Pricing Decisions and Cost Management

Session 12
Major Influences on Pricing Decisions

<table>
<thead>
<tr>
<th>Customers</th>
<th>influence prices through their effect on demand.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitors</td>
<td>influence prices through their actions.</td>
</tr>
<tr>
<td>Costs</td>
<td>influence prices because they affect supply.</td>
</tr>
</tbody>
</table>
Time Horizon of Pricing Decisions

Short-run decisions have a time horizon of less than a year:
- pricing a one-time-only special order
- adjusting product mix and output volume

Long-run decisions involve a time horizon of a year or longer:
- pricing a product in a major market where price setting has some leeway
1. Costs that are often irrelevant for short-run pricing decisions (fixed costs) are often relevant in the long run.

2. Profit margins in long-run pricing decisions are often set to earn a reasonable return on investment.
Costing and Pricing for the Short Run

- **Short-run bottom price:**
  - variable costs of the one-time-only special order

- **But: beware of side effects:**
  - Is it really additional business???
  - one-time customer could compete with „our“ other customers‘ business and undercut their prices (Cannibalization)
Costing and Pricing for the Short Run

Relevant costs of the bidding decision should include revenues lost on sales to existing customers.

Opportunity Costs!
Costing and Pricing for the Long Run – Example

- Long-run bottom price:
  - cost of resources used for the respective object
  - estimated by using ABC

- but: Competition on the product market may require reduction of the current cost level
Alternative Long-Run Pricing Approaches

Market-based

Cost-based (also called cost-plus)
Target Price and Target Cost

<table>
<thead>
<tr>
<th>Target price is the estimated price for a product (or service) that potential customers will be willing to pay.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Price = Target operating income per unit</td>
</tr>
<tr>
<td>= Target cost per unit</td>
</tr>
</tbody>
</table>
Steps in developing target prices and target costs:

- Develop a product that satisfies the needs of potential customers.
- Choose a target price; estimate sales level at this price.
- Derive a target cost per unit from a target return rate.
- Perform value engineering to achieve target costs.
Target rate of return

- \( r_S \) = Target return on sales:
  
  target cost = \((1 - r_S) \times \text{target price}\)
  
  - markup = \(\frac{r_S}{1 - r_S}\)

- \( r_I \) = Target return on investment
  
  - \( r_I \) can be derived from capital market data: „required rate of return“ on the capital market

\[ r_S = r_I / \text{turnover rate} \]

- turnover rate = additional sales / additional investment
Example

- A company has invested 100,000$ in assets to produce a certain product.
- The investors’ required rate of return $r_i = 10\%$
- Full costs of production per unit of the 1,000 units produced is 150$.

- What is the markup rate needed to earn the required return on Investment?
- What is the target return on sales?
Implementing Target Pricing and Target Costing

Value engineering is a systematic evaluation of all aspects of the value-chain business function with the objective of reducing costs.
Value-Added vs. Nonvalue-Added Costs

- A value-added cost is a cost that customers perceive as adding value, or utility, to a product or service.

- A nonvalue-added cost is a cost that customers do not perceive as adding value, or utility, to a product or service.
  - Cost of expediting
  - Rework
  - Repair
How to determine the allowable costs of a component

- Target costing helps to determine what the allowable costs of each component of a product are
- Start from the allowable costs of the product
- Proceed in three Steps:
  - Identify how different functions of the product (attributes) affect the customers’ willingness to pay
  - Determine to what extent a component contributes to a specified function or attitude
  - Taking step one and two into consideration to determine the allowable cost of each component
How to determine the allowable costs of a component

- **Step 1:**
  - Figure out how much a single function contributes to customer value

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function 1</td>
<td></td>
</tr>
<tr>
<td>Function 2</td>
<td></td>
</tr>
<tr>
<td>Function 3</td>
<td></td>
</tr>
<tr>
<td>Function 4</td>
<td></td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>
How to determine the allowable costs of a component

- Step 2:
- Prepare a table to show how functions depend on components:

<table>
<thead>
<tr>
<th></th>
<th>Function 1</th>
<th>Function 2</th>
<th>Function 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Component 2</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Component 3</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Sum</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1
How to determine the allowable costs of a component

- Multiply the weights attached to the functions (step 1) with the numbers determined in table 1 (step 2)

<table>
<thead>
<tr>
<th>Component</th>
<th>Function 1</th>
<th>Function 2</th>
<th>Function 3</th>
<th>Weight of Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Component 2</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Component 3</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Weight of Function</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>100%</td>
</tr>
</tbody>
</table>
The concepts of cost incurrence and locked-in costs

**Cost Incurrence**

describes when a resource is sacrificed or forgone to meet a specific objective.

<table>
<thead>
<tr>
<th>Research and development</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>Marketing</td>
</tr>
<tr>
<td>Distribution</td>
<td>Customer support</td>
</tr>
</tbody>
</table>
Locked-in Costs

These are those costs that have not yet been incurred but which, based on decisions that have already been made, will be incurred in the future (designated-in costs).

It is difficult to alter or reduce costs that are already locked in.
Cost Incurrence and Locked-in Costs

Value-Chain Functions

Cumulative Costs per Unit

Locked-in Cost Curve

Cost-Incurrence Curve

- R&D and Design
- Manufacturing
- Mkt., Dist., & Cust. Svc.
Cost Incurrence and Locked-in Costs

At the end of the design stage, direct materials, direct manufacturing labor, and many manufacturing, marketing, distribution, and customer-service costs are all locked in.

When a sizable fraction of the costs are locked in at the design stage, the focus of value engineering is on making innovations and modifying designs at the product design stage.
The general formula for setting a cost-based price is to add a markup component to the cost base.

Cost base $X$
Markup component $Y$
Prospective selling price $X + Y$
Advantages of Using Full Costs

- Full recovery of all costs of the product
- Price stability
- Simplicity

Beware of the downward demand spiral !!!
Alternative Cost-Plus Methods

- Variable manufacturing costs
- Variable costs of the product
- Manufacturing function costs
Excursion: Interdependence of products

- A company produces two different products, $x_1$ and $x_2$
- The number of units that can be sold in the market can be described using the following functions:
  - $x_1 = 400 - 2p_1 - (+) p_2$
  - $x_2 = 200 - 4p_2 - (+) p_1$
- Variable costs are $k_1 = 2$ and $k_2 = 4$
- Which kind of interdependence is expressed by $- ( + )$?
- How many units should be produced of each product to maximize profit in either situation?
Life-Cycle Budgeting

The product life cycle spans the time from original research and development, through sales, to when customer support is no longer offered for that product.

A life-cycle budget estimates revenues and costs of a product over its entire life.
Life-Cycle Budgeting

Features that make life-cycle budgeting important:

- Nonproduction costs
- Development period for R&D and design
- Other predicted costs
Nonproduction Costs

- These costs are less visible on a product-by-product basis.
- When nonproduction costs are significant, identifying these costs by product is essential for target pricing, target costing, value engineering, and cost management.
Development Period

- When a high percentage of total life-cycle costs are incurred before any production begins and before any revenues are received, it is crucial for the company to have as accurate a set of revenue and cost predictions for the product as possible.
Predicted Costs

- Many of the production, marketing, distribution and customer service costs are locked in during the R&D and design stage.
- Life-cycle budgeting facilitates value engineering at the design stage before costs are locked in.
Other Considerations in Pricing Decisions

- Price discrimination
- Peak-load pricing
Price Discrimination Laws

- Under the U.S. Robinson-Patman Act, a manufacturer cannot price-discriminate between two customers if the intent is to lessen or prevent competition for customers.
- They apply to manufacturers, not service providers.
- Price discrimination is permissible if differences in prices can be justified by differences in costs.
Price Discrimination Laws

- Predatory pricing occurs when...

- …the predator company charges a price that is below an appropriate measure of its costs, and

- …the predator company has a reasonable prospect of recovering in the future the money it lost by pricing below cost.
Price Discrimination Laws

- Most courts in the United States have defined the “appropriate measure of costs” as the short-run marginal and average variable costs.
- 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 of its creation, and its action injures an industry in the United States.
Price Discrimination Laws

Collusive pricing occurs when companies in an industry conspire in their pricing and output decisions to achieve a price above the competitive price.
True or False ???

- The only competitors a firm must be concerned about when setting prices are those in the local market.

- Whether the firm uses the market-based approach or the cost-based approach for pricing decisions, the market forces must be considered.

- A cost will never be considered a locked-in cost until the cost has actually been incurred.

- A firm using product life-cycle reporting will have a calendar-based focus for this report.

- Price discrimination is illegal only if the intent is to destroy competition.
Pick your Choice I

Which one of the following activities would most likely be considered a long-run pricing decision?

- One-time-only special order pricing
- Product mix adjustments in a competitive market
- Setting prices to generate a reasonable rate of return on investment
- Changing prices in response to weak demand
When the firm uses the target-costing approach to pricing, the target cost per unit is the difference between the per unit target price and the per unit target contribution margin.