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15.963 Management Accounting and Control  
Spring 2007

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# 15.963 Managerial Accounting and Control

Spring 2007

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# Owens & Minor A

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- What external pressures does O&M face?
  - U.S. healthcare expenditures are rising due to demographic trends and technological advances, so medical supply is growing sector.
  - However, insurance companies and government agencies have changed from cost-plus to fixed rate reimbursement for hospitals.
  - Hospitals are passing along cost pressures to distributors.
    - Stockless and JIT systems at hospitals require smaller, more frequent deliveries
  - Customer consolidations have increased customer power, and in turn led to distributor consolidations.
  - Competition from manufacturer-owned distributors.

# Owens & Minor A



- What is O&M's role in the supply chain?
  - Primarily to break bulk, own, hold and manage inventory.
  - Provide credit to hospitals.
  - Transmit sales information to manufacturers.
  - Monitor compliance with pricing contracts.
- How has this role evolved? It now includes:
  - making smaller, more frequent deliveries to stockless and JIT customers;
  - providing end-user kits –
    - O&M no longer just wholesale, but also retail, source;
  - providing hospitals with usage information and material management support –
    - hospitals can lower their own storage costs and identify outsourcing opportunities.

# Owens & Minor A



- What behavioral distortions did cost-plus pricing create?
  - Customers could demand enhanced services from distributors, since price was based on product cost rather than delivery cost.
    - Cost-plus pricing in this case could induce severe free-rider problems (overconsumption).
  - Customers could cherry-pick, by purchasing the most expensive products directly from manufacturers.
    - This was beneficial to manufacturers too, if ordered in bulk, since they could charge an extra fee.
- End result is goal incongruence in supply chain, which ultimately raises costs for healthcare consumers.

# Owens & Minor A



- How can activity-based pricing (ABP) help?
  - ABP makes the link between actions and costs transparent, which helps control costs.
  - ABP mitigates the free-rider problem since hospitals internalize the cost of services they demand.
  - Customers who are subsidizing others under the cost-plus system are less likely to be poached by O&M's competitors under ABP.
  - Customers who are unable to obtain enhanced service from O&M's competitors under cost-plus are more likely to switch to O&M under ABP if they are prepared to pay for consumption.

# Owens & Minor A



- Why does the pricing matrix only have two dimensions, rather than multiple dimensions for all the different cost drivers?
  - Costs of complexity – this illustrates that they are substantial.
- What obstacles does Ideal face in accepting ABP?
  - Budgeting: It is easier to predict quantity of items to be used, and prices will be predictable in competitive market, so budgeting is easier under cost-plus pricing. Predicting activity usage patterns much more difficult/costly.
  - Internal (transfer) prices at Ideal would be easier under cost-plus.
  - Performance measurement: e.g., how should purchasing managers at Ideal be evaluated under ABP?
  - Realigning internal systems requires time, and managers have horizon problems.
  - Costs of new technology such as EDI.
  - Costs of changing internal material handling processes, such as hiring logistical consultants.

# Owens & Minor A



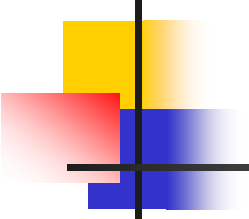
- How can O&M address these issues?
  - Convert ABP (or activity fees) into cost-plus price.
    - Would this require different percentage mark-ups for different items, thereby increasing complexity (tracking costs)?
    - What about exposing the link between actions and costs?
  - Offer logistical support to help hospitals realign internal systems.
  - Convince competing distributors of value of ABP.
    - This is an interesting case where sharing a new technology with competitors increases the value of the technology.



# Owens & Minor A



- Is ABP risky for O&M?
  - Customer inertia is obviously a problem.
  - Competitor inertia is problematic because it gives customers alternatives to switch to.
  - ABP is likely to lead to efficiencies that create excess capacity. This capacity should be avoidable or usable, in order to realize benefits of ABP.
- Should O&M use cost-based or value-based pricing?
  - Cost-based is appropriate for commodity services.
  - Value-based is appropriate for more value-added (or differentiated) services such as logistics support, management consulting and usage reports to hospitals.



<b>Cost Driver</b>	<b>Rate</b>	<b>Alpha Volume</b>	<b>Beta Volume</b>	<b>Alpha 1 Volume</b>	<b>Beta 1 Volume</b>
EDI Orders	4.5	187.5	316.35	380.0	627.0
Non-EDI Orders	9.01	562.5	16.65	20.0	33.0
Lines	0.66	15,000	10,000	11,000	20,000
Deliveries	457.58	12	10	7	10
Days Sales Outstanding	8.64%	300,000	75,000	75,000	150,000
Emergency Orders	25	20	10	6	6
Shipping and Handling	130	12	10	7	10
Product Sales		\$150,000	\$150,000	\$150,000	\$300,000
Cost Plus Margin		22,500	22,500	0	0
<b>Total ABP Fees</b>				19,187	28,659
<b>Total Revenue</b>		<b>\$172,500</b>	<b>\$172,500</b>	<b>\$169,187</b>	<b>\$328,659</b>
COGS		150,000	150,000	150,000	300,000
Vendor Discounts		4,035	4,035	4,035	8,070
<b>Gross Margin</b>		<b>26,535</b>	<b>26,535</b>	<b>23,222</b>	<b>36,729</b>
EDI Order Costs		844	1,424	1,710	2,822
NonEDI Order Costs		5,068	150	180	297
Line Costs		9,900	6,600	7,260	13,200
Shipping and Handling		1,560	1,300	910	1,300
Delivery Cost		5,491	4,576	3,203	4,576
Emergency Cost		500	250	150	150
Interest		2,160	540	540	1,080
Procurement		1,486	1,486	1,486	1,486
Labeling		1,000	1,000	1,000	1,000
Account Management		991	991	991	991
Occupancy		1,007	1,007	1,007	1,007
Group Fees		750	750	750	750
<b>Net Operating Profit</b>		<b>-4,222</b>	<b>6,462</b>	<b>4,035</b>	<b>8,070</b>
<b>Cost Plus/Equivalent Cost Plus</b>		<b>15%</b>	<b>15%</b>	<b>13%</b>	<b>10%</b>

# Insteel Wire



- Is Insteel a good candidate for an ABC system?
  - No: overhead is relatively low.
  - Yes:
    - numerous products, both commodity and specialized (pallet nails);
    - intense profit pressures (constant prices but rising costs).
    - ABC will allow Insteel to measure customer profitability.
- Was Insteel's old pricing system cost-based or value-based?
  - Cost-based, which would be appropriate for commodity products, but perhaps less so for specialized products such as pallet nails.

# Insteel Wire



- ABC was introduced at the Andrews plant first, rather than at all Insteel plants simultaneously, to “limit the upheaval...” What does this mean?
  - Changing costing systems changes performance measures and rewards, thereby creating resistance.
  - Other ways to mitigate resistance include:
    - Pre-commit to shield employees temporarily from adverse changes, e.g., calculate bonus under both systems and pay higher amount.
    - Share gains from change, though one problem with this is verifiability of gains.

# Insteel Wire



- How many distinct activity cost pools were identified at Andrews?
  - 80. This is likely to be very costly and complex to track.
- What do the product and customer profitability whale curves suggest?
  - They confirm the sales maximization (“chasing volume”) strategy.
- Confirm Table 2.

Driver	1995-96	1995-96	1995-96	Pallet	Pallet	1996-97	1996-97	1996-97	Pallet	Pallet
	Driver Vol	Spending	OH Rate	Nails	Nails	Driver Vol	Spending	OH Rate	Nails	Nails
Cleaning House	100,000	210,000	2.10	2,600	5,460	110,000	222,000	2.02	2,817	5,685
Depreciation										
Wire drawing Equipment	100,000	420,000	4.20	2,600	10,920	110,000	420,000	3.82	2,817	10,756
Galvanizing Equipment	40,000	623,000	15.58	2,600	40,495	45,000	623,000	13.84	2,817	39,000
Heading/Threading Machine	2,600	50,000	19.23	2,600	50,000	2,817	140,000	49.70	2,817	140,000
Material Handling	4,000	305,000	76.25	20	1,525	4,500	350,000	77.78	21	1,633
Dies Retooling	3,000	352,000	117.33	15	1,760	3,300	382,000	115.76	13	1,505
Wire-drawing changeovers	700	267,000	381.43	2	763	700	272,000	388.57	2	777
Quality Inspection	1,000	407,000	407.00	4	1,628	1,000	420,000	420.00	4	1,680
Order Processing	3,000	163,000	54.33	10	543	3,000	143,000	47.67	9	429
Invoicing	3,000	87,000	29.00	10	290	3,000	92,000	30.67	9	276
Information Systems	100,000	1,287,000	12.87	2,600	33,462	110,000	1,330,000	12.09	2,817	34,060
Pricing and Advertising					10,000					9,000
Labor					400,000					600,000
Freight					30,000					31,000
EVA @ 18%										
Inventory	100000	692000	6.92	2600	18,000	110000	703000	6.39	2817	18,000
Wire drawing Machine	100000	1800000	18	2600	46,800	110000	1724000	15.67	2817	44,150
Nail Galvanizer	40000	1800000	45	2600	117,000	45000	1688000	37.51	2817	105,667
Heading/Threading Machine	2600	90000	34.62	2600	90,000	2817	227000	80.58	2817	227,000
Conversion Cost					<b>858,646</b>					<b>1,270,618</b>
Materials Cost					900,000					1,100,000
Total Cost					<b>1,758,646</b>					<b>2,370,618</b>
Sales					1,950,000					2,100,000
Profit					<b>191,354</b>					<b>-270,618</b>

# Insteel Wire



- Should customer-level costs, such as freight, be allocated to products?
  - In general, customer-level costs should not be allocated to products, and product-level costs should not be allocated to customers.
- What is EVA?
  - Economic value added – it is the difference between actual earnings and the required earnings.
    - Required earnings is the expected return times the invested capital.
- Does negative EVA imply negative income (on the income statement)?
  - No, the income statement shows actual earnings.
- What is the EVA cost or charge in the case exhibits?
  - It is simply a charge for the opportunity cost of capital.

# Insteel Wire



Why are both EVA costs and depreciation being allocated? Is this double counting?

- No:
  - Depreciation is charge for consumption or depletion of physical capital or resource.
  - The “EVA” cost is a charge for the opportunity cost of capital.
- Suppose you borrow money to purchase a \$600k machine that has a one-year life. At year-end, you will have to pay the principal of \$600k + interest.
  - Think of depreciation as the value of the asset used up, or \$600k.
  - Think of interest as the EVA charge.



# Insteel Wire



- Should inventory “EVA” charge be allocated using pounds produced?
  - This seems to assume that inventory is proportional to annual production.
  - Would be better to track inventory.
- In examining pallet nail profitability for 1996-97, what is the goal?
  - To assess future profitability.

Driver	1996-97 Driver Vol	1996-97 Spending	1996-97 OH Rate	Pallet Nails Driver Vol	Pallet Nails Cost	Corrected Costs
Cleaning House	110,000	222,000	2.02	2,817	5,685	5,685
Depreciation						
Wire drawing Equipment	110,000	420,000	3.82	2,817	10,756	10,756
Galvanizing Equipment	45,000	623,000	13.84	2,817	39,000	39,000
Heading/Threading Machine	2,817	140,000	49.70	2,817	140,000	50,000
Material Handling	4,500	350,000	77.78	21	1,633	1,633
Dies Retooling	3,300	382,000	115.76	13	1,505	1,505
Wire-drawing changeovers	700	272,000	388.57	2	777	777
Quality Inspection	1,000	420,000	420.00	4	1,680	1,680
Order Processing	3,000	143,000	47.67	9	429	429
Invoicing	3,000	92,000	30.67	9	276	276
Information Systems	110,000	1,330,000	12.09	2,817	34,060	34,060
Pricing and Advertising					9,000	9,000
Labor					600,000	400,000
Freight					31,000	31,000
EVA @ 18%						
Inventory	110000	703000	6.39	2817	18,000	18,000
Wire drawing Machine	110000	1724000	15.67	2817	44,150	44,150
Nail Galvanizer	45000	1688000	37.51	2817	105,667	105,667
Heading/Threading Machine	2817	227000	80.58	2817	227,000	81,000
Conversion Cost					1,270,618	834,618
Materials Cost					1,100,000	1,100,000
Total Cost					<b>2,370,618</b>	<b>1,934,618</b>
Sales					2,100,000	2,100,000
Profit					<b>(270,618)</b>	<b>165,382</b>
Cost of Excess/Inaccessible Capacity						436,000
Profit						<b>(270,618)</b>
Reconciliation of cost of inaccessible capacity						
Depreciation	90,000					
EVA on equipment	146,000					
Labor	200,000					
Total	436,000					

# Insteel Wire



- Why should the \$200k of labor charges be excluded in assessing 1996/97 profitability?
  - Because it is misleading w.r.t. future profitability. In the future, revenues will be matched with these expenses.
- Should depreciation on the new machine be allocated in assessing profitability this year?
  - The depreciation charge should reflect consumption or use of the asset. If there was no production using the new machine, has any portion of it been consumed?
  - Also, in the future, revenues will be matched with this expense.
- Same reasoning applies to the equipment EVA charge, so do not include this either.