Menu Engineering: A Scientific Approach to Improved Menu Profitability

by Bill Schwartz

The concept of menu engineering was developed by Michigan State University’s Dr. Michael Kasavana and Donald Smith in the early 1980s, and has been used widely in the restaurant industry since that time. Based on Boston Consulting Group’s (BCG) matrix conceptualization model, Kasavana and Smith extended and specialized the BCG concept for the foodservice industry.

In a nutshell, menu engineering is an approach that can be used to classify menu items into four basic categories - stars, plow horses, puzzles or dogs, and based on the classification, determine what to do with those items to make the menu perform more profitably. Among the decisions menu engineering helps operators make are when to keep items on and when to take items off the menu. It helps operators determine which items are under or overpriced, and which items need to be repositioned on the menu to gain more popularity. It also helps to point out when item recipes should be changed to reduce portions or otherwise reduce the cost of the menu item in question. Experts claim the use of this approach results in significantly improved menu performance.

The Basics

To understand menu engineering, it is first necessary to understand some of the key values used. First and foremost, menu engineering ignores food cost percentages and focuses strictly on dollars. Since banks don’t accept percentages on deposit slips, this approach to menu analysis is all about the actual money made on each menu item, also known as the item’s gross margin. For example, using the traditional mindset, a steak dinner with a 40% food cost might be considered less profitable than the pasta dish with a 20% food cost. However, since percentages can’t be banked, consider the dollars. If the steak dinner sells for $25 and has a cost of $10 (40%), its gross margin is $15. On the other hand, if the pasta dish sells for $15 and has a cost of $3 (20%), the margin is $12. Using this view, the deposit slip is larger with the steak sale than the pasta sale, even though the pasta has a much lower food cost percentage.

Second, in order to make sense of the importance of a menu item, it is also necessary to consider its popularity, making the other key factor in the analysis the number sold of the item for the study period. These two factors must be considered together in order to properly rank items on the menu. For example, compare the overall profitability of coffee to overall profitability of the steak dinner. Coffee sells for $1.50 per cup in the restaurant, and has a cost of $.10 per cup (ignoring refills and sweeteners for now), giving the coffee a gross margin of $1.40. Even though coffee is far less profitable than the steak dinner in terms of raw dollars, when we multiply the number sold by the gross margin for coffee and for steak dinners, we can compare the two equally as to their impact on profits. If we sold 3,000 coffees and 100 steak dinners, the profit from coffee would be $3,300, while the profit for steak dinners would be $1,500. Obviously we make more money on coffee than steak, even though the per-item margin is much higher for steak.

Menu engineering takes this approach a few steps farther. Using the margin and menu mix information along with total customer counts, the menu engineering model places each menu item into one of four categories. The categories are as follows:

- **Stars** - high popularity and high margin
- **Plow horses** - high popularity and low margin
- **Puzzles** - low popularity and high margin
- **Dogs** - low popularity and low margin

Obviously everyone wants stars and nobody wants dogs. Therefore, the common actions associated with these classifications are to maintain the status quo for stars (no changes), and to replace the dogs with something that will be more popular, more profitable or hopefully both. Plow horses are items that sell well, but don’t make enough money. These items should typically be retained on the menu, but to make them more profitable it might be necessary to raise their price or reduce their cost by changing the portion sizes. Puzzles have good margins but aren’t very popular, so they need to be repositioned on the menu to gain higher visibility, their name needs to be changed to make them more appealing, or they need to be replaced if these things don’t work.

Easy to Calculate, Harder to Implement

What could be simpler than a system that allows you to classify all your menu items and scientifically decide what to do with them? Of course, nothing worthwhile is quite that simple, and in addition to software for performing menu engineering, entire books have been written about menu analysis using menu engineering techniques. A number of consultants make their living helping operators implement and get the most of the menu engineering approach.

Rather than focus on calculation methods or other technical details in this article, the necessary information can be found using Google or other internet search engines (type “menu engineering” as the search text) to get a list of web sites and articles which can be helpful. Another good source for information is the National Restaurant Association’s website, www.restaurant.org. Instead, let’s focus on some of the issues associated with implementing a menu engineering approach.
Plenty of software is available to calculate the necessary information. Some software is specifically designed for menu engineering as a stand-alone product. Most full-featured food and beverage inventory systems include menu engineering reports. Some web sites offer menu engineering reports free or for a small fee. And of course, spreadsheets are fully capable of handling the fairly simple calculations associated with the approach.

The problem really isn’t getting the math done, or even getting the data gathered. The point of sale system generates sale mix information routinely. Recipe costing is a bit more difficult, but many of the systems on the market help with that as well. However, as with any other management system, expertise separates success and failure. A great deal can be learned from reading the books about menu engineering, but there is no substitute for experience.

“A menu is like a real estate development,” says Greg Rapp, menu engineering consultant and president of MenuTechnologies.net based in Palm Springs, California. “Knowing where to place things, how they should look, what their perceived value needs to be and how to attract customers to the right products are critical aspects of successful real estate development and successful menu engineering implementation. That’s why operators use specialists to help them get the most benefit from their investment in time, money and effort.”

Menu engineering has been used by the food service industry for many years now, and casino operators are approaching the sophistication level where work in this area could be very helpful. It is important to note that, like other management approaches, it is not something that can simply be purchased. Success depends on the right mix of products and services, and of course the necessary expertise. In the end, a well-implemented approach for menu engineering can be a significant way to improve food and beverage profitability.

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