CHAPTER 13

PRICING DECISIONS AND COST MANAGEMENT

**13-1** The three major influences on pricing decisions are

1. Customers

2. Competitors

3. Costs

**13-2** Not necessarily. For a one-time-only special order, the relevant costs are only those costs that will change as a result of accepting the order. In this case, full product costs will rarely be relevant. It is more likely that full product costs will be relevant costs for long-run pricing decisions.

**13-3** Four purposes of cost allocation are as follows:

1. To provide information for economic decisions
2. To motivate managers and other employees
3. To justify costs or compute reimbursement amounts
4. To measure income and assets

**13-4** Activity-based costing helps managers in pricing decisions in two ways.

1. It gives managers more accurate product-cost information for making pricing decisions.

2. It helps managers to manage costs during value engineering by identifying the cost impact of eliminating, reducing, or changing various activities.

**13-5** Two alternative approaches to long-run pricing decisions are the following:

1. Market-based pricing, an important form of which is target pricing. The market-based approach asks, “Given what our customers want and how our competitors will react to what we do, what price should we charge?”

2. Cost-based pricing which asks, “What does it cost us to make this product and, hence, what price should we charge that will recoup our costs and achieve a target return on investment?”

**13-6** A target cost per unit is the estimated long-run cost per unit of a product (or service) that, when sold at the target price, enables the company to achieve the targeted operating income per unit.

**13-7** Value engineering is a systematic evaluation of all aspects of the value-chain business functions, with the objective of reducing costs while satisfying customer needs. Value engineering via improvement in product and process designs is a principal technique that companies use to achieve target cost per unit.

**13-8** A value-added cost is a cost that customers perceive as adding value, or utility, to a product or service. Examples are costs of materials, direct labor, tools, and machinery. A nonvalue-added cost is a cost that customers do not perceive as adding value, or utility, to a product or service. Examples of nonvalue-added costs are costs of rework, scrap, expediting, and breakdown maintenance.

**13-9** No. It is important to distinguish between when costs are locked in and when costs are incurred because it is difficult to alter or reduce costs that have already been locked in.

**13-10** Cost-plus pricing is a pricing approach in which managers add a markup to cost in order to determine price.

**13-11** Cost-plus pricing methods vary depending on the bases used to calculate prices. Examples are (a) variable manufacturing costs; (b) manufacturing function costs; (c) variable product costs; and (d) full product costs.

**13-12** Two examples where the difference in the costs of two products or services is much smaller than the differences in their prices are:

1. The difference in prices charged for a telephone call, hotel room, or car rental during busy versus slack periods is often much greater than the difference in costs to provide these services.

2. The difference in costs for an airplane seat sold to a passenger traveling on business or a passenger traveling for pleasure is roughly the same. However, airline companies price discriminate. They routinely charge business travelers––those who are likely to start and complete their travel during the same week excluding the weekend––a much higher price for the same class of service than pleasure travelers who generally stay at their destinations over at least one weekend.

**13-13** Life-cycle budgeting is an estimate of the revenues and costs attributable to each product from its initial R&D to its final customer servicing and support.

**13-14** Three benefits of using a product life-cycle reporting format are the following:

1. The full set of revenues and costs associated with each product becomes more visible.

2. Differences among products in the percentage of total costs committed at early stages in the life cycle are highlighted.

3. Interrelationships among business function cost categories are highlighted.

**13-15** Predatory pricing occurs when a business deliberately prices below its costs in an effort to drive competitors out of the market and restrict supply and then raises prices rather than enlarge demand. Under U.S. laws, dumping occurs when a non-U.S. company sells a product in the United States at a price below the market value in the country where it is produced, and this lower price materially injures or threatens to materially injure an industry in the United States. Collusive pricing occurs when companies in an industry conspire in their pricing and production decisions to achieve a price above the competitive price and so restrain trade.

**13-16** (25–30 min.) **Value-added, nonvalue-added costs**.

1.

|  |  |  |
| --- | --- | --- |
| **Category** | **Examples** |  |
| Value-added costs | a. Materials and labor for regular repairs | $1,100,000 |
| Nonvalue-added costs | b. Rework costsc. Expediting costs caused by work delaysg. Breakdown maintenance of equipmentTotal | $ 90,000 65,000 75,000$ 230,000 |
| Gray area | d. Materials handling costse. Materials procurement and inspection costsf. Preventive maintenance of equipmentTotal | $ 80,00045,000 55,000$ 180,000 |

Classifications of value-added, nonvalue-added, and gray area costs are often not clear-cut. Other classifications of some of the cost categories are also plausible. For example, some students may include materials handling, materials procurement, and inspection costs and preventive maintenance as value-added costs (costs that customers perceive as adding value and as being necessary for good repair service) rather than as in the gray area. Preventive maintenance, for instance, might be regarded as value-added because it helps prevent nonvalue-adding breakdown maintenance.

2. Total costs in the gray area are $180,000. Of this, we assume 60%, or $108,000, are value-added and 40%, or $72,000, are nonvalue-added.

Total value-added costs: $1,100,000 + $108,000 $1,208,000

Total nonvalue-added costs: $230,000 + $72,000 302,000

Total costs $1,510,000

Nonvalue-added costs are $302,000 ÷ $1,510,000 = 20% of total costs.

Value-added costs are $1,208,000 ÷ $1,510,000 = 80% of total costs.

|  |  |
| --- | --- |
| 3. | **Effect on Costs Classified as** |
| **Program** | **Value-Added**  | **Nonvalue-Added** | **Gray** **Area** |
| (a) Quality improvement programs to• reduce rework costs by 40% (0.40 × $90,000)• reduce expediting costs by 40%  (0.40 × $65,000)• reduce materials and labor costs by 5%  (0.05 × $1,100,000)Total effect | –$ 55,000–$ 55,000 | –$ 36,000– 26,000               –$ 62,000 |  |
| (b) Working with suppliers to• reduce materials procurement and inspection costs by 20% (0.20 × $45,000)• reduce materials handling costs by 30% (0.30 × $80,000)Total effectTransferring 60% of gray area costs (0.60 ×  $33,000 = $19,800) as value-added and 40%  (0.40 × $33,000 = $13,200) as nonvalue-addedEffect on value-added and nonvalue-added costs  | –$ 19,800–$ 19,800 | –$ 13,200–$ 13,200 | –$ 9,000– 24,000– 33,000+ 33,000$ 0 |
| (c) Maintenance programs to• increase preventive maintenance costs by 70%  (0.70 × $55,000) • decrease breakdown maintenance costs by 50%  (0.50 × $75,000)Total effectTransferring 60% of gray area costs (0.60 × $38,500 = $23,100) as value-added and 40% (0.40 × $38,500 = $15,400) as nonvalue-addedEffect on value-added and nonvalue-added costs | +$ 23,100+$ 23,100 | –$ 37,500– 37,500+ 15,400–$  22,100 | +$38,500          + 38,500– 38,500$ 0 |
| Total effect of all programsValue-added and nonvalue-added costs calculated in requirement 2Expected value-added and nonvalue-added costs as a result of implementing these programs | –$ 51,700 1,208,000$1,156,300 | –$ 97,300 302,000 $204,700 |  |

If these programs had been implemented, total costs would have decreased from $1,510,000 (requirement 2) to $1,156,300 + $204,700 = $1,361,000, and the percentage of nonvalue-added costs would decrease from 20% (requirement 2) to $204,700 ÷ $1,316,000 = 15%. These are significant improvements in Magill’s performance.

**13-17** (25−30 min.) **Target operating income, value-added costs, service company.**

1. The classification of total costs in 2013 into value-added, nonvalue-added, or in the gray area in between follows:

 **Value Gray Nonvalue- Total**

 **Added Area added (4) =**

 **(1)** **(2) (3) (1)+(2)+(3)**

Doing calculations and preparing drawings

 77% × $390,000 $300,300 $300,300

Checking calculations and drawings

 3% × $390,000 $11,700 11,700

Correcting errors found in drawings

 8% × $390,000 31,200 31,200

Making changes in response to client

 requests 5% × $390,000 19,500 19,500

Correcting errors to meet government

 building code, 7% × $390,000 27,300 27,300

Total professional labor costs 319,800 11,700 58,500 390,000

Administrative and support costs at 44%

 ($171,600 ÷ $390,000) of professional

 labor costs 140,712 5,148 25,740 171,600

Travel 15,000 — 15,000

Total $475,512 $16,848 $84,240 $576,600

Doing calculations and responding to client requests for changes are value-added costs because customers perceive these costs as necessary for the service of preparing architectural drawings. Costs incurred on correcting errors in drawings and making changes because they were inconsistent with building codes are nonvalue-added costs. Customers do not perceive these costs as necessary and would be unwilling to pay for them. Calvert should seek to eliminate these costs by making sure that all associates are well-informed regarding building code requirements and by training associates to improve the quality of their drawings. Checking calculations and drawings is in the gray area (some, but not all, checking may be needed). There is room for disagreement on these classifications. For example, checking calculations may be regarded as value added.

1. The consequences of classifying a non-value-added cost as a value-added cost is that managers may hesitate to reduce these costs thinking that if they eliminate these costs it would reduce the value or utility (usefulness) customers experience from using the product or service. But if these costs are really non-value-added costs, mangers should try to reduce these costs because these costs support activities that customers do not value.

 For these reasons, managers who are unsure if a cost is value-added or nonvalue-added, often classify costs as nonvalue-added. The nonvalue-added classification focuses organization attention on reducing these costs. The risk with this approach is that an organization may cut some costs that are value-adding, leading to poor customer experiences. Distinguishing value-added from nonvalue-added costs is valuable but also requires the exercise of careful judgment.

1. Reduction in professional labor-hours by

a. Correcting errors in drawings (8% × 7,500) 600 hours

 b. Correcting errors to conform to building code (7% × 7,500) 525 hours

 Total 1,125 hours

 Cost savings in professional labor costs (1,125 hours × $52) $ 58,500

 Cost savings in variable administrative and support

 costs (44% × $58,500) 25,740

 Total cost savings $ 84,240

 Current operating income in 2013 $124,650

 *Add* cost savings from eliminating errors 84,240

 Operating income in 2013 if errors eliminated $208,890

4. Currently 85% × 7,500 hours = 6,375 hours are billed to clients generating revenues of $701,250. The remaining 15% of professional labor-hours (15% × 7,500 = 1,125 hours) is lost in making corrections. Calvert bills clients at the rate of $701,250 ÷ 6,375 = $110 per professional labor-hour. If the 1,125 professional labor-hours currently not being billed to clients were billed to clients, Calvert’s revenues would increase by 1,125 hours × $110 = $123,750 from $701,250 to $825,000 ($701,250 + $123,750).

Costs remain unchanged

 Professional labor costs $390,000

 Administrative and support (44% × $390,000) 171,600

 Travel 15,000

 Total costs $576,600

Calvert’s operating income would be

 Revenues $825,000

 Total costs 576,600

 Operating income $248,400

Operating income would increase by $123,750 ($248,400 – $124,650) or 99.3% ($123,750 ÷ $124,650). Eliminating 15% of nonvalue-added costs results in a doubling of operating income if the resources saved could be used to generate revenues. For this reason, organizations place great emphasis on reducing and eliminating nonvalue-added costs.

**13-18** (25–30 min.) **Target prices, target costs, activity-based costing.**

1. Snappy’s operating income in 2013 is as follows:

|  |  |  |
| --- | --- | --- |
|  | **Total for****250,000 Tiles****(1)** | **Per Unit****(2) = (1) ÷ 250,000** |
| Revenues ($4 × 250,000)Purchase cost of tiles ($3 × 250,000)Ordering costs ($50 × 500)Receiving and storage ($30 × 4,000)Shipping ($40 × 1,500)Total costsOperating income | $1,000,000750,00025,000120,000 60,000 955,000$ 45,000 | $4.003.000.100.48 0.24 3.82$0.18 |

2. Price to retailers in 2014 is 95% of 2013 price = 0.95 × $4 = $3.80; cost per tile in 2014 is 96% of 2013 cost = 0.96 × $3 = $2.88.

Snappy’s operating income in 2014 is as follows:

|  |  |  |
| --- | --- | --- |
|  | **Total for****250,000 Tiles****(1)** | **Per Unit****(2) = (1) ÷ 250,000** |
| Revenues ($3.80 × 250,000)Purchase cost of tiles ($2.88 × 250,000)Ordering costs ($50 × 500)Receiving and storage ($30 × 4,000)Shipping ($40 × 1,500)Total costsOperating income | $950,000720,00025,000120,000 60,000 925,000$ 25,000 | $3.802.880.100.48 0.24 3.70$0.10 |

3. Snappy’s operating income in 2014, if it makes changes in ordering and material handling, will be as follows:

|  |  |  |
| --- | --- | --- |
|  | **Total for****250,000 Tiles****(1)** | **Per Unit****(2) = (1) ÷ 250,000** |
| Revenues ($3.80 × 250,000)Purchase cost of tiles ($2.88 × 250,000)Ordering costs ($25 × 200)Receiving and storage ($28 × 3,125)Shipping ($40 × 1,500)Total costsOperating income | $950,000720,0005,00087,500 60,000 872,500$ 77,500 | $3.802.880.020.35 0.24 3.49$0.31 |

Through better cost management, Snappy will be able to achieve its target operating income of $0.30 per tile despite the fact that its revenue per tile has decreased by $0.20 ($4.00 – $3.80), while its purchase cost per tile has decreased by only $0.12 ($3.00 – $2.88).

**13-19** (20 min.) **Target costs, effect of product-design changes on product costs.**

1. and 2.Manufacturing costs of HJ6 in 2012 and 2013 are as follows:

 **2012** **2013**

 **Per Unit Per Unit**

 **Total (2) = Total (4) =**

 **(1)** **(1) ÷ 2,700** **(3) (3) ÷ 4,600**

Direct materials, $1,400 × 2,700; $1,300 × 4,600 $3,780,000 $1,400 $5,980,000 $1,300

Batch-level costs, $8,900 × 60; $8,000 × 70 534,000 198 560,000 122

Manuf. operations costs, $64 × 20,000;

 $48 × 30,000 1,280,000 474 1,440,000 313

Engineering change costs, $16,000 × 24;

 $8,000 × 7 384,000 142    56,000 12

Total $5,978,000 $2,214 $8,036,000 $1,747

3.  =  × 95%

 = $2,214 × 0.95 = $2,103

Actual manufacturing cost per unit of HJ6 in 2013 was $1,747. Hence, Neuro did achieve its target manufacturing cost per unit.

4. To reduce the manufacturing cost per unit in 2013, Neuro reduced the cost per unit in each of the four cost categories—direct materials costs, batch-level costs, manufacturing operations costs, and engineering change costs. It also reduced machine-hours and number of engineering changes made—the quantities of the cost drivers. In 2012, Neuro used 7.407 machine-hours per unit of HJ6 (20,000 machine-hours ÷ 2,700 units). In 2013, Neuro used 6.522 machine-hours per unit of HJ6 (30,000 machine-hours ÷ 4,600 units). Neuro reduced engineering changes from 24 in 2012 to 7 in 2013. Neuro achieved these gains through value engineering activities that retained only those product features that customers wanted while eliminating nonvalue-added activities and costs.

5. Neuro’s managers might encounter the following challenges in achieving the target costs:

* Employees may feel they are being pushed too hard to attain target costs. The actual costs in 2013 are well below the target costs.
* Employees may feel that the severe cost cutting may result in quality problems that they will then be blamed for such as not making the necessary engineering changes
* Organizational conflicts may develop as the burden of cost cutting falls unequally on different business functions in the company’s value chain

To overcome these challenges, managers should: (1) encourage employee participation and engagement; (2) focus on the customer; (3) clearly communicate goals and the strategy behind them; and (4) set cost-cutting targets for all value-chain functions to encourage a culture of teamwork and cooperation.

**13-20** (25 min.) **Target costs, effect of process-design changes on service costs.**

1. and 2.Audit costs in 2012 and 2013 are as follows:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2012** |  | **2013** |
|  |  **Total** |  **Per unit (2)=****(1) ÷ 150**  |  |  **Total** | **Per unit (4)=****(3) ÷ 178**  |
| Consultation labor $35 × 2.2 hrs. × 150; $35 × 2 hrs. × 178 | $11,550.00 | $ 77.00 |  | $12,460.00 | $ 70.00 |
| Cost of new contacts, $9 × 215; $7 × 275  | 1,935.00 | 12.90 |  |  1,925.00 | 10.81 |
| Travel costs, $0.55 × 1,756; $0.65 × 1,327 | 965.80 | 6.44 |  | 862.55 | 4.85 |
| Preparing and filing costs $9.10 × 1,218; $9.50 × 1,367 |  11,083.80 |  73.89 |  |  12,986.50 |  72.96 |
| Total | $25,534.60 | $170.23 |  | $28,234.05 | $158.62 |

3. Target cost per audit in 2013 = Cost per audit in 2012 × 95%

 = $170.23 × 0.95 = $161.72

Actual cost per audit in 2013 was $158.62. Hence, Sun Systems did achieve its target cost per audit of $161.72

In spite of rising transportation costs and clerical wages, the company was able to reduce the cost per audit in 2013. This was possible by reducing the number of miles driven per appointment from 11.7 miles (1,756 **÷** 150) in 2012 to 7.5 miles (1,327 **÷** 178)in 2013. This could be due to a implementing a better scheduling system to maximize the number of appointments in a given area. Also, the number of clerical hours per audit decreased from 8.12 hours (1,218 **÷** 150) in 2012 to 7.68 hours (1,367 **÷** 178) in 2013. This could be due to process improvements in preparing the required forms. There is also a reduction in consultant labor hours and consultation labor cost per audit. Presumably, there is no reduction in customer satisfaction.

4. The challenges Sun Systems may face in achieving their target cost include employee resistance to changes in processes, unexpected increases in the cost of supplies, fuel, etc, and new compliance requirements imposed from the federal and/or state governments that increase clerical time on each audit. To overcome these challenges, Sun Systems managers should encourage employee participation and celebrate small improvements toward achieving the target cost and set cost-cutting targets after taking into account the external environment such as cost of supplies and new compliance requirements. Managers should create a culture where employees are encouraged to continuously improve the energy audit process.

**13-21** (20 min.) **Cost-plus target return on investment pricing.**

1. Target operating income = target return on investment × invested capital

 Target operating income (20% of $1,000,000) $200,000

 Total fixed costs 340,000

 Target contribution margin $540,000

 Target contribution per room-night, ($540,000 ÷ 16,000) $33.75

 Add variable costs per room-night 4.00

 Price to be charged per room-night $37.75

 Proof

 Total room revenues ($37.75 × 16,000 room-nights) $604,000

 Total costs:

 Variable costs ($4 × 16,000) $ 64,000

 Fixed costs 340,000

 Total costs 404,000

 Operating income $200,000

 The full cost of a room = variable cost per room + fixed cost per room

 The full cost of a room = $4 + ($340,000 ÷ 16,000) = $4 + $21.25 = $25.25

 Markup per room = Rental price per room – Full cost of a room

 = $37.75 – $25.25 = $12.50

 Markup percentage as a fraction of full cost = $12.50 ÷ $25.25 = 49.5%

2. If price is reduced by 10%, the number of rooms Branch could rent would increase by 10%.

 The new price per room would be 90% of $37.75 $ 33.975

 The number of rooms Branch expects to rent is 110% of 16,000 17,600

 The contribution margin per room would be $33.975 – $4 $ 29.975

 Contribution margin ($29.975 × 17,600) $527,560

 Because the contribution margin of $527,560 at the reduced price of $33.975 is less than the contribution margin of $540,000 at a price of $37.75, Branch should not reduce the price of the rooms. Note that the fixed costs of $340,000 will be the same under the $37.75 and the $33.975 price alternatives and hence, are irrelevant to the analysis.

**13-22** (25 min.) **Cost-plus, target pricing, working backwards.**

1. Investment $2,400,000

Return on investment 12%

Operating income (12% × $2,400,000) $288,000

Operating income per unit ($288,000 ÷ 3,200) $90

Full cost per unit (90 ÷ 0.08) $1,125

Selling price ($1,125 + $90) $1,215

Markup percentage on variable cost ($90 ÷ $500) 18%

 Total fixed costs = (Full cost per unit – Variable cost per unit) × Units sold

= ($1,125 – $500) × 3,200 units = $2,000,000

2. Contribution margin per unit = $1,215 – $500 = $715

Increase in sales = 10% × 3,200 units = 320 units

Increase in contribution margin = $715 × 320 units = $228,800

Less: Advertising costs 175,000

Increase in operating income $ 53,800

TinRoof should spend $175,000 in advertising because it increases operating income by $53,800.

3.

|  |  |
| --- | --- |
| Revenues ($1,215 × 2,900 units) | $3,523,500 |
| Target full cost at 8% markup ($3,523,500 ÷ 1.08) | $3,262,500 |
| Less: Target total fixed costs ($2,000,000 – $125,000) |  1,875,000 |
| Target total variable costs | $1,387,500 |
| Divided by number of units |  ÷ 2,900 units |
| Target variable cost per unit | $ 478.45 |

**13-23 Life-cycle budgeting and costing.**

1.

|  |
| --- |
| **Projected Life Cycle Income Statement**  |
|  |  |
| Revenues [$375 × (10,000 + 40,000 + 5,000)] | $20,625,000 |
| Variable costs: |  |
|  Months 7–12 ($100 × 10,000 ) |  1,000,000 |
|  Months 13–36 ($78 × 40,000 ) |  3,120,000 |
|  Months 37–42 ($67 × 5,000 ) |  335,000 |
|  Total variable costs |  4,455,000 |
| Fixed costs: |  |
|  Design costs |  500,000 |
|  Production ($1,300,000 + $4,900,000 + $800,000) |  7,000,000 |
|  Marketing ($1,000,000 + $2,325,000 + $475,000) |  3,800,000 |
|  Distribution ($200,000 + $700,000 + $100,000) |  1,000,000 |
|  Total fixed costs |  12,300,000 |
| Life cycle operating income | $ 3,870,000 |

Average profit per sweeper = $3,870,000/(10,000 + 40,000 + 5,000) = $70.36

2.

|  |
| --- |
| **Projected Life Cycle Income Statement (in 000s)** **Months 7–12** |
|  |  |
| Revenues ($375 × 10,000)  | $3,750,000 |
| Variable costs: |  |
|  Months 7–12 ($100 × 10,000 ) |  1,000,000 |
| Fixed costs: |  |
|  Production  |  1,300,000 |
|  Marketing  |  1,000,000 |
|  Distribution  |  200,000 |
|  Total fixed costs |  2,500,000 |
| Operating income | $ 250,000 |

Average profit per sweeper = $250,000/10,000 = $25

|  |
| --- |
| **Projected Life Cycle Income Statement (in 000s)** **Months 13–36** |
|  |  |
| Revenues ($375 × 40,000) |  $15,000,000 |
| Variable costs: |  |
|  Months 13-36 ($78 × 40,000 ) |  3,120,000 |
| Fixed costs: |  |
|  Production  |  4,900,000 |
|  Marketing  |  2,325,000 |
|  Distribution  |  700,000 |
|  Total fixed costs |  7,925,000 |
| Operating income |  $ 3,955.000 |

Average profit per sweeper = $3,955,000/40,000 = $98.88

|  |
| --- |
| **Projected Life Cycle Income Statement (in 000s)** **Months 37–42** |
|  |  |
| Revenues ($375 × 5,000) | $ 1,875,000 |
| Variable costs: |  |
|  Months 37–42 ($67 × 500 ) |  335,000 |
| Fixed costs: |  |
|  Production  |  800,000 |
|  Marketing  |  475,000 |
|  Distribution  |  100,000 |
|  Total fixed costs |  1,375,000 |
| Operating income |  $ 165.000 |

Average profit per sweeper = $165,000/5,000 = $33.00

3. In analyzing the relative profitability of the product during the three sales phases of its life cycle, the results are as expected. During the initial growth phase, all fixed costs, including marketing, are higher in order to successfully launch the new product. In addition, variable costs are higher per unit because the company has not yet capitalized on economies of scale. As the product moves into its maturity phase, the company begins to see the benefits of economies of scale and leaner production practices. The results are lower variable and fixed costs. Also, the company will likely not need to spend as much on marketing because the product in now well established. This phase results in the highest profit per unit. Lastly, in the decline phase, variable costs per unit are the lowest because the company is maximizing its efficiencies. Marketing is at its lowest because the company is expecting to phase out the product. However, during this final phase of the product’s life cycle, fixed costs per unit are higher than in the maturity phase because the company is not maximizing its production volume. The company is producing fewer units, which leads to higher fixed cost per unit. The product is still more profitable than in the growth phase, but not as profitable as in maturity.

The company may need to analyze the probability that the price will be able to remain constant through the product’s entire life cycle. Because technology is rapidly changing, this product may become obsolete sooner than expected. The company also has not accounted for the time value of money, which may make a big difference in the desired outcome, depending on the company’s required rate of return. In addition, the company has not budgeted for all possible expenses such as warranty claims and returns. These should be considered as well in the overall plan. Lastly, the company may want to investigate possible methods of value engineering to gain even more efficiencies and profitability over the life of the product.

4.

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| --- |
| **Projected Life Cycle Income Statement**  |
|  |  |
| Revenues [$425 × 9,500 + $375 × (38,000 + 5,000)] | $20,162,500 |
| Variable costs: |  |
|  Months 7–12 ($100 × 9,500 ) |  950,000 |
|  Months 13–36 ($78 × 38,000 ) |  2,964,000 |
|  Months 37–42 ($67 × 5,000 ) |  335,000 |
|  Total variable costs |  4,249,000 |
| Fixed costs: |  |
|  Design costs |  500,000 |
|  Production ($1,300,000 + $4,900,000 + $800,000) |  7,000,000 |
|  Marketing ($1,000,000 + $2,325,000 + $475,000) |  3,800,000 |
|  Distribution ($200,000 + $700,000 + $100,000) |  1,000,000 |
|  Total fixed costs |  12,300,000 |
| Life cycle operating income | $ 3,613,500 |

Average profit per sweeper = $3,613,500/(9,500 + 38,000 + 5,000) = $68.83

Jurgensen earns more profit under its original plan ($3,870,000) than it does if it increases the price to $425 for the first six months ($3,613,500). The decline in sales as a result of increasing the price reduces operating income. Therefore, Jurgensen should price the seepers at $375 for the first six months rather than increase the price to $425.

**13-24** (25 min.) **Considerations other than cost in pricing decisions.**

1.

|  |  |
| --- | --- |
| Guest nights on weeknights: |  |
| 18 weeknights × 100 rooms × 65% = 1,170 |  |
| Guest nights on weekend nights: |  |
| 12 weekend nights × 100 rooms × 90% = 1,080 |  |
| Total guest nights in June = 1,170 + 1,080 = 2,250 |  |
| Breakfasts served: |  |
| 1,170 weeknight guest nights × 2 = 2,340 |  |
| 1,080 weekend guest nights × 4 = 4,320 |  |
| Total breakfasts served in June = 2,340 + 4,320 = 6,660 |  |
| Total costs for June: |  |
| Depreciation | $ 25,000 |
| Administrative costs | 38,000 |
| Fixed housekeeping and supplies | 16,000 |
| Variable housekeeping and supplies (2,250 × $30) | 67,500 |
| Fixed breakfast costs | 12,000 |
| Variable breakfast costs (6,660 × $6) |  39,960 |
| Total costs for June | $198,460 |
| Cost per guest night ($198,460 ÷ 2,250) | $88.20 |
| Revenue for June ($85 × 2,250) | $191,250 |
| Total costs for June |  198,460 |
| Operating income/(loss) | $ (7,210) |

2.

|  |  |
| --- | --- |
| New weeknight guest nights  |  |
| 18 weeknights × 100 rooms × 75% = 1,350 |  |
| New weekend guest nights  |  |
| 12 weeknights × 100 rooms × 90% = 1,080 |  |
| Total guest nights in June l = 1,350 + 1,080 = 2,430 |  |
| Breakfasts served: |  |
| 1,350 weeknight guest nights × 2 = 2,700 |  |
| 1,080 weekend guest nights × 4 = 4,320 |  |
| Total breakfasts served in June = 2,700 + 4,320 = 7,020 |  |
| Total costs for June: |  |
| Depreciation | $ 25,000 |
| Administrative costs | 38,000 |
| Fixed housekeeping and supplies | 16,000 |
| Variable housekeeping and supplies (2,430 × $30) | 72,900 |
| Fixed breakfast costs | 12,000 |
| Variable breakfast costs (7,020 × $6) |  42,120 |
| Total costs | $206,020 |
| Revenue [(1,350 × $75) + (1,080 × $105)] | $214,650 |
| Total costs for June |  206,020 |
| Operating income | $ 8,630 |

Yes, this pricing arrangement would increase operating income by $15,840 from an operating loss of $7,210 to an operating income of $8,630 ($8,630 + $7,210 = $15,840).

3. Guests typically do not come to the amusement park on weekdays because adults are busy at work and children have to attend school. The weeknight guests are families who stay at the hotel for convenience. They are willing to consider other hotel options or even not travel at all if the price is high and unaffordable. Reducing the weeknight price is important to entice families to try to come to the amusement park on weekdays. The demand of weeknight guests is elastic.

 In contrast, weekends are really the only time when families can conveniently come to the amusement park given their busy weekday schedules. The demand of pleasure travelers on weekends is inelastic. Because of the differences in preferences of the weeknight and weekend guests, Fun Stay Express can price discriminate between these guests by charging $30 more on weekends than on weeknights and still have weekend travelers stay at the hotel.

4. Fun Stay Express would need to charge a minimum of $48 per night for the last-minute rooms, an amount equal to the variable cost per room. Variable cost per room night = $30 per room night + $6 × 3 breakfasts = $48. Any price above $48 would increase Executive Suites operating income.

**13-25** (25 min.) **Cost-plus, target pricing, working backward.**

1. In the following table, work backward from operating income to calculate the selling price.

|  |  |
| --- | --- |
| Selling price | $ 9.36 (plug) |
| Less: Variable cost per unit |  4.00 |
| Unit contribution margin  | $ 5.36 |
| Number of units produced and sold |  × 500,000 units |
| Contribution margin | $2,680,000 |
| Less: Fixed costs |  2,500,000 |
| Operating income | $ 180,000 |

a) Total sales revenue = $9.36  500,000 units = $4,680,000

b) Selling price = $9.36 (from above)

 Alternatively,

|  |  |
| --- | --- |
| Operating income | $ 180,000 |
| Add fixed costs |  2,500,000 |
| Contribution margin | 2,680,000 |
| Add variable costs ($4.0 × 500,000 units) |  2,000,000 |
| Sales revenue | $4,680,000 |

 

c) Rate of return on investment = 

d) Markup % on full cost

Total cost = ($4  500,000 units) + $2,500,000 = $4,500,000

Unit cost = 

Markup % = 

Or 

|  |  |  |
| --- | --- | --- |
| 2. | New fixed costs | =$2,500,000 – $225,000 = $2,275,000 |
|  | New variable costs | = $4.00 – $0.30 = $3.70 |
|  | New total costs | = ($3.70 × 500,000 units) + $2,275,000 = $4,125,000 |
|  | New total sales (4% markup) | = $4,125,000  1.04 = $4,290,000 |
|  | New selling price | = $4,290,000 ÷ 500,000 units = $8.58 |
|  | Alternatively, |  |
|  | New unit cost | = $4,125,000 ÷ 500,000 units = $8.25 |
|  | New selling price | = $8.25  1.04 = $8.58 |

|  |  |
| --- | --- |
| 3. | New units sold = 500,000 units × 95% = $475,000 units |

|  |
| --- |
| **Budgeted Operating Incomefor the Year Ending December 31, 20xx** |
| Revenues ($8.58  475,000 units) | $4,075,500 |
| Variable costs ($3.70  475,000 units) |  1,757,500 |
| Contribution margin | 2,318,000 |
| Fixed costs |  2,275,000 |
| Operating income  | $ 43,000 |

4.   The CEO has not considered customers in these pricing decisions. Will customers continue to want the product at these prices? What are competitors doing? The CEO should take a more market-based approach to pricing.

 The CEO should also think about the effect of cost cutting on employee participation and morale and whether the cuts are falling disproportionately on any specific value-chain function.

**13-26** (30 min.) **Value engineering, target pricing, and target costs.**

1.

|  |  |
| --- | --- |
| Product design and licensing  | $1,000,000 |
| Direct materials |  1,800,000 |
| Direct manufacturing labor |  1,200,000 |
| Variable manufacturing overhead | 600,000 |
| Fixed manufacturing overhead | 2,000,000 |
| Fixed marketing |  3,000,000 |
| Total cost | $9,600,000 |
| Cost per unit ($9,600,000 ÷ 400,000) | $24.00 |
| Target cost per unit ($38 × 0.60) | $22.80 |

The original cost estimate of $9,600,000 does not meet the company’s requirements. Value engineering will be needed to reduce the cost per unit to the target cost. Tiffany’s operating income will be $5,600,000 ($38 × 400,000 – $9,600,000)

2.

|  |  |
| --- | --- |
| Total cost |  $9,600,000 |
| Less: Reduction in material costs ($1,800,000 × 45%) | (810,000) |
| Add: Increase in design costs |  300,000 |
| Total costs of redesigned table | $9,090,000 |
| Revised cost per unit ($9,090,000 ÷ 400,000 units) | $22.73 |
| Target cost per unit ($38 × 0.60) | $22.80 |

The design change allows the table to meet its goal of target costs less than 60% of revenue and target operating income greater than 40% of revenue. The cost of materials is a locked-in cost because they are designed into the product formula.

3.

|  |  |
| --- | --- |
| Total cost |  $ 9,600,000 |
| Add: Increase in marketing costs |  400,000 |
| Total costs of redesigned table |  $10,000,000 |
| Revised cost per unit ($10,000,000 ÷ 400,000 units) | $25 |
| Target cost per unit ($42 × 0.60) | $25.20 |

Yes, this proposal does allow the company to meet its goal of target costs less than 60% of revenue and target operating income greater than 40% of revenue.

1. The company has many considerations, both quantitative and qualitative, when deciding between the preceding requirements 2 and 3 . Although both options meet the target costing objectives, they will provide different amounts of income in both the short and potentially long term. In the short term, the alternative in requirement 2 will result in income of ($38 × 400,000) – $9,090,000 = $6,110,000. The alternative in requirement 3 will provide a higher income of ($42 × 400,000) – $10,000,000 = $6,800,000 and will be preferred.

In the long run, however, there are other considerations that might favor the alternative in requirement 2 and using the chemical equivalent of the nectar obtained from the plant in South America. For example, will the nectar become more expensive in future periods? If so, could the product be reengineered at a later time or are the materials locked-in with the design for the full product life cycle. If the company chemically engineers the material, will this tarnish the quality of the product or more importantly, the company’s brand image? How might this affect the price in future periods and/or the sales of other products within the company?

**13-27** (30 min.) **Target service costs, value engineering, activity-based costing.**

1.

|  |  |
| --- | --- |
| Weekly Revenue: |  |
| 55,000 patrons × $35 | $1,925,000 |
| Desired profit margin: |  |
| $1,925,000 × 35% |  673,750 |
| Targeted weekly cost | $1,251,250 |
| Targeted cost per patron; $1,251,250 ÷ 55,000 | $22.75 |
| Weekly costs: |  |
| Ticket sales |  |
| Online ticket sales: 55,000 × 15% × $1 | $ 8,250 |
| On-site sales: 55,000 × 85% × $2 | 93,500 |
| Ticket verification: 55,000 × $1.50 | 82,500 |
| Operating attractions: 11,340a runs × $90.00 | 1,020,600 |
| Litter patrol: 1,750b × 20 |  35,000 |
| Total weekly costs | $1,239,850 |
| Cost per patron: $1,239,850 ÷ 55,000 | $22.54 |
| Operating profit: ($1,925,000 – $1,239,850) | $   685,150 |

a6 runs per hour × 10 hours per day × 7 days per week × 27 attractions = 11,340 runs per week

b(25 acres ÷ 1 acre per hour) × 10 hours per day × 7 days per week = 1,750 litter patrol hours

Lagoon does achieve its target profit of 35% of revenues.

2.

|  |  |
| --- | --- |
| Weekly Revenue: |  |
| 55,000 patrons × $33 | $1,815,000 |
| Weekly costs |  |
| Ticket sales: |  |
| Online ticket sales: 55,000 × 40% × $0.75 + $1,000 |  17,500 |
| On-site sales: 55,000 × 60% × $2 | 66,000 |
| Ticket verification: 55,000 × 1.50 | 82,500 |
| Operating attractions: 10,332a runs × $90 | 929,880 |
| Litter patrol: 1,400b × $20 + $250 |  28,250 |
| Total weekly costs  |  1,124,130 |
| Operating profit | $   690,870 |

a6 runs per hour × 10 hours per day × 7 days per week × 19 attractions +

6 runs per hour × 7 hours per day × 7 days per week × 8 attractions = 10,332 runs per week

b(25 acres ÷ 1.25 acres per hour) × 10 hours per day × 7 days per week = 1,400 litter patrol hours

This profit is slightly greater than Lagoon’s current profitability.

Yes, the changes and improvements will allow Lagoon to maintain its desired profit margin of 35% ($690,870 ÷ $1,815,000 = 38%).

3. The challenges that Lagoon might encounter in achieving the target cost are mostly employee related. If the employees resist the changes, or struggle with the implementation of the improvements, the target cost will be in danger of not being met. Lagoon might counter these struggles by training employees to implement these changes successfully and by adapting its incentive program to reward the desired improvements.

**13-28** (25 min.) **Cost-plus, target return on investment pricing.**

1. Target operating income = Return on capital in dollars = $15,000,00010% = $1,500,000

2.

|  |  |
| --- | --- |
| Revenues\*  | $3,900,000 |
| Variable costs [($4.00 + $1.00) 300,000 cases  |  1,500,000 |
| Contribution margin  | 2,400,000 |
| Fixed costs ($300,000 + $400,000 + $200,000) |  900,000 |
| Operating income (from requirement 1) | $1,500,000 |

\* solve backwards for revenues

Selling price = $13 per case.

Markup % on full cost

 Full cost = $1,500,000 + $900,000 = $2,400,000

 Unit cost = $2,400,000 ÷ 300,000 cases = $8.00 per case

 Markup % on full cost = 62.50%

3.

|  |
| --- |
| **Budgeted Operating Income****For the year ending December 31, 20xx** |
| Revenues ($15  288,000 cases\*) | $4,320,000 |
| Variable costs ($5  288,000 cases) |  1,440,000 |
| Contribution margin | 2,880,000 |
| Fixed costs |  900,000 |
| Operating income  | $1,980,000 |

\*New units = 300,000 cases96% = 288,000 cases

Return on investment = 13.2%

Yes, increasing the selling price is a good idea because operating income increases without increasing invested capital, which results in a higher return on investment. The new return on investment exceeds the 10% target return on investment.

**13-29** (20 min.) **Cost-plus, time and materials, ethics.**

1. As shown in the table below, Dickenson will tell Lowry that she will have to pay $759 to get the air conditioning system repaired and $692 to get it replaced.

|  |  |  |  |
| --- | --- | --- | --- |
| **COST** | **Labor** | **Materials** | **Total Cost** |
| Repair option (7 hrs.  $45 per hr.; $120) | $315 | $120 | $435 |
| Replace option (4 hrs.  $45 per hr.; $230) |  180 |  230 |  410 |
| **PRICE (100% markup on labor cost; 60% markup on materials)** | **Labor** | **Materials** | **Total Price** |
| Repair option ($315  1.8; $120  1.6) | $567 | $192 | $759 |
| Replace option ($180  1.8; $230  1.6) |  324 |  368 |  692 |

2. If the repair and replace options are equally effective, Lowry will choose to get the air conditioning system replaced for $692 (rather than spend $759 on repairing it).

3. A&L Mechanical will earn a greater contribution toward overhead in the repair option ($324 = $759 – $435) than in the replace option ($282 = $692 – $410). Therefore, Dickenson will recommend the repair option to Lowry, which is not the one she would prefer. Recognizing this conflict, Dickenson may even present only the repair option to Michelle Lowry. Of course, he runs the risk of Lowry walking away and thinking of other options (at which point, he could present the replace option as a compromise). The problem is that Dickenson has superior information about the repairs needed but his incentives may cause him to not reveal his information and instead use it to his advantage. It is only the seller’s desire to build a reputation, to have a long-term relationship with the customer, and to have the customer recommend the seller to other potential buyers of the service, that encourages an honest discussion of the options.

The ethical course of action would be to honestly present both options to Lowry and have her choose. To have their employees act ethically, organizations do not reward employees on the basis of the profits earned on various jobs. They also develop codes of conduct and core values and beliefs that specify appropriate and inappropriate behaviors.

**13-30** (25 min.) **Cost-plus and market-based pricing.**

1. Georgia Temps’ full cost per hour of supplying contract labor is

Variable costs $13

Fixed costs ($168,000 ÷ 84,000 hours) 2

Full cost per hour $15

Price per hour at full cost plus 20% = $15 × 1.20 = $18 per hour.

2. Contribution margins for different prices and demand realizations are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Price per Hour****(1)** | **Variable Cost per Hour****(2)** | **Contribution Margin per Hour****(3) = (1) – (2)** | **Demand in Hours****(4)** | **Total Contribution****(5) = (3) × (4)** |
| $1617 | $1313 | $34 | 124,000104,000 | $372,000416,000 |
| 181920 | 131313 | 567 | 84,00074,00061,000 | 420,000444,000427,000 |

Fixed costs will remain the same regardless of the demand realizations. Fixed costs are, therefore, irrelevant because they do not differ among the alternatives.

 The table above indicates that Georgia Temps can maximize contribution margin ($444,000) and operating income by charging a price of $19 per hour.

3. The cost-plus approach to pricing in requirement 1 does not explicitly consider the effect of prices on demand. The approach in requirement 2 models the interaction between price and demand and determines the optimal level of profitability using concepts of relevant costs. The two different approaches lead to two different prices in requirements 1 and 2. As the chapter describes, pricing decisions should consider both demand or market considerations and supply or cost factors. The approach in requirement 2 is the more balanced approach. In most cases, of course, managers use the cost-plus method of requirement 1 as only a starting point. They then modify the cost-plus price on the basis of market considerations—anticipated customer reaction to alternative price levels and the prices charged by competitors for similar products.

**13-31 Cost-plus and market-based pricing.**

1. Single rate =  $10.93 per test-hour (TH)

 Hourly billing rate for HTT and ACT = $10.931.30 = $14.21

2. Labor and supervision = = $3.90 per test-hour

Setup and facility costs = = $502.60 per setup-hour

Utilities = = $36.30 per machine-hour (MH)

3.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **HTT** | **ACT** | **Total** |
| Labor and supervision  ($3.90 × 78,400; 33,600 test-hours)1 | $305,760 | $131,040 | $ 436,800 |
| Setup and facility cost  ($502.60 × 140; 560 setup-hours)2 | 70,364 | 281,456 | 351,820 |
| Utilities  ($36.30×6,000; 6,000 machine-hours)3 |  217,800 |   217,800 |  435,600 |
| Total cost | $593,924 | $630,296 | $1,224,220 |
| Number of testing hours (TH) | ÷ 78,400 TH | ÷ 33,600 TH |  |
| Cost per testing hour | $7.58 per TH | $ 18.76 per TH |  |
| Mark-up |  × 1.30 |  × 1.30 |  |
| Billing rate per testing hour | $ 9.85 per TH | $ 24.39 per TH |  |
|  |  |  |  |

1112,000 test-hours  70% = 78,400 test-hours; 112,000 test-hours30% = 33,600 test-hours

2700 setup-hours × 20% = 140 setup-hours; 700 setup-hours × 80% = 560 setup-hours

312,000 machine-hours × 50% = 6,000 machine-hours; 12,000 machine-hours × 50%
= 6,000 machine-hours

The billing rates based on the activity-based cost structure make more sense. These billing rates reflect the ways the testing procedures consume the firm’s resources.

4. To stay competitive, Quick Test needs to be more efficient in arctic testing. Roughly 45% of arctic testing’s total cost  occurs in setups and facility costs. Perhaps the setup activity can be redesigned to achieve cost savings. Quick Test should also look for savings in the labor and supervision cost per test-hour and the total number of test-hours used in arctic testing, as well as the utility cost per machine-hour and the total number of machine hours used in arctic testing. This may require redesigning the test, redesigning processes, and achieving efficiency and productivity improvements.

**13-32** (25–30 min.) **Life-cycle costing.**

1.

|  |
| --- |
| **Total Project Life-Cycle Costs** |
| Variable costs: |  |
|  Metal extraction and processing ($80 per ton × 70,000 tons) | $5,600,000 |
| Fixed costs: |  |
|  Metal extraction and processing ($2,000 × 24 months) | 48,000 |
|  Rent on temporary buildings ($1,000 × 27 months) | 27,000 |
|  Administration ($6,000 × 27 months) | 162,000 |
|  Clean-up ($20,000 × 3 months) | 60,000 |
|  Land restoration | 23,000 |
|  Selling land |  80,000 |
| Total life-cycle cost | $6,000,000 |

2.

|  |
| --- |
| **Projected Life Cycle Income Statement** |
| Revenue ($110 per ton  70,000 tons) | $7,700,000 |
| Sale of land (plug after inputting other numbers) | 400,000 |
| Total life-cycle cost |  (6,000,000) |
| Life-cycle operating income ($30 per ton × 70,000 tons) | $2,100,000 |

Mark-up percentage on project life-cycle cost = 

 = 35%

The company would have to sell the land for $400,000.

3.

|  |  |
| --- | --- |
| Revenue ($100 per ton  70,000 tons) | $7,000,000 |
| Sale of land  |  290,000 |
| Total revenue | $7,290,000 |
| Total life-cycle cost at mark-up of 35%($7,290,000 ÷ 1.35) | $5,400,000 |
| The company would need to reduce total life-cycle costs by  ($6,000,000 – $5,400,000) | $ 600,000 |
| Check |  |
| Revenue | $7,000,000 |
| Sale of land | 290,000 |
| Total life-cycle cost | (5,400,000) |
| Life-cycle operating income | $1,890,000 |
| Mark-up percentage = = 35% |  |

**13-33** (30 min.) **Airline pricing, considerations other than cost in pricing.**

1. If the fare is $800,

a.Northern Airways would expect to have 300 business and 150 pleasure travelers.

1. Variable costs per passenger would be $85.
2. Contribution margin per passenger = $800 – $85 = $715.

 If the fare is $1,800,

a.Northern Airways would expect to have 285 business and 30 pleasure travelers.

1. Variable costs per passenger would be $195.
2. Contribution margin per passenger = $1,800 – $195 = $1,605.

 Contribution margin from business travelers at prices of $800 and $1,800, respectively, follow:

 At a price of $800: $715 × 300 passengers = $214,500

 At a price of $1,800: $1,605 × 285 passengers = $457,425

 Northern Airways would maximize contribution margin and operating income by charging business travelers a fare of $1,800.

 Contribution margin from pleasure travelers at prices of $800 and $1,800, respectively, follow:

 At a price of $800: $715 × 150 passengers = $107,250

 At a price of $1,800: $1,605 × 30 passengers = $ 48,150

 Northern Airways would maximize contribution margin and operating income by charging pleasure travelers a fare of $800.

 Northern Airways would maximize contribution margin and operating income by a price differentiation strategy, where business travelers are charged $1,800 and pleasure travelers $800.

 In deciding between the alternative prices, all other costs such as fuel costs, allocated annual lease costs, allocated ground services costs, and allocated flight crew salaries are irrelevant. Why? Because these costs will not change whatever price Northern Airways chooses to charge.

2.The elasticity of demand of the two classes of passengers drives the different demands of the travelers. Business travelers are relatively price insensitive because they must get to their destination during the week (exclusive of weekends) and their fares are paid by their companies. A 225% increase in fares from $800 to $1,800 will deter only 5% of the business passengers from flying with Northern Airways.

 In contrast, a similar fare increase will lead to an 80% drop in pleasure travelers who are paying for their own travels, unlike business travelers, and who may have alternative vacation plans they could pursue instead.

3. Because business travelers often want to return within the same week, while pleasure travelers often stay over weekends, a requirement that a Saturday night stay is needed to qualify for the $800 discount fare would discriminate between the passenger categories. This price discrimination is legal because airlines are service companies rather than manufacturing companies and because these practices do not, nor are they intended to, destroy competition.

**13-34**  (20 mins.) **Anti-trust laws and pricing.**

1. The company is not practicing price discrimination because all customers are being offered the same prices. The offer is simply restricting the times and locations that the promotion is available but not the individual customers to whom the promotion applies. There is no single customer or customer group that is being discriminated against. It is also difficult for the company to be accused of collusion because the company and its competitors are not conspiring to achieve a price above the market price. The company is most at risk for possible predatory pricing and or collusion with regional airlines. There is nothing that indicates that USA Airlines is pricing below the company’s cost, but if it is, it could be seen as a tactic to drive out competition only to raise prices when the industry has fewer competitors.
2. The company is practicing peak load pricing, for its flights on Monday mornings and Friday evenings. These are the times when many business travelers fly. At these peak travel times, prices are relatively demand inelastic, so the company does not want to offer discounted fares.
3. The company should first ensure that its practices are legal. The penalties for any illegal practices could be high enough to force an organization into bankruptcy. Second, the company should consider the ethical implications of its price slashing. Under no circumstances should its low pricing strategies compromise the quality or safety of its operations in order to earn profits. The company should also consider the negative consequences of earning revenues and profits from activities other than ticket prices. For example, is USA Airlines charging fees for checked-in bags and in-flight services that are much higher than other airlines to compensate for low ticket prices? Doing so may ultimately offend and drive away customers.

**13-35** (20 min.) **Ethics and pricing.**

1. The $600 spent on the basketball tickets is a sunk (past) cost and is, therefore, irrelevant to the bid decision. Insight will incur the $600 cost whether it bids, loses the bid, or wins the bid.

2. If the target price is $156,000 and the markup is 20% of full cost, the target full cost is $130,000 ($156,000 ÷ 1.20). The difference in full cost is $8,000 ($138,000 − $130,000). Therefore, the target cost of furniture and artwork is $62,000 ($70,000 − $8,000). There are four model homes in the job, so the target cost of furniture and artwork per home equals $15,500 ($62,000 ÷ 4)

3.It was unethical for Doogan to use the basketball tickets to get the tip out of the developer. Knowing about Doogan’s action and suggesting a way to use it is unethical on the part of Groom. In assessing the situation, the specific “Standards of Ethical Conduct for Management Accountants,” described in Chapter 1 that the management accountant should consider are listed below.

*Integrity*

The management accountant has a responsibility to avoid actual or apparent conflicts of interest and advise all appropriate parties of any potential conflict. Using unethically gathered information to compromise a sealed bid arrangement is clearly a violation of this standard. The Standards of Ethical Conduct require the management accountant to communicate favorable as well as unfavorable information. In this regard, both Doogan’s and Groom’s behavior could be viewed as unethical.

*Credibility*

The Standards of Ethical Conduct for Management Accountants require that information should be fairly and objectively communicated and that all relevant information should be disclosed. From a management accountant’s standpoint, revising a bid based on this kind of information violates both of these precepts.

Doogan and Groom should leave the bid as it was originally produced, without using the unethically obtained inside information. The company should clarify its policy on business entertainment.

**13-36** (25 min.) **Ethics and pricing.**

2. The original cost of framing materials per unit was $80 ($40,000 ÷ 500 units). If the target price is $145,000 and the markup is 25% of full cost, the target full cost is $116,000 ($145,000 ÷ 1.25). The difference in full cost is $5,000 ($121,000 – $116,000). Therefore, the target cost of framing materials is $35,000 ($40,000 – $5,000). The target cost of framing materials per unit equals $70 ($35,000 ÷ 500)

3.It was unethical for Grant to use the basketball tickets to get the tip out of the purchasing agent. Knowing about Grant’s action and suggesting a way to use it is unethical on the part of Gomes. In assessing the situation, the specific “Standards of Ethical Conduct for Management Accountants,” described in Chapter 1 that the management accountant should consider are listed below.

*Integrity*

The management accountant has a responsibility to avoid actual or apparent conflicts of interest and advise all appropriate parties of any potential conflict. Using unethically gathered information to compromise a sealed bid arrangement is clearly a violation of this standard. The Standards of Ethical Conduct require the management accountant to communicate favorable as well as unfavorable information. In this regard, both Grant’s and Gomes’s behavior could be viewed as unethical.

*Credibility*

The Standards of Ethical Conduct for Management Accountants require that information should be fairly and objectively communicated and that all relevant information should be disclosed. From a management accountant’s standpoint, revising a bid based on this kind of information violates both of these precepts.

Grant and Gomes should leave the bid as it was originally produced, without using the unethically obtained inside information. The company should clarify its policy on business entertainment.

**13-36** (25–30 min.) **Value engineering, target pricing, and locked-in costs.**

1.

|  |  |
| --- | --- |
| Design cost | $ 8,000 |
| Direct materials | 32,000 |
| Direct manufacturing labor  | 38,000 |
| Variable manufacturing overhead | 32,000 |
| Fixed manufacturing overhead | 26,000 |
| Marketing  |  14,000 |
| Total cost | $150,000 |
| Cost per unit ($150,000 ÷ 75) | $2,000 |
| Target cost per unit ($2,500 × 0.75) | $1,875 |
| Profit per unit ($2,500 – $2,000) | $ 500 |

 The cost estimate developed by Nampa does not meet Wood Creations’ requirements. Value engineering will be needed to reduce the cost per unit to the target cost.

2.

|  |  |
| --- | --- |
| Total costs (requirement 1) | $ 150,000 |
| Less: Reduction in material costs ($32,000 × 60%) | (19,200) |
| Add: Increase in design costs |  1,100 |
| Total costs of redesigned table | $ 131,900 |
| Revised cost per unit ($131,900 ÷ 75) | $1,758.67 |
| Revised target cost per unit ($2,400 × 0.75) | $1,800.00 |
| Profit per unit ($2,400 – $1,758.67) | $ 641.33 |

The design change allows the sculpture to meet Wood Creations’ requirements for target costing. The cost of materials is a locked-in cost once the design is finalized.

3.

|  |  |
| --- | --- |
| Revised total cost ($150,000 + $3,000) | $ 153,000 |
| Revised cost per unit ($153,000 ÷ 75) | $ 2,040 |
| Revised target cost per unit ($2,700 × 0.75) | $ 2,025 |
| Profit per unit ($2,700 – $2,040) | $ 660 |

No, this proposal does not allow the sculpture to meet Wood Creations’ requirements for target costing. Value engineering will be needed to reduce the cost per unit to the target cost.

4.

|  |  |  |
| --- | --- | --- |
|  | **Requirement 2** | **Requirement 3** |
| Revenue ($2,400 × 75; $2,700 × 75) | $180,000 | $202,500 |
| Total costs |  131,900 |  153,000 |
| Operating income | $ 48,100 | $ 49,500 |

Even without value engineering, Wood Creations should implement the actions in requirement 3. It should spend $3,000 on marketing if it can achieve a price higher than $2,700 even though it does not achieve the target cost because it earns a higher overall operating income. Doing value engineering will help it increase operating income even more relative to requirement 2.

5.  The challenges that Wood Creations might encounter in achieving the target cost are mostly employee related. If the employees resist the changes, or struggle with the implementation of the improvements, the target cost will be in danger of not being met. Wood Creations might counter these struggles by adapting its incentive program to reward the desired effects of the changes and improvements.

 Wood Creations would also need to think about the customer and whether reducing material costs would reduce demand. For example, the customer may prefer the highest grade of wood that Jensen has used rather than the standard grade of wood that Wood Creations might use to achieve the target cost.