns? Will your glove use increase or dermatitis problems appear?
- Cost of carrying the inventory—early deliveries repeatedly by one supplier mean earlier payments, cash flow drain and longer on-hand storage and handling. Overseas procurement often forces additional safety stocks and sometimes as I mentioned last month, long-range domestic warehousing arrangements on critical components to guarantee product availability. Recently a top Toyota executive indicated in a radio interview, they no longer jeopardize loss of production by procuring low cost items such as o-rings and seals from overseas, when they can shut down production for lack of a .05 to \$.50 item halting production on a \$25,000 end product which for a few cents more can be purchased domestically and even locally.

Production Related Costs such factors as ease of use or assembly can affect the production cost. For example this past year a simple plastic cap used to cover fittings to protect from contamination during shipment, was examined due to so periodic quality problems. In the investigation, we found that assembly required holding the tube assembly and pressing the cap over the fitting hex nut with the center of your palm. Do this for 700 tube assemblies and your palm was red, sore and sometimes bruised. We tested an alternative which cost 1-1/2 cents more but was a plug that was inserted into the fitting and locked on the internal thread. It could easily be inserted even when you had a handful of the plugs, because you could insert it easily with just one finger—forefinger or even the little finger. What’s more, no bruising to the palms, and on a 700 tube assembly order being packaged by 3 workers, it reduced the packaging time by twenty minutes times the three workers. We now use nearly 20,000 of those little plugs a month. The ergonomic and labor time reduction offset the increased cost of the new plug vs the old cap.

Sometimes the package or container is not conducive to efficient use in production. Changing or adjusting the size of the carton or lot sizing the shipments, may yield further efficiencies on the production floor not realized before. Again, team input can produce surprising results here.

By approaching the defining of factors, and the weighting given to each through the team process, you obtain a clearer meaning of what your organization values and what you are truly selling to your customers.

As you can see, things are not always what they may seem at first glance or appearance. The old adage, that you get what you pay for, can often be surprising in ways you never imagined.

Next month, we will continue with **Total Cost of Performance-- Services**

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Call for Topic Ideas for luncheon and dinner speakers—Tim Pinter or other board members would like to hear from you on topics you would like to explore or have presented. For example here are four that have been suggested: negotiation, international suppliers, global business concepts and renewable energy alternatives. We’d like to hear from you. -- dt