Develops a model for classifying products on impulse purchases and contribution to profits. Also shows how to implement the model in store merchandising strategies.

Any firm, utilizing a management by objectives approach, establishes definitive objectives via planning, organizes to achieve stated objectives, directs the efforts of those involved through effective managerial leadership, coordinates these efforts using vertical and horizontal communications systems, and controls all phases of the operation through supervision of performance standards. Cynics quickly indicate that this is nothing new. Despite this criticism, the management by objective (MBO) concept has been defended (5). MBO is effective in creating an opinion climate in which the problems of increased competition and rising costs, coupled with the increased complexity of management's task to adapt to accelerating changes in markets, technology, and social environment can be recognized as well as provide a framework for solving them (5, p. 3). According to Humble, "management by objectives is a dynamic system which seeks to integrate the company's need to clarify and achieve its profit and growth goals with the manager's need to contribute and develop himself" (5, p. 3).

Although discussion of the mechanics and operational techniques of MBO is outside the scope of this paper, a basic assumption throughout is that a managerial philosophy, subsumed by MBO, exists. Retail grocery in-store merchandising objectives and strategies are the focus here. Assumed is that the primary merchandising management objective for the retail grocery store is to maximize customer satisfaction from shopping the particular store given product mix and service objectives. Thus, store and department managers attempt to achieve this merchandising management objective while attempting to maximize profits from the store's fixed selling area.

The purposes of this paper are to: (1) consider how the concept of impulse versus planned purchasing interfaces with in-store merchandising strategy; (2) propose a model for classifying products based on characteristic clusters; (3) suggest a set of in-store merchandising strategies based on the model; and (4) suggest an operational system that will facilitate low-cost implementation. After a brief review of the conclusions from marketing research studies dealing with space management, the concept of impulse purchasing is discussed. A model for classifying in-store merchandising strategies is then proposed utilizing the interface or relationship between impulse purchasing and profitability.

Space Fixity and In-Store Merchandising Management

Regardless of the accounting method for in-store selling space, it can be regarded as fixed in the short-run. Whether considering cubic, square, or linear feet of display space, stores have a fixed amount of selling area or display space once layout is determined. Anyone who has had responsibility for in-store management can appreciate this idea and can provide numerous examples of competitive activities of manufacturer's representatives as they vie to place their

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products in this space. Thus, a basic activity of in-store management is to allocate quantity and quality of this fixed space to products so as to satisfy customer needs while meeting the firm's profit objectives.

Even merchandising space for individual departments within the store is fixed in the short-run. Additionally, there are constraints on how this space can be utilized. The most important of these constraints is customer satisfaction with the product mix offered within the department (and total store).

With high employee turnover, particularly at the department manager level, and the limited training of operatives, the in-store merchandising management problem becomes more acute. For example, standards for average gross margin for a business period and inventory turns would seem to be basic and reasonable criteria, among others, for measuring in-store management performance. However, if in-store management does not understand the gross margin concept or inventory turns as they relate to merchandising management, the criteria may not be reasonable. Even if in-store management understands the relationship, they may not have the information needed upon which to base merchandising decisions. If personnel turnover is high, there may be reluctance by top management to share gross margin data, for example, with in-store management for fear of erroneous interpretation or misuse.

Another issue is what selling area or display space offers the greatest merchandising management potential. Anyone with in-store management experience quickly realizes that locations within store as well as positions within a location are not homogeneous. In-store management may not be adequately trained in how to effectively utilize space even though they recognize it is heterogeneous. Also, they may not fully appreciate what is known from marketing research about space management.

The Knowns of Managing Space

A major factor in the success of in-store merchandising is in managing space. Marketing research studies have provided a substantial amount of knowledge concerning the relationship of displays to purchase decisions. A common example of such research is traffic pattern studies which aid in determining the relationship of store layout to sales. However, research studies which relate to the management of space after a store's layout is determined are most germane to the present context.

Research regarding the relationship of sales to end-aisle displays, shelf facings, shelf position, and point-of-purchase material contribute much to what is known about space management. Each of these merchandising variables generally represents a controllable factor in an in-store merchandising program. Each factor's relationship to sales is briefly discussed.

End-aisle displays typically increase the sales of items displayed (8). However, some of the effect is overstated because of forward buying. This, of course, varies by product.

Point-of-purchase material can result in immediate sales gains (7, p. 78), but in some cases may be effective only in combination with other merchandising techniques (10, pp. 19-20). As the number of shelf facings of a product increase, the sales also tend to increase (1), but the optimum number of facings by product must be determined on an individual store basis.

A recent extensive study on the effect of shelf facings and shelf height on sales (4), concludes that additional facings for a product adds to sales in high volume stores but not in low volume stores. This same research concludes that varying the shelf height has only a modest effect on the normal sales of an item. However, other studies suggest that the most effective shelf height is eye level, followed by waist level and ankle level (3, p. 484).

All of the foregoing studies have the common implication that space allocation and, therefore, space management are an important facet of in-store merchandising. Not all space in the store is of equal quality in terms of its sales potential. Thus, prime space—that space which has the greatest potential of generating sales per square or linear foot—must be managed properly to attain management objectives.
Impulse Purchasing

Unfortunately, there is no general agreement among marketing practitioners or theoreticians concerning what constitutes an impulse or unplanned purchase. This indicates that whenever impulse purchasing is discussed, a definition is a necessary requisite. As defined below, and as used in this manuscript, the concept of impulse purchasing is synonymous with in-store purchase decision.

The Concept of Impulse Purchasing

Conceptualization of impulse purchasing can be accomplished by defining an intentions typology and outcomes typology as suggested by Kollat and Willett (6). The intentions typology consists of five major stages of planning (intention) which exist before the customer is exposed to in-store stimuli. These are:

1. Product and brand
2. Product only
3. Product class only
4. Need recognized
5. Need not recognized

The "product and brand" intention is the most definitive with respect to prior decisions. The consumer knows both the product and brand she will buy before entering the store. The "product only" intention is specific with respect to the product but not the brand. The "product class only" intention is where the consumer intends to purchase some product from a product class, but is unspecific with respect to brand and product (e.g., intends to purchase meat). The "need recognized" intention is specific with respect to a need (such as "need something for dinner") but unspecific with respect to a product class. The most provisional intention is the last, where the consumer does not recognize the existence of a need prior to entering the store.

Kollat and Willett also propose an outcomes typology consisting of three components:

1. Product and brand purchased
2. No purchase
3. Product purchased, brand not purchased

This outcomes typology is self-explanatory except for the last component. Here the consumer intended to purchase a particular brand and product before entering the store but actually purchased only the product intended and substituted a different brand from the original intention.

The intentions and outcomes typologies may be utilized to define an operational intentions-outcomes matrix (Table 1). Kollat and Willett (6, p. 22) contend that the intentions and outcomes typologies conceptually result in fifteen categories. However, the present authors contend that there are conceptually only eleven result categories (see Table 1), two of which are empirically unidentifiable. Result categories conceptually do not exist for elements under the last column of the matrix except for the first. Thus, five result categories conceptually exist under the first two outcomes but only one under the last outcome. The last two result categories of the "no purchase" outcome (column two) are not empirically identifiable but do conceptually exist (as recognized by Kollat and Willett (6, p. 22)). Because of difficulties inherent in consumer intention measurement, research results based upon these typologies may not be completely unbiased (9, 11), although the typologies still possess utility as a definitional device.

Clearly, the ninth result category (Table 1) represents an impulse purchase. Brand switching (result category three) might be considered as an impulse purchase with respect to brand but is not an impulse purchase as the term is generally defined. Similarly, the "need recognized purchase" (result category eight) could be considered at least a quasi-impulse purchase but will not be in the present context.

The essential element of the impulse purchase definition utilizing these typologies is consumer intention. Not only is consumer intention a key definitional element, but so is intention with respect to time. That is, impulse purchase as a concept is inextricably bounded by time since the concept centers on the extent of planning prior to the purchase decision (prior to entering the store). This definition makes impulse or unplanned purchase equivalent to an in-store purchase decision.
Table 1. Revised Kollat—Willett Operational Intentions—Outcomes Matrix

<table>
<thead>
<tr>
<th>Intention</th>
<th>Product and Brand Purchased</th>
<th>No Purchase</th>
<th>Product Purchased, Brand Not Purchased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product and Brand</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Product Only</td>
<td>4</td>
<td>5</td>
<td>C&lt;sup&gt;a&lt;/sup&gt;/</td>
</tr>
<tr>
<td>Product Class Only</td>
<td>6</td>
<td>7</td>
<td>C</td>
</tr>
<tr>
<td>Need Recognized</td>
<td>8</td>
<td>&lt;sup&gt;b&lt;/sup&gt;E</td>
<td>C</td>
</tr>
<tr>
<td>Need Not Recognized</td>
<td>9</td>
<td>E</td>
<td>C</td>
</tr>
</tbody>
</table>

<sup>a</sup>/C = Conceptually nonexistent.

<sup>b</sup>/E = Empirically not identifiable (i.e., cannot be measured).

Source: (6, p. 22).

***

Frequency of Impulse Purchase

Impulse purchasing of items in grocery stores is an important consumer behavior phenomenon. Although the impulse purchase result category is only one of nine empirically identifiable intentions — outcomes results, available research evidence suggests that the impulse purchase occurs more frequently than any other result category (6, p. 23). Although there is naturally substantial variation by product and customer, the typical customer in the Kollat and Willett study purchased about 50 percent of all items on an impulse basis (6, p. 23).

On a major product category basis, miscellaneous (including some general merchandise items) and frozen foods have the highest rates of impulse purchasing while dairy products and produce have the lowest (Table 2). Although this date is not recent it does give some appreciation for the differences in the frequency of impulse purchasing by major product category.

The Impulse Purchasing — Profitability Interface

It has been asserted that space is not homogeneous. In-store management must consider differences among locations within the store as well as position within locations. "Prime" space or "hot spots" can be identified. These are points which are extremely conducive to sales, especially impulse sales. Examples include near entrance (departmental managers may even compete for first place in the traffic flow), end of aisle, near check-out, eye level shelf space, and next to planned purchase traffic generators such as bread, milk, or advertised specials.

Products and product categories can be classified by degree of impulse purchases, as has been demonstrated. However, products and product categories also differ in the ability to generate profit dollars. This raises the issue of alternatives for measuring profitability by products or product categories.

Profitability Measures

Because of the importance of profits to a firm, this dimension of merchandising strategy is likely appreciated more than the impulse-planned purchase dimension. Additionally, more data exist to measure profits. However, unanimity regarding the optimum operational measure of a product's profitability is unlikely. The measure selected must be made by management, but some alternatives are suggested.
Table 2. Frequency of Impulse Purchase in Supermarkets by Major Product Category, 1965

<table>
<thead>
<tr>
<th>Major Product Category</th>
<th>Impulse Purchases as Percent of Total Purchases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous</td>
<td>66.9</td>
</tr>
<tr>
<td>Frozen Foods</td>
<td>61.4</td>
</tr>
<tr>
<td>Baked Goods</td>
<td>58.5</td>
</tr>
<tr>
<td>Household Needs</td>
<td>56.5</td>
</tr>
<tr>
<td>Groceries</td>
<td>55.7</td>
</tr>
<tr>
<td>Beverages</td>
<td>51.7</td>
</tr>
<tr>
<td>Meats, Poultry, Fish</td>
<td>49.1</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>48.5</td>
</tr>
<tr>
<td>Produce</td>
<td>45.2</td>
</tr>
</tbody>
</table>

Source: (3, p. 488).

It may be impossible to measure whether an individual item is profitable due to the difficulties of computing unit costs as well as measuring indirect or fixed costs. Complementary, supplementary, and competitive relationships among products are so complex that mere recognition of their existence creates confusion. Furthermore, any profitability measure which is to be operationally efficient must be parsimoniously developed. Some possible profitability measures for a given time period include:

1. Dollar sales
2. Dollar sales per unit of shelf space (linear, cubic, or square feet of shelf space)
3. Units sold
4. Units sold per unit of shelf space
5. Inventory turnover
6. Inventory turnover per unit of shelf space
7. Gross margin per item
8. Gross margin per item - labor percentage
9. (Gross margin per item - labor percentage)/shelf space
10. Gross margin contribution = gross margin x volume (measured in dollars or percent)
11. Gross margin contribution per unit of shelf space
12. Profit proficiency = (% gross margin - labor cost) x % sales distribution
13. Profit proficiency per unit of shelf space
14. Contribution to overhead (CTO) = gross margin - direct expenses
15. Contribution to overhead per unit of shelf space = CTO/unit of shelf space
16. Adjusted contribution to overhead per unit of shelf space = (CTO - marginal cost per unit of shelf space)/unit of shelf space
17. Net profit = gross margin - direct + overhead costs

A Model for the Impulse-Profitability Interface

To make the impulse purchasing concept useful for implications with respect to merchandising strategy, products or product categories must be thought of as either inherently more likely or less likely to be impulse purchased, given approximately the same merchandising effort. For example, most anyone with retail merchandising experience would, based upon that experience, agree that milk or twenty pound bags of potatoes are less likely to be impulse purchased than is lipstick or frozen pizza. That is, the latter products are ones which a larger proportion of their total sales will be from in-store decisions (Impulse purchased) than for the former products, assuming an equal merchandising effort for each product.
A useful analytic device for isolating the impulse purchasing-profitability interface is a cluster model (Figure 1). This model is composed of four quadrants, each showing different degrees of impulse purchasing and profitability. The vertical axis measures a product's contribution to profit (CTP), while the horizontal axis measures or ranks the same product's inherent degree of impulse purchasing. Thus, products that fall in the first quadrant are relatively high with respect to CTP and degree of impulse purchasing compared with the products clustered in other quadrants.

<table>
<thead>
<tr>
<th>high CTP</th>
<th>low CTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>high Impulse</td>
<td>low Impulse</td>
</tr>
</tbody>
</table>

Planned

Figure 1. Impulse - Profitability Analysis Clusters (IM-PAC)

Products which have relatively high CTP but have a high proportion of total purchases planned fall in the second quadrant. The third quadrant maps products with relatively low CTP and a high proportion to total purchases which are planned. Finally, products with relatively low CTP but have a high proportion of total purchases which are impulse purchased fall in the fourth quadrant.

Thus, each quadrant represents a cluster of products by their relative relationship of CTP to impulse purchasing. This model is an Impulse - Profitability Analysis Cluster (IM-PAC). The origin of the diagram (Figure 1) is variable—may be regarded as whatever the user feels is logical in his particular operations. For example, if CTP is measured simply as gross margin, the origin might be set at (50, 20). The 50 represents 50 percent planned to total purchases and 20 represents 20 percent gross margin. With this origin, any area of the diagram above the horizontal axis would have products with a gross margin greater than 20 percent, any area below would be less than 20 percent. Similarly, any area of the diagram on the left of the vertical axis would contain products with a proportion of impulse purchases to total purchases of less than 50 percent, while any area on the right would contain products with a proportion greater than 50 percent.

IM-PAC is a general model which may be used to cluster either individual products, product categories, or even entire departments. As an illustration of the use of IM-PAC for individual products, suppose gross margin is used as the measure of CTP for the vertical axis. Also, suppose the origin is set at (50, 20). For simplicity, only three individual products are categorized—candy, frozen whole turkeys, and milk. Candy is judged to have about 80 percent of total purchases made on the basis of in-store decisions (impulse purchased), while frozen whole turkeys and milk are highly planned, say about a 5 and 10 percent impulse purchase rate, respectively. Gross margin for candy is assumed to be 35 percent, for frozen whole turkeys about 30 percent, and for milk about 10 percent.

These data on impulse purchasing and profitability result in candy being positioned in the first quadrant, frozen whole turkeys in the second quadrant, and milk in the third quadrant (Figure 2). The precise position of each product is not necessary. That is, to be useful, it is not necessary to know whether or not frozen whole turkeys are impulse purchased exactly 5 percent of the time. Even if the rate of impulse purchase is 15 or 20 percent, it has no serious consequence for the usefulness of the model.

As an illustration of the use of IM-PAC for major product categories, again suppose gross margin is used as the measure of CTP. Also, suppose the origin is set at (55, 20). Based upon the data in Table 2 and some average gross margins by major product category, clusters of these product categories
can be derived (Figure 3). The items in the first quadrant have a relatively high incidence of impulse purchasing and a relatively high CTP. The groceries product category falls near the origin, and in this can be thought of as a "norm" from which other product categories deviate.

![Figure 2. An Illustration of Individual Product Placement by Product Characteristics](image)

Classification of Strategies Based on IM-PAC

The usefulness of IM-PAC rests on its ability to discriminate among broad merchandising strategies by product clusters. IM-PAC suggests that for products in the high CTP, high impulse quadrant, priority merchandising effort is desirable. These products should be assigned prime space, special displays should be built, and extra effort expended for exposure to the majority of customers. Considering the total store operation, product categories like health and beauty aids, snack foods, and general merchandise fall in this quadrant and consequently can command priority merchandising and prime space.

The high CTP, low impulse purchase quadrant again implies that priority should be directed toward preventing stock-outs for items in this quadrant, since a relatively high percentage of total purchases are planned. Consequently, in order to maximize customer satisfaction and contribute to profit objectives, preventing stock-outs in these prominently displayed items should receive priority. Generally, special displays and prime space would be given these items only in the event of price specialing.

The low CTP, low impulse purchase quadrant again implies that stock-outs should be prevented, since a relatively high percentage of total purchases of these items are on a planned basis. As a matter of customer goodwill and satisfaction, the items in this quadrant need to be stocked, but need not occupy prominent display space. For the items in this quadrant, quality of display space is relatively unimportant.

The low CTP, high impulse purchase quadrant represents a "marginal product" category in terms of merchandising strategy. Since products in this quadrant have relatively low CTP, and few purchases are planned, the items are not ones that can command in-store merchandising attention. At best, only a low effort should go into these products. Not many customers would be dissatisfied if the products were not in the store since relatively few customers plan to purchase the item prior to entering the store. Certainly, items in the quadrant can command little or no merchandising effort, and may not be viable at all in terms of product-mix considerations.

![Figure 3. Major Product Categories by Product Characteristics](image)
A summary of the classification of strategies for in-store merchandising based on the quadrants of the IM-PAC model is interesting (Figure 4). At least the majority of products in a particular store should be in the first three quadrants. The normative implications of IM-PAC are that, as the percent of impulse purchase incidence increases, the CTP should also increase to justify handling the product. The same normative relationship holds for the reverse. If the CTP of a product is very low relative to others, then in order to justify offering that product, a relatively high proportion of total purchases should be planned. The reason for handling relatively low CTP items is to avoid customer dissatisfaction with product mix. Consequently, low CTP items which are highly impulsive are not consistent with the objectives of merchandising management.

Making IM-PAC Operational

The primary utility of IM-PAC is as a management training aid. Use of the model forces one to consider the relationship of impulse purchasing to profitability, and to compare products or product categories on that basis. This is useful for considering appropriate strategy for in-store merchandising, a major part of which is to allocate quantity and quality of shelf space to products.

IM-PAC can be made operational with only limited data, or much data. The basis for classifying products by degree of planned versus impulse purchases need not be precise. Even if this classification is merely a subjective exercise utilizing in-store and supervisory management experience, it would offer advantages over ignoring the concept. The measure of CTP that is chosen can be whatever measure is normally used in store operations. Thus, IM-PAC requires no real problems with respect to data and is extremely simple to use. Certainly it is a superior approach to simply allocating quantity and quality of space on the basis of only turnover or only gross margin.

One possibility for making IM-PAC extremely simple for in-store personnel to use would be to color code the order book by either products, or more likely product categories. One color would identify a product category as being in a particular quadrant of IM-PAC, another color would be some other quadrant. The advantage of such a scheme would be that it would constantly remind in-store personnel of the merchandising function, and be a constant reinforcement of the impulse purchasing-profitability relationship to in-store merchandising management and the objectives of the firm.

Conclusions

IM-PAC presents a convenient method of comparing products, product categories, or even departments for general indications of in-store merchandising strategy. Its utility is derived from its convenience as a method for classifying in-store merchandising strategy for store personnel that may not otherwise understand the impulse purchasing-profitability interface as it relates to management by objective.

1Duncan and Phillips define merchandising management as "a procedurally organized system, supported with continuous research, which permits and causes the prompt factual economic evaluation of profit planning and profit results of inventory units and dollars invested for satisfaction of customers' ser-
vice and merchandise needs, in compliance with top management's directive and desire for store image. They state the purposes of merchandise control are to: meet customer demands satisfactorily, improve profits, provide buying information for company buyers, and to minimize investment in inventory (3, p. 365-366).

2Strategies are defined as the broad goals of the business which can be formalized into precise objectives such as to achieve a ten percent return on investment.

3Except, of course, for the possibility of remodeling.

4Contribution to profit may be measured in whatever way the user feels is relevant to his operation.

5Average gross margins assumed by major product categories were: general merchandise, 40; frozen foods, 35; baked goods, 28; household needs, 15; groceries, 20; beverages, 40; meats, poultry, and fish, 30; dairy products, 10; produce, 32.

Literature Cited


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