Everything You Always Wanted To Know About Product Cost but Were Afraid to Ask

Part 2
Recap  part one lecture

• No one cares what your prototype cost

• Product Cost = Material Cost + Assembly labor cost + profit

To Get Started you need

• Bill of Material (BOM)
• Product volume first year and follow on years helpful for business plan
Product Cost

Product Cost Equals =

Material Cost + Assembly Labor + Profit

Material cost = parts, scrap, maybe amortized tooling to make parts.

Assembly labor = All labor to get it out the door to the customer manufacturing, assembly, testing, packaging,

Profit = $$$ left over after you pay all the bills
Tooling Costs

There are two ways to handle this:

1.) Total tooling to produce a part is divided by number of parts the tool will produce over the lifetime of the product. This number called amortized tooling cost is added to the part cost. In the case of very large volumes this ends up being a very small number.

2.) Tooling cost for product is track and paid for out of a separate budget linked to the project
Product Cost

All the Bills include:

• Salary for your team about $100,000/ engineer including benefits
• Rental Space for offices, lab areas
• Manufacturing areas, tools assembly fixtures ........
• Equipment office, computers, Xerox machines .......
• Heat, lights ..... If not included in rent
• Inventory of raw and finished materials
• Phones, internet,
• Marketing
• Product Liability insurance

But to name a few
Typical Product Cost Breakdown

- Part Costs: 72%
- Overhead: 24%
- Labor: 4%

Source: The True Cost of Oversea Manufacturing June 2004 N. Dewhurst & D. Meeker
Costs and Expenses

Examples

Cost
- materials, labor, overhead: 69.7%

Expense SG&A
- sales general and administrative: 24.3%

Expense
- R&D, interest, taxes: 3.6%

Profit
- NEAT: net earnings or profit after taxes: 2.4%
Creating A Product Cost

First
You need a bill of material BOM
This is a listing of all the materials, and parts it takes to making your product. The BOM should have a part name, description, quantity used in the product, dimensions and weights, and the material it is made of.

Ideally the BOM should be indented starting with the finished product.
Next all the subassemblies should be under it, and the parts and subassemblies that go into those listed under them respectively.

Second
You need to know the Volume of units you plan to produce. You want to cost your product at the max volume you plan to make for the year. Volumes can increase over time if you believe your sales of units will increase.
Costing Tutorials

http://www.dfma.com/support/tutorials.htm

Learn the basics of the DFM Concurrent Costing Software – [10:45 runtime]
Learn the Basics of the Design for Assembly Software – [7:46 runtime]
Import a Bill of Material (BOM) into DFA – [3:18 runtime]
Import a CAD model into DFM Concurrent Costing – [2:28 runtime]
Learn how to use DFA to redesign my product – [5:45 runtime]
Share the results of my DFMA Analyses with others – [3:12 runtime]
Analyze an Injection Molded Part – [7:19 runtime]
Analyze a Sheet Metal Part – [4:09 runtime]
Analyze a Machined Part – [7:05 runtime]
Analyze a Machined Part using the Quick Estimator – [5:15 runtime]
Conduct an environmental assessment of my product – [7:09 runtime]
Add a Machine to the Machine Library in DFM – [2:56 runtime]
Add a Material to the Material Library in DFM – [3:27 runtime]
VERY IMPORTANT

Where possible and as you are buying things now ask for quotes in quantities you need to build at least your first year volume.
I Keep Six Honest Serving Men

I KEEP six honest serving-men
(They taught me all I knew);
Their names are What and Why and When
And How and Where and Who.

Questions

Rudyard Kipling