What to Do if Your Purchasing Practices Are Not Providing Should be Costs

Introducing APD

Execution

Implementing projects that improve the bottom line

- Savings roadmaps with specific cost savings actions for each commodity
- Should-be cost model development
- Strategic sourcing implementations for sustainable savings

Technology

Unlocking savings with big data analytics for purchasing

- E-sourcing tool simplifies quoting and supplier management
- Develops should-be cost models for side-by-side quote comparison
- Identify opportunities for savings based on variance analysis of supplier quotes

People

Enhancing the capabilities of your purchasing team

- Purchasing Placement (direct hire or contract)
- Buyer skill development training:
  - Strategic negotiations
  - Commodity leadership
  - Understanding and managing costs

Customized solutions; There is no one size fits all approach.

We Help Clients Implement Knowledge-Based Cost Management in Three Ways . . .

1. **Turn-key Projects** that provide the maximum leverage of our expertise and time

2. **Execute-and-Mentor** where we deliver the early stages and guide the client's staff to complete the project while internalizing capabilities

3. **Technology Transfer** approach that relies on the client organization to execute

Today's Presenter:

Jeoff Burris

Principal, Advanced Purchasing Dynamics

- >30 years manufacturing purchasing experience
- Founded APD in 2004
- Helps clients make their investment in purchasing a competitive advantage

Today's Producer:

Jon Homrich

Client Support,
Advanced Purchasing Dynamics

- Project Management Leadership for Consulting and ProcureForce Implementation
- Helps clients make their investment in purchasing a competitive advantage

Today's Objectives

- Review why models are used.
- Build awareness of how others are approaching should be costing using:
  - Historical/current pricing catalogues
  - Single variable/linear price models
  - Multivariate regression models

Part 2 – March 22, 11 am

- Building manufacturing process cost models
  - Creating optimal detailed cost breakdowns
  - Getting accurate information on quotes
  - Using supplier quote information to build manufacturing process cost models

April 19 Workshop
Creating Should- Be Cost Models

Join APD for an in-depth workshop on developing and managing should-be cost models

- April 19, 2:00pm – 5:00pm
- Reception afterwards
- Southfield Best Western Premier

Participants get excel workbooks with step by step directions.

Why Do We Need Should be Costs?

- Serve as the basis for negotiating pricing with suppliers.
- Provide reasonably accurate predictions of costs that can be used in new-business pursuit and design optimization.

Why Don't We Just Go to the Suppliers?

- No time
- Too many requests
- 90% of the requests are never put into production
- Don't want to set pricing expectations

Historical/Current Pricing Catalogues

Part #	Quote Date	Supplier	Current Price	Gross Wt	Net Wt	Volume	Raw Material		
							Material Type	Cost	UOM
12348900	1/1/2017	Smith	$1.59	1.2	1	100,000	EN 1043	0.54	lb
909808	3/1/2017	Jones	$2.39	1.4	0.9	50,000	EN 1043	0.52	lb

- Include most important drivers
- Add data from each quote
- Add key calculations (e.g., Net wt / Gross Wt.)

Historical/Current Pricing Catalogues

	A	B	C	D	E	F	G	H	I	J
1	Part #	Quote Date	Supplier	Current Price	Gross Wt	Net Wt	Volume	Raw Material		
2								Material Type	Cost	UOM
3	12348900	1/1/2017	Smith	$1.59	1.2	1	100,000	EN 1043	0.54	lb
4	909808	3/1/2017	Jones	$2.39	1.4	0.9	50,000	EN 1043	0.52	lb
5	9009056	9/21/2018	Smith	$1.98	1.6	4-Jan	76,000	EN 1052	0.46	lb

- Having the catalogues in excel provides for fast and easy sorting

Historical/Current Pricing Catalogues

- How they are used:
  - Quick look up of similar parts
  - As the foundation for more sophisticated tools

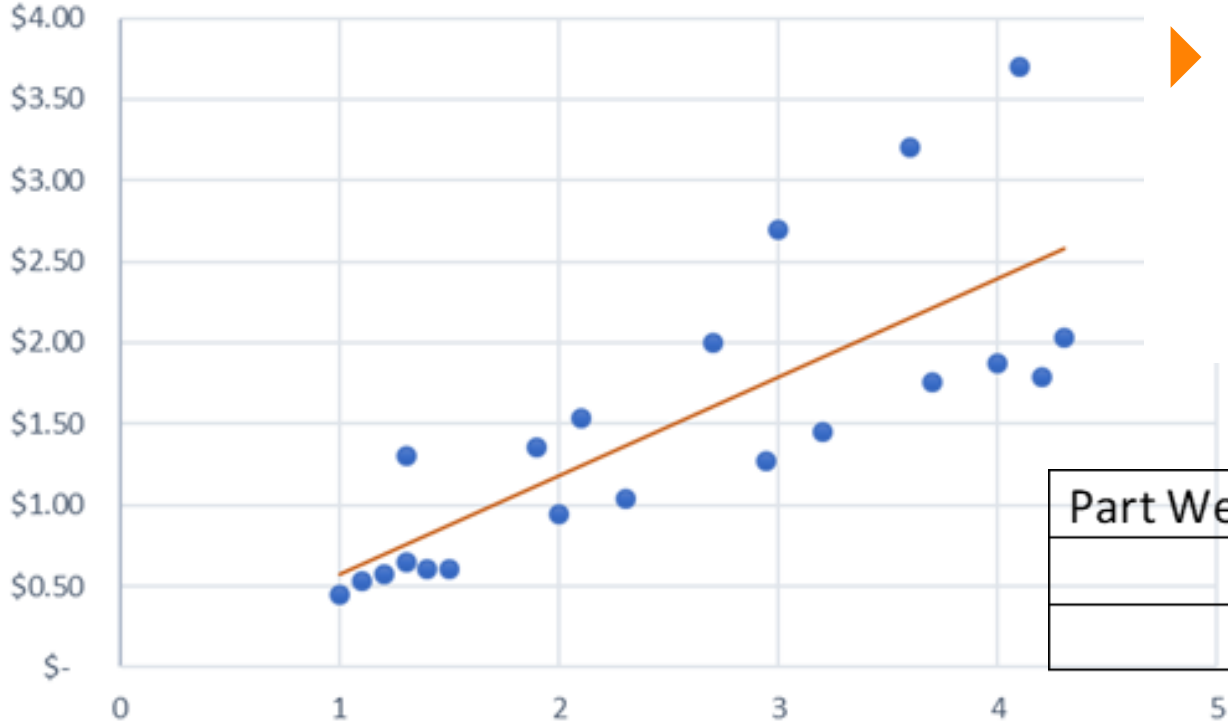
Linear Price Models

- Using a single part attribute to predict price:

Example: Price = Net Weight * $.46

Predictive Linear Model

Non-Predictive Linear Model



- What is different about the parts?

Part Weight	Price	Volume
2	$ 0.94	160,000
2.1	$ 1.53	45,000

Predictive Linear Models

- In practice multiple attempts will be required.

Multiple Linear Models for 1 Commodity

Commodity	Characteristics			Linear Formula
Die Casting	Parts with Volumes < 100,000	Parts without Machining	Parts without Washing	Net Part Weight * $.86
			Parts with Washing	Net Part Weight * $.87
		Parts with Machining		Net Part Weight * $.97
	Parts with Volumes > 100,000	Parts without Machining	Parts Without Washing	Net Part Weight * $.46
			Parts with Washing	Net Part Weight * $.47
		Parts with Machining		Net Part Weight * $.77

Linear Models

- Can easily be made to include the latest raw material costs.

Example:

Should be Estimate = Net Part Weight * (Market Index Per Pound + $.22)

Linear Estimating Models

- How they are used:
  - Quick Should be Estimates
  - To identify parts that are not priced like others

Multivariate Regression Models

- Regression is a statistical measure of the relationship between multiple variables
  - Estimates the strength and direction of the relationship between the variables
  - Enables prediction of dependent variable based upon independent variables (predictors/regressors)
- English version – using attributes to estimate price

Multivariate Regression Models

Should be Estimate =

(net part weight * $.22) +

(number of machining operations * $.14) +

(number of times washed *$ .11) +

(raw material index * .19) +

(volume * -$.13) +

intercept value

Multivariate Regression Models

Attribute of Part Being Estimated ↓		Regression Coefficient	Cost Impact
			$ 0.09
Net Part Weight (lbs)	3	0.22	$ 0.66
# of Machined Surfaces	2	0.14	$ 0.28
# of Times Washed	1	0.11	$ 0.11
Material Index Value	1.34	0.91	$ 1.22
Volume	100,000	-0.0000013	$ (0.13)
		Should be Estimate	**$ 2.23**

Multivariate Regression Models

- May be quicker to create a Multivariate Model than multiple Linear Models.
- Quick costing.
- Identify parts that are not priced like others and can be investigated for cost reduction.
- Can include the latest raw material costs.

Regression Analysis

If we run all of the parts through a the regression formula, we can identify parts with potential risk and opportunity.

We can also identify parts where the formula is way off and eliminate those from the analysis to improve our formula.

Length of Tube (ft)	Diameter of Tube (in)	# of Bends	Part Weight (grams)	mm of MIG	# of Attachments	Type of Tube (Fuel/Water)	# of Critical Characteristics	Contains Fixed Label	Estimated Piece Price	Actual Piece Price	Variance	% Variance
9.155	8	6	86.5	9	2	0	3	0	$8.84	$8.65	-$0.19	-2.16%
1.310	2	1	20	1	0	0	3	1	$2.35	$2.05	-$0.30	**-14.72%**
2.750	3	2	31	3	1	1	4	1	$3.41	$3.42	$0.01	0.28%
2.310	2	2	26	2	0	1	4	0	$2.85	$2.90	$0.05	1.68%
1.600	2	1	22	1	0	1	4	1	$2.42	$2.15	-$0.27	**-12.55%**
1.900	2	1	24	1	0	0	4	0	$2.51	$2.60	$0.09	3.50%
2.550	3	2	32	3	1	0	4	1	$3.40	$3.30	-$0.10	-3.13%
1.975	2	1	21	2	0	0	4	0	$2.56	$2.80	$0.24	**8.48%**

Summary

- Historical/current pricing catalogues
- Single variable/linear price models
- Multivariate regression models

Benefits

- Historical/current pricing catalogues
- Single variable/linear price models
- Multivariate regression models

- Provide fast estimates
- Identify parts not priced like the others
- Can incorporate indices
- Do not require supplier participation

Part 2 Agenda

- Building manufacturing process cost models
  - Creating optimal detailed cost breakdowns
  - Getting accurate information on quotes
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- Final Questions:

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