WHAT IS MENU ENGINEERING?

Menu engineering is a step-by-step process through which management can evaluate current and future menu pricing, design and content decisions. The menu engineering approach requires that attention be focused on three critical elements:

1. **Customer Demand** - the overall number of customers served.

2. **Menu Mix (MM)** - an analysis of customer preferences in menu item selection (related to demand elasticity).

3. **Contribution Margin (CM)** - an analysis of the contribution margin (gross profit) for each menu item (related to price elasticity).

The menu-engineering concept requires management to orient itself to the number of dollars that a menu contributes to profitability, not to merely monitor cost percentages. A pricing strategy that is based solely upon costs and cost mark-ups may be dangerously inaccurate and inadvertently be constraining a food service operator’s ability to maximise revenues and profits.

**Do not misunderstand!** Percentages serve as important managerial controls and provide feedback on operations that cannot be otherwise monitored. Menu engineering involves percentages in an evaluative capacity, but does not rely on percentages as a basis for a successful pricing effort. It ignores the question, “What is a satisfactory food cost percentage?” Instead, it focuses on, “Is the restaurant getting a reasonable contribution to profit from this menu mix?”

Every menu will project a potential food cost percentage which management will aim to achieve. This potential food cost percentage will vary among restaurants and therefore, may be difficult to evaluate. For two restaurants serving identical menus in different markets, desired food costs may range from 25% to 33% to 50% or more. This may be cited as one of the major weaknesses of traditional cost-multiplier pricing techniques. Management that bases its menu prices strictly on costs may be unable to measure the total effectiveness of its menu because of the inherent prejudice from which prices are constructed. In other words, a pricing analysis based upon cost percentages from which the prices were originally derived is biased and short sighted. To desire a $33\frac{1}{3}\%$ potential food cost, for example, and to multiply each menu item’s direct cost by a factor of three ($100\% \div 33\frac{1}{3}\%$) would be expected to produce a $33\frac{1}{3}\%$ food cost percentage later. This clearly is a case of achieving a desired outcome by manipulating the data initially.

Cost-multiplier pricing techniques can also artificially force menu items to a price level where they become non-competitive and therefore, disruptive to the menu mix. By over-inflating a menu item’s price, demand may shift drastically downward and net a lower level of profitability. To find an item’s menu price via cost-multiplier pricing, simply multiply the item’s direct (food) cost by the desired multiplier factor, adjusted for competition.
Cost-multiplier formulas tend to misdirect management’s pricing efforts toward achieving cost percentage objectives, not dollars. Unfortunately, management does not bank percentages, only dollars. In addition, cost mark-up formulas are inadequate in an inflationary economy, since they can distort prices beyond the consumer’s perception of value.

The most critical principle of marketing dictates that customer demand and perception of value must be a primary component in the menu pricing process.

To illustrate the potential weaknesses of a cost percentage based analysis, consider the hypothetical menu contained in Figures 1 and 2.

**Figure 1 - Menu Item Analysis**

<table>
<thead>
<tr>
<th>Menu Items</th>
<th>Item Food Cost</th>
<th>Menu Selling Price</th>
<th>Food Cost %</th>
<th>Contribution Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken Dinner</td>
<td>$1.50</td>
<td>$4.50</td>
<td>33%</td>
<td>$3.00</td>
</tr>
<tr>
<td>NY Strip Steak</td>
<td>3.00</td>
<td>7.00</td>
<td>43%</td>
<td>4.00</td>
</tr>
<tr>
<td>Lobster Tail</td>
<td>4.50</td>
<td>9.00</td>
<td>50%</td>
<td>4.50</td>
</tr>
</tbody>
</table>

Figure 1 clearly illustrates that the menu with the highest food cost percentage (50%) can also have the largest contribution margin ($4.50). The contribution margin, which was found by subtracting each item’s food cost (product cost) from its menu-selling price, identifies those remaining dollars, which contribute to covering all other expenses and profit, if any. Food service operators, desiring to minimise their food cost percentage, would likely prefer to promote the Chicken dinner. Although this item will tend to reduce the overall food cost percentage, it will simultaneously yield the restaurateur a lesser number of dollars to contribute to other costs and eventual profit.

Management would be better advised to encourage the selection of Lobster Tail, as it provides the highest contribution margin on this menu. This would be desirable even though this action would result in the restaurant operating at a higher level of food cost percentage. Despite the higher food cost percentage, the restaurateur would attain its largest contribution to profit.

The contribution margin approach is important to the pricing decision, and when combined with customer demand (menu mix), it becomes an even more powerful influence. Figure 2 contains two hypothetical menu mixes. Note the variance between potential food cost percentages and average contribution margins.
**Figure 2 - Menu Mix Analysis**

**Menu Mix A**

<table>
<thead>
<tr>
<th>Menu Items</th>
<th>Menu Sales Mix</th>
<th>Food Cost</th>
<th>Dollar Sales</th>
<th>Contribution Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>1,000</td>
<td>$1,500</td>
<td>$4,500</td>
<td>$3,000</td>
</tr>
<tr>
<td>Steak</td>
<td>400</td>
<td>1,200</td>
<td>2,800</td>
<td>1,600</td>
</tr>
<tr>
<td>Lobster Tail</td>
<td>300</td>
<td>1,350</td>
<td>2,700</td>
<td>1,350</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,700</strong></td>
<td><strong>$4,050</strong></td>
<td><strong>$10,000</strong></td>
<td><strong>$5,950</strong></td>
</tr>
</tbody>
</table>

Food Cost = $4,050
Sales = $10,000

Average Contribution Margin = $5,950
1,700 = $3.50

**Menu Mix B**

<table>
<thead>
<tr>
<th>Menu Items</th>
<th>Menu Sales Mix</th>
<th>Food Cost</th>
<th>Dollar Sales</th>
<th>Contribution Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken</td>
<td>300</td>
<td>$  450</td>
<td>$1,350</td>
<td>$  900</td>
</tr>
<tr>
<td>Steak</td>
<td>800</td>
<td>2,400</td>
<td>5,600</td>
<td>3,200</td>
</tr>
<tr>
<td>Lobster Tail</td>
<td>600</td>
<td>2,700</td>
<td>5,400</td>
<td>2,700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,700</strong></td>
<td><strong>$ 5,550</strong></td>
<td><strong>$12,350</strong></td>
<td><strong>$ 6,800</strong></td>
</tr>
</tbody>
</table>

Food Cost = $5,550
Sales = $12,350

Average Contribution Margin = $6,800
1,700 = $4.00

To illustrate the effect of a menu mix on overall costs and profit margins, consider menu mixes A and B (in figure 2). Note that each menu contains the same items, with identical standard (cost) recipes, the same total number of covers, selling in varying proportions. From this data, it is apparent that menu mix B, which produces the higher potential food cost percentage (44.9%) also results in the larger average contribution margin per guest ($4.00). It should become clear from this analysis that the more management can influence customer demand toward higher contribution margin items (and away from long contribution margin items), the better a food service operation’s bottom line.
While there really is not one correct target cost percentage prior to actual service, once given a menu mix, a potential food cost percentage can be used as a control technique. Likewise, the menu generating the highest average contribution margin is the one that should be judged most successful. Hence, the concept of menu engineering begins with the question, “How many dollars must be generated by the total sale of food and beverage for the restaurant to cover all operating overheads and produce a desired return on investment?”

**Alternative to Inflationary Pricing**

As the management encounters an increasingly more price/value sensitive consumer, other alternatives to increased price must be considered. While it is not the intent of this document to delve deeply into other pricing alternatives, it is recommended, however, that managers consider the following inflation fighting strategies:

- reduce portion size
- revise purchase specifications
- reduce complimentary food items
- provide a la carte pricing as an alternative
- increase staff productivity
- improve operational controls

Although all of these actions are popular inflation survival strategies, they have the potential to adversely impact upon a customer’s perception of value and, over time, may result in a decline in business. Perhaps the most effective way to cope with an inflated economy is to develop demand-based, recession-proof menus. This is another fundamental building block upon which the concept of menu engineering is built.

A more positive set of solutions to the problems of diminishing profitability may include:

- increasing customer demand
- enhanced utilisation of current assets
- larger menu item contribution margins

Each of these alternatives can have a positive effect on profitability, while avoiding the necessity for continual price increases. Since menu engineering can assist management in its ability to evaluate menu content, pricing, and design decisions, it is capable of providing important feedback. In summary, a primary focal point of menu engineering is to increase the menu’s total contribution margin through increased customer demand and/or improved individual menu item contribution margins.
Psychology of Pricing

From a psychological perspective, a key factor in pricing is the establishment of price points (the identification of a price range of acceptable value). The point range parameters are dependant upon the target market, while the range between these end points is a function of the consumer’s ability to differentiate among a variety of products. Evaluating competitive prices must always be a factor in the determination of final menu prices.

The food service consumer is conditioned to a particular range of prices based on the restaurant’s orientation. For example, persons patronizing the same restaurant expect to pay more for a grilled steak dinner than for a fried chicken dinner. They are conditioned to relative pricing and will be somewhat price resistant if their set of expectations is not met.

Competition, therefore, normally dictates the upper parameter in a range of price points, while operating expenses tend to dictate the lower end point. Evaluating competitive price points requires continual marketing intelligence. The monitoring of competitive prices requires comparisons among product quality, portion size, service, and other intangibles, for similar items.

Many restaurateurs provide a limited number of higher priced menu offerings to give the prestige buyer an opportunity to spend more, even though these items may fall outside the upper limit of competitive price points. The concept of prestige pricing implies that greater quality is associated with higher prices. This tactic is particularly effective when targeting the ‘celebration’ or ‘expense account’ markets. The premise is to not deny the consumer an opportunity to pay for a perceived quality difference. Prestige pricing can be most effective when assigned to signature items. A signature item is a menu item having no competitive comparison. In other words, it can only be purchased at one particular eatery.

In addition to acceptable price points, the concept of odd-even pricing is believed to be an important concern in consumer selection of menu items. For example, empirical research has demonstrated that more people are likely to purchase an item priced at $4.95 than will order the identical item when sold for $5.00. Management must be aware of these and any additional psychological pricing concepts and how they specifically might impact upon establishment of final menu prices.

Pricing Dynamics

Menu engineering requires continuous monitoring and updating of consumer responses to price changes. This research will provide an index of elasticity (sensitivity) and should be conducted quarterly, or more frequently. This continuous re-evaluation of pricing strategy will help determine acceptable price points without inadvertently shifting or reducing customer demand. Care must be taken in price adjustments, since the guest’s perception of a loss of value may lead to contamination of the consumer’s entire attitude toward the restaurant.
Summary

Historically, the food service industry has been dependent upon cost-multiplier formulas for the determination of menu prices. This has tended to misdirect management and has led to the inaccurate conclusion that profits are closely related to food cost percentages. Since food service management has been conditioned to view profitability synonymously with cost of goods percentages, contribution margins are often omitted from menu analysis. Additionally, cost-multiplier pricing methods, also called cost mark-up schemes, ignore one of the most critical principles of food service marketing: the consumer’s perception of value.

As the basis for menu planning and pricing, menu engineering provides positive recommendations for coping with an inflationary economy. Perhaps the most effective way to cope with an inflated economy is to develop demand-based, recession-proof menus. It is this essential orientation upon which the concept of menu engineering is built.

Menu engineering requires that management focus upon the most critical elements directly affected by pricing decisions:

1. Customer demand - the overall number of customers served.
2. Menu item purchase patterns - referred to as the menu or sales mix.
3. Average contribution margin - the amount of gross profit contributing to other direct costs and profit.