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**Electronics and Food Distribution:
New Opportunities in Market Research**

by

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Introduction

My objectives in this session are:

First: To tell you that there exists a market research method whereby the dynamics of consumer purchasing behavior in the food industry can be examined more precisely than ever before--right down to the level of the individual household and the individual store.

Second: To convince you of the robustness of the data base that is derived not from survey research but from electronic scanners at supermarket checkouts to give precise, actionable results.

Third: To excite interest by example.

I would like to begin by telling you about Behaviorscan®--the trademarked service for which IRI is best known among researchers in the food manufacturing industry.

I say "best known" because from concept through inception Behaviorscan® has been utilized for the testing of new and alternative TV advertising treatments by grocery brand manufacturers.

But--as we shall go on to see--Behaviorscan® has come to mean much more than ad testing.

Behaviorscan®

The Behaviorscan® scanning system is built on four principles:

1. Obtaining complete and accurate information at the level of the individual store.
2. The inclusion of all supermarkets in a trading area.
3. Maintenance of an electronic scanner panel to monitor purchasing patterns at the level of the individual household.
4. Provision of the means for experimentally varying the marketing mix within the system.

These principles have been established via the combination of the new technologies of UPC Scanner, Cable TV and Computers.

How? Behaviorscan® began with an important premise: that the information obtained from scanning can be of enough value, in the proper environment, to pay for a major portion of the overall cost of scanning.

We carried this idea to its extreme in late 1979 when in Pittsfield, Massachusetts (1980 pop. 75,000) and Marion, Indiana (1980 pop. 70,000) we installed

scanners and associated communications technology in most of the supermarkets in those two cities, such that 95 percent of grocery All Commodity Volume (ACV) was being captured in both cities by IRI installed scanners.

I stress the words "we installed": for uniquely IRI paid the full cost of all of these installations. The participating retailers were thus relieved of the financial burden of scanner costs and were thus provided with an opportunity of exceptionally low risk.

Since then we have doubled--twice.

1981 saw the opening of scanning cities in Eau Claire, Wisconsin (1980 pop. 89,000) and Midland, Texas (1980 pop. 114,500).

During 1983 we opened four more mini-markets:

	<u>1980 pop.</u>
Visalia, California	107,000
Rome, Georgia	84,000
Grand Junction, Colorado	108,000
Williamsport, Pennsylvania	100,000

We also established the first drug-store scanning operation in the United States in four of our markets in order to track purchasing behavior in these outlets as well.

We began drugstore scanning in Pittsfield and Marion in the Spring of 1982, and expanded the program to our Eau Claire and Midland markets in September of last year. We are introducing these systems currently in our Rome, Georgia and Visalia, California markets.

Our mini-markets embrace 75 supermarkets comprising independents, leading chains such as Safeway, Kroger, Vons, Marsh, Albertsons, Winn Dixie, etc., across a wide variety of store formats from conventional supermarkets, through discount stores, warehouse stores, superstores and combination stores.

Altogether we have just over 30 scanning drugstores that include such names as Haags, Hooks, Rite Aid, CVS, and independents. Walgreens has signed on and four of their stores are in the process of scanner installation.

The Scanner Panel

The third principle of Behavior-scan® requires the establishment of an electronic scanner panel. So, within each of our mini-markets we maintain a panel of 2,500 households in order to be able to track purchase dynamics at the individual household level.

Panelists are recruited in-store by a permanent market and headquarters staff whose task it is to maintain both the numbers and quality of the panel. An incentive and reward structure is provided to encourage panelists to show their ID card to supermarket checkers each time they shop.

For each panelist extensive household demographic data is collected, ranging from income and employment status, through ownership of particular durable goods and of pets (cats and dogs).

A TV signal converter is installed in each panelist's household--about which more later.

All a panelist has to do when he or she goes shopping is to show the ID card at the check-out counter. Our scanner panel is known as the "Shoppers' Hotline" and the ID card portrays this name adequately together with the panelist ID number.

The checker key-enters the ID number and all purchases are automatically recorded by the scanner and set off in a special computer file.

I must stress that there are NO restrictions on where shoppers using the Hotline card can or cannot shop in our mini-markets.

Remember: the two key attributes of the UPC code are that it is unique and scannable.

Link this to the fact that through our panelist members' Hotline ID numbers, we can track what Mr. and Mrs. Smith bought in any of our markets. We can follow them from Safeway to Albertsons to Vons. And we can know how much they spent in each store, on what and how often.

Does the scanner panel reflect reality? We can demonstrate the correspondence between Heinz Ketchup's market share as measured in the total market store movement figures versus the shares among the household panel we track separately. In virtually all cases, the panel data tracks well with reality. The average coverage ratio of store sales by our household panel is 98 percent plus or minus 3 percent.

Acceptance of this principle--that the panel does reflect reality--is "key" to understanding the power of the data for analyzing purchasing dynamics and, more particularly (as we shall go on to see), the testing of alternative commercial ad treatments at the household level.

Scanner panels are superior sources of reliable data as compared with traditional diary panels which suffer the inherent disadvantage of professional panelists: e.g. diary panelists tend to become more price-sensitive as a result of merely participating and "writing down" every price they pay.

Scanner panels completely eliminate this problem as a result of this unobtrusive method of data collection.

Furthermore, the system does not have to rely upon a panelist's interpretation of what is "on deal." Rather, through our staff of 25-30 people in each market monitoring store conditions (the beginning of a corporate wide chain of quality control procedures), we know

exactly and objectively what store promotions are: such as feature ads, displays, price reductions and even the redemption of store and manufacturer coupons. The store checker bags the coupons to be sent to our local market office where they are entered into the panelist's record and matched against purchases.

The combination of UPC code and trackable panelist provides the most advanced basis for studying consumer behavior and purchasing dynamics.

At IRI we are dealing with real world--real time consumer purchases, NOT warehouse withdrawals and shipment data. We are collecting both store level item movement, price and causal data (for 75 supermarkets and 30 plus drugstores across eight markets) plus panel data on produce purchases from 20,000 households--the largest source of panel data in the United States. This provides an accurate and continuous source of data.

The data is retrieved at regular intervals by our Chicago corporate HQ across phone lines and into the main-frame computer. Panel data is retrieved nightly and store movement data twice a week.

Targetable TV

The fourth principle of Behavior-scan® requires the provision of the means for experimentally varying the marketing mix within the system. This brings us to the issue of Targetable TV.

Individually targetable television advertising is the technology developed by Dr. Gerry Eskin (one of IRI's co-founders) which is now protected by three patents.

The objective is to be able to select statistically two groups of households that are perfectly matched in terms of past behavior--and then, to change something. Expose one group to one marketing program and expose the

other to a different program. Then determine which marketing program is most effective by reading sales and related results through the scanner panel.

How do we do it? First, it has to be understood that each of our eight mini-markets was deliberately chosen so as to have high penetration of cable TV (in excess of 80 percent of households). They are places where cable is required just to receive regular on air network transmission because reception is so poor due to a variety of reasons.

IRI installed cable TV cut-in equipment that is computer controlled; it operates through the entire cable network and can be targeted to pre-selected households. This cut-in equipment is located within each one of our eight local market offices or at the head-end of the cable itself.

In each panelist's home a patented device--a "converter" is attached to the panelist's TV set. The chip inside has three functions:

1. It's addressable and controlled by IRI's central computer.
2. The channel on the dial can be converted to a different frequency in a split second--hence it's fully targetable.
3. The status of the TV is monitored at 5 second intervals throughout the day to record TV viewing patterns.

Instead of using two separate cables we use two different mid-band frequencies within the cable system. At precisely the right moment two different commercials are sent down the cable. The test commercial is sent down an invisible channel in parallel with the control commercial. Then, using the targetable facility of the "converter" a test ad can be cut-in over the regular ad that continues to be seen by the control group.

All this is achieved with no obvious interruption of viewing by the consumer. Two people living next door to each other could both be watching the same TV program at the same time, but one would see one set of ads while the other would see different ads. The in-home device individually addresses each household just as a telephone does--and allows substitution of ads at will. After the test ad appears, the channel is switched back.

But before test ads are cut-in, the control and test panel households have to be selected such that they are balanced: that is to say, in order to determine the impact of the test ad we make sure that the two groups of panel households are synchronized/identical in terms of brand and competitive penetration and share, category consumption, store preference, and demographic profile, etc. This is to ensure that the only marketing variable that differs significantly is the commercial TV delivery.

Panel balancing is a sophisticated activity and owes its origins at IRI to the company's co-founder, Dr. Gerry Eskin, from whose statistical analysis of the base period data have been derived the panel balancing algorithms.

Through the statistical balancing process we have been able to improve upon the sensitivity and accuracy in measuring the impact of alternative advertising strategies.

It seems to have become a truism that advertisers know that half of their advertising is wasted--but the problem is that they do not know which half! The new technologies now make it possible to determine more precisely which half is spent effectively and which is not.

With panels balanced the system can be used to test ad weight, new copy, day parts and the timing of ads. The targetable TV facility is also used

to send ads for new products to Behaviorscan® households.

In this example, the objective of the test was the determination of the best level of advertising and promotional support. The "high" A&P schedule substantially outperformed the "low" A&P program.

Behaviorscan® has the capability to conduct tests simultaneously in more than two cells. For example, to determine which campaign produces the highest level of consumer sales:

- Copy A or Copy B? and
- At which ad level--\$5M versus \$10M?

Targeted For Success

There's no better testimony to the success of Behaviorscan® than the successful new products depicted in this slide, which were all test marketed under Behaviorscan®. They have been targeted for success.

But, as I said at the beginning, Behaviorscan® has come to mean significantly more than ad testing. From the wealth of store movement data and panel purchase data we have constructed a data base known as The Marketing Fact Book™.

The Marketing Fact Book™ Data base

The Marketing Fact Book™ is essentially a compilation and integration of panel data and store item movement data, plus data on panelist households' TV viewing habits plus complete information on causal data, i.e., the incidence and duration of feature, display and couponing activity.

For our four longest running markets (Marion, Pittsfield, Eau Claire, Midland), The Marketing Fact Book™ data base provides two years of continuous data which, from a brand management standpoint, enables these classic marketing issues to be addressed.

The Marketing Fact Book™ appears as quarterly and annual hard copy covering around 275 categories of mainly food and HBA, but also GM, products found in the grocery store.

Furthermore, you should know that this data base can be accessed interactively from our clients' offices through a system we call PROMPT™, enabling them to address in a custom manner, those same key marketing issues.

The potential of this data base for the benefit of those retailers participating in Behaviorscan® markets is only just beginning to be unlocked.

Perhaps I should have indicated earlier that the guts of the Behaviorscan® system is our dictionary of UPCs. This dictionary currently consists of 232,000 separate UPC numbers.

Proprietary software is available and being developed constantly for applications in manipulating this wealth of data into general and user defined system needs at different levels of aggregation.

The item movement data attached to these UPCs is available in consultation with our participating retailers as input to their operating systems concerned with, for example, inventory management and shelf allocation.

The panel data also enables retailers included in the Behaviorscan® program to look with greater precision at issues such as:

- store loyalty ("how define?")
- heavy buyers ("who are they?" "how much do they spend?")
- deal proneness ("am I being cherry-picked?")
- controlled store testing of, for example, display locations, and

- the planning of price and promotion campaigns and the subsequent measurement of promotional effectiveness.

In addition, the tracking of item movement enables each store's grocery category, brand and total market shares to be monitored.

New Store Impact on Shopping Patterns In Behaviorscan® Markets

Store Format Change

The encroachment of the warehouse and super warehouse store upon local markets across the nation is an issue familiar to all in this audience. Last year, in one of our markets, there occurred a change of store format as the result of a change of store ownership. Through the IRI-installed scanners we were able to observe the impact of that change.

- The store in question was originally owned by a large chain that operated it as a conventional supermarket. The store produced weekly store volume of around \$100,000 under that format.
- After being closed for two months, the store reopened under the ownership of an independent operator who attempted to model the store after the Cub operation, although in a much smaller physical plant. The store maintained full service departments but discontinued bagging.
- Emphasis was put on price comparisons. Ten key items were featured each week at substantial discount prices.
- Store ads in the first few months of operation featured comparisons of register tape totals for a basket of goods actually purchased at that store vs. other stores in the area.
- Lower margins were maintained in most departments compared to the previous operator, but the largest discounts were maintained on the ten key discounted items and the items used in the comparative shopping list.
- During the six months prior to closing for re-formatting the original owner's maximum weekly sales index reached 123 against an average for the period's weekly sales, indexed as 100.
- During the nine months under new ownership and in a new format the weekly sales index achieved a maximum of 141 against that period's average index of 100.
- Average weekly sales under the new format worked out to be almost 70 percent greater than that achieved prior to conversion.
- Diagnosis of the panel data further confirmed the success of the new format. Traffic counts increased, as did average expenditures per shopping occasion. The incidence of heavy buyers frequenting the store improved and almost all departments showed gains in terms of number of shoppers and volumes achieved.
- Based on the success of this store, several other stores in the area went to across-the-board discount prices, but without the emphasis on key items and without the other aspects of the format. In spite of competitive retaliation, the operator was able to sustain most of the sales gains realized in the early stages of the program.
- The success in this case may in part be due to price, but this alone does not fully explain the results. Others could not duplicate it using price alone. Management clearly had a significant part to play.

New Store

In another case, we measured what happened as a result of an operator opening a second store in one of the Behaviorscan® markets. For illustration, let's call it Chain A.

The retailer in question already operated the most successful store in the trading area. The Behaviorscan® data base was used to investigate the impact of the new store on the original operation and to evaluate the effect of the new store on competition. The new store was located at the opposite end of the trading area from the first store of Chain A.

To investigate the impact, store share of total grocery expenditures was calculated prior to and after the opening of the new store. The 12-week period prior to the store opening was compared to the 24-week period after the store opening. Store share was calculated for each store of Chain A as well as for their largest competitor. Shares were also calculated for Chain A's largest competitor and the largest store of that competitor.

The new store increased Chain A's total share from 34.0 percent to 44.6 percent of the market--a 31 percent gain. The original store's share fell to 26 percent, a loss of 22 percent. The competitive chain also lost share, going from a 22.1 percent share to a 17.6 share, a 20 percent loss.

Despite geography, the absolute loss was greatest for Chain A's old store, which had the highest initial share and, hence, the most to lose. On a relative basis, the losses to Chain A and its major competitor were almost identical--losses of 20-22 percent of prior share being recorded.

On the other hand, it would seem that customers of Chain A's old store selected the new store because of chain loyalty. In addition, customers who

formerly shopped at other stores now chose the new store, possibly for locational reasons. These two factors balanced out in such a way that share losses were proportional to the original shares.

From the Behaviorscan® sample of individual households, the gains and losses in traffic count and expenditures per trip were also traced. It was found that the traffic count for the older store fell by 14 percent. The largest competitive store lost 16 percent of its traffic to the new store.

Dollars spent per trip fell at both the original Chain A store and at the competitive store. The original Chain A store had achieved a \$35.40 average expenditure per trip prior to the new store opening. This fell by 9 percent to \$32.30 after the new store opening. The largest competitive store experienced a decline in order size from \$23.80 to \$21.20, an 11 percent decline.

Store Loyalty

Through the Behaviorscan® panel data we are able to quantify with a high degree of accuracy the variables that comprise the components of supermarket volume:

- Household Penetration
- Spending per Head
 - Trip Spending
 - Trip Frequency

We took a recent 24-week period (to mid-June this year) in one of our markets and looked at the trip spending and frequency data for a static sample of 2,649 Shoppers' Hotline panelists.

These shoppers generated a total of just over 118,000 shopping trips in that period. For the total market the average number of trips per week by the scanner panelists was 3.36 trips per week; the average dollars spent per trip over the 24-week period was \$25.51. The

data for each of the stores (A and B) of a chain within that same market (whose identity cannot be revealed) shows that, in terms of dollars per trip, Store A attracts nearly 7 percent above average spending per trip while Store B makes 5 percent above the average.

Measuring attraction in terms of trip frequency, we found that Store A achieved nearly 12 percent above average trips per week. Store B, on the other hand, manages just over three-quarters of the market average number of trips per week--2.62 compared with 3.36. This reflects the fact that over the 24 weeks Store B only took 7 percent of these 118,000 trips (against 29 percent for Store A).

In combination these components of supermarket volume gave Store A a near 26 percent market share and Store B just under a 16 percent share.

But these variables can change--dramatically, as in the case of the impact that a new store or store format can make, and more subtly, as consumers adjust, over time, their loyalty to a particular store.

What do we mean by store loyalty? And how do we measure it?

We took a recent 12-week period of data across the four oldest Behavior-scan® markets and looked at the number of different stores visited by Shoppers' Hotline panelists.

If we take a definition of loyalty to mean people who are so loyal that they only shop in one store--forget it. There would seem to be few such people. Only 8 percent of households visited one store exclusively in this 12-week period. Put another way, 92 percent of households shopped in more than one supermarket. Typically, a shopper visits three to four different stores (48 percent) with almost 75 percent of the households in this 12-week period visiting more than three stores.

Looking at store loyalty in terms of the number of stores shopped, we addressed the issue of whether or not these groups differed in their response to retailers' promotional activity.

For each group (those shopping in 1-2 stores, 3-4 stores, and 5-6 stores) we calculated the proportion of total dollars spent in the 12 weeks that were promotional dollars. We calculated a "percent of volume on a deal" figure, where the definition of deal includes products sold on display, with an advertised feature and during periods of temporary price reductions (whether or not accompanied by a display or feature). We indexed at 100 the percent of deal purchased made by the most store loyal group (those visiting 1-2 stores in the period). Those who visited in excess of 5 stores spent one-third more on deal purchases than did the more store-loyal group.

The people who shop in a larger number of stores also differ in another important respect--namely, with regard to differences in private label versus branded grocery purchasing. We indexed the private label share of purchases by the loyal group at 100. Those who shopped around a lot purchased almost one-quarter less private label product than did the store-loyal shoppers. These "cherry-pickers" would seem to be motivated in their behavior by the potential deals available on branded merchandise--a topic to which I'll return.

There is, however, another way of looking at store loyalty--namely, in terms of dollar spending (to determine "primary store shopped"). To examine this, we defined a "loyal shopper" as someone who spends in excess of 80 percent of grocery dollars in a single store. Based on this definition, during a typical week, 58 percent of households are loyal; that is, 58 percent spend 80 percent or more of their dollars in one store. That's a lot of loyalty. However, if we extended the analysis to a

typical month, then 44 percent of the sample satisfies the loyalty criterion. Over 12 weeks 36 percent are loyal. And over 24 weeks 34 percent are loyal. By the criteria of 80 percent of dollar spending, some 66 percent or two-thirds of the households were "unloyal" over a 24-week period.

Currently we are extending this analysis to look at the individual retailers in our Behaviorscan® markets and to extend the time period (to 52 weeks and beyond) and the cumulative share of grocery dollars devoted to any one store.

Store Loyalty and Consumers' Dealing Behavior

Clearly, individual stores advertising and promotion activity will have a bearing on shifting consumer loyalty between stores just as advertising and promotion influences brand choice. So, right now, I'd like to share with you some results from some recently published research which examined the impact of featuring in selected categories on loyal versus infrequent shoppers.

The data base included more than 8,000 panelists from our four longest running Behaviorscan® markets (Marion, Pittsfield, Eau Claire, and Midland). These households made more than 875,000 shopping trips in the 52 weeks analyzed and spent roughly \$18M on grocery purchases.

Our "plus 80 percent of grocery dollars" definition used earlier was developed to classify shoppers as follows:

<u>Class</u>	<u>% of Total Grocery Dollars Allocated to a Store</u>
High Loyal Shoppers	90.1% - 100.0%
Medium Loyal Shoppers	60.1% - 90.0%
Low Loyal Shoppers	30.1% - 60.0%
Occasional Shoppers	10.1% - 30.0%
Infrequent Shoppers	0.1% - 10.0%

This classification scheme made it possible to examine purchase occasions among households that were highly loyal versus households that were infrequent shoppers within a given store, in order to determine the relative importance and deal propensities among these groups of consumers. From this study, the following dynamics of shopping behavior were observed:

- First: Only 18 percent of the households had a preferred store in which they spent in excess of 90 percent of their total grocery dollars.
- Second: The distribution of trips and spending worked out as follows:

Overall Distribution of Shopping Behavior

<u>Occasions in Stores Where Shoppers Were:</u>	<u>% of Trips</u>	<u>% of Dollars</u>	<u>Average Dollars Per Trip</u>
High Loyal	12.7%	19.2%	\$30.96
Medium Loyal	23.8	29.2	25.32
Low Loyal	27.3	25.9	19.47
Occasional	22.9	17.5	15.62
Infrequent	<u>13.3</u>	<u>8.2</u>	<u>12.66</u>
Total	<u>100.0%</u>	<u>100.0%</u>	<u>\$20.52</u>

Not surprisingly, perhaps, consumers tended to spend less per trip when shopping in stores visited only occasionally or infrequently.

- Third: Those households that shopped only occasionally or infrequently in particular stores tended to purchase a higher proportion of their volume on deal than did loyal shoppers in the same stores.

Looking at (for each loyalty group) indices that measure propensity to buy on promotion--be it advertised feature or display--we found a consistent pattern of increasing dealing activity along the continuum from highly-loyal

to infrequent shopper. These indices were constructed by taking the proportion of total scanned grocery dollars bought on feature and display on each type of purchase occasion and dividing by the comparable proportion among total shopping occasions.

Infrequent shoppers had a Feature Propensity Index of 135, while highly-loyal shoppers evidenced an average index of 75. These results indicate that featured items tend to represent a much greater proportion of the total purchasing of households when making trips to stores at which they normally do not shop, while highly-loyal shoppers are comparatively less attracted to featured items. In other words, consumers tend to be disproportionately attracted to deals when shopping in stores they rarely visit.

There is a bit of "chicken and egg" issue here: do deal-oriented households tend naturally to shop around or do various deals prompt certain households to move from store to store? In any case, these results do suggest that "cherry-pickers" do exist with respect to cross-store purchasing.

Furthermore, given that occasional and infrequent shoppers are fairly important to a typical store and that those households are especially disposed toward the purchase of featured items, these results underscore the relevance to the retailer of carefully selecting promotions that have the potential to attract these consumers and thus increase total store sales.

Improving Promotional Efficiency

I'd like now to provide you with an insight into some of the work we are doing in the area of price and promotion research.

The Marketing Fact Book™ data base includes information on every UPC-coded product in every store every week with regard to shelf price, the presence of

advertised store features and displays, and coupon redemptions. These data are correlated statistically with actual product movement collected via the scanners to determine more precisely than ever before the impact of promotion variables on brand sales (and competitive brand sales) at the total market and individual store level.

We have developed models to measure the impact of:

- Price Elasticity
- Promotion Sensitivity
- Competitive Price
- Competitive Promotion
- Cross Product Cannibalization

The basic model endeavors to assess promotional response by looking at the impact on base volume (indexed at 100) of, say, a 10 percent price reduction . . .

- in combination with a feature
- or display
- or the combination of both that possibly generates a synergy effect when present together.

For example, we found in one case that the combined effect of all in-store promotion activity resulted in a 644 percent increase in sales above the volume sold at normal non-promoted price.

This is achieved with the most accurate, reliable and timely data available. So let's go on and look at the results of some recent research that focuses on the Crest brand of toothpaste.

First of all, it must be stressed that aggregated bi-monthly data is inadequate as a base from which trends between price and volume can be discerned. Aggregated monthly data is also inadequate for this purpose. With Scanner data, however, week by

week, the presence of a potential correlation between price and volume is much more readily apparent. Thus, within our system, when we overlay the incidence, duration, and type of promotional activity with price movements a much clearer picture of what's really going on emerges.

When Crest was simply displayed in March/April with no retail price reduction there was only a modest increase in volume above the normal non-promoted base. However, a major price reduction in October coinciding with combined "feature and display" activity produced a volume increment as much as 10 times greater than non-promoted base volume. Comparing Colgate and Crest, we found that when Crest was on deal from August to October, sales increased four times above normal. However, unpromoted sales of Colgate did not appear to be much lower than other non-promoted periods when Crest is not on deal.

It's this level of information and detail as input that allows us to examine **promotional efficiency** and compute the price-volume relationships. For one major HBA product the average non-promoted price is 28 cents per ounce.

- A 10 percent price reduction (with no promotion) resulted in a 23 percent increase in sales volume.
- At a 30 percent price reduction there was a 100 percent increment in volume.
- Both of the above were at non-promoted store conditions.

With a "feature," the average price was 24 cents per ounce.

- A 20 percent price reduction combined with a feature resulted in a 100 percent volume increase above non-promoted base.

- This is the same effect as a 30 percent price reduction with no in-store promotional support.
- Features were thus more efficient for the retailer in moving more volume without giving away additional margin.

With a "display," the average price was 26 cents per ounce.

- This was a higher average promotional price than for features and the results on average were better.
- That is, a 20 percent price reduction with a "display" generated about 25 percent more volume than a similar price with "features" only.

However, "Feature and Display" combined produced the most dramatic results:

- The average "Feature and Display" price was 22 cents per ounce.
- A 20 percent price reduction with "Feature and Display" together resulted in a 200 percent increase in sales above that achieved at the average normal non-promoted price.

We can summarize these results as follows:

- We have now researched many categories and brands using these variables and formulations of the inputs to the marketing mix.
- All respond differently to different promotional events . . . but
- With this type of information both manufacturers and retailers can develop promotional programs that produce the greatest increases in sales with the least cost.

- That is, they have the opportunity to improve promotional efficiency.

New Horizons

With the The Marketing Fact Book™ we have two other data base products:

1. Fastrac™--our new product pre-testing service and
2. Media Services--for improving media efficiency in the marketing of consumer goods.

Fastrac™

With Fastrac™ we believe that we can reduce the failure rate of new product launches in the grocery trade by refining test marketing methods and taking the concept of "Targeting for Success" to new horizons.

Traditional models of new product testing and evaluation are based upon survey data that asks consumers their opinions about a new product concept, whether they would buy such a product if it were commercially available, are they already buyers in the proposed new product category and when they last bought generally or specifically in that category. This method relies heavily on the respondent's memory.

However, because we have for some time now been tracking panelist purchase behavior in the Behaviorscan® markets we know when a household last bought a particular type of product or brand in a given category. We know therefore, more accurately than ever before, the true purchase interval/cycle in aggregate and right down to the level of the household by demographics and for example heaviness of purchasing.

I'd like to give you some examples of how in a survey a respondent's memory can lead to errors in estimating. We set up a 300 panel household subset of our 20,000 household Behaviorscan® panel and asked them a series of questions

concerning their buying behavior. Then we compared the answers with what we know they really did as disclosed by The Marketing Fact Book™. Here are the results from four categories:

- 86 percent of those surveyed claimed that they had bought canned tuna fish during the past three months.
- The truth, as revealed by The Marketing Fact Book™, was that 64 percent of that 86 percent had actually bought tuna during that time period.
- Furniture polish has a very long purchase interval (around 120 days) so, whereas 57 percent of the survey panel claimed to have bought within the past three months, the real figure as revealed by the scanner panel data was in fact only 26 percent of the 57 percent.

The results are equally revealing for respondents claiming to be non-category buyers during the last three months. For example:

- 10 percent of the 14 percent who said they had not bought canned tuna during the previous three months had actually done so.
- For Ready-To-Eat Cereal, 40 percent of the 7 percent was the observed relationship.
- 65 percent of the survey sample claimed to have bought the Chicken of the Sea brand of tuna fish during the past three months. The Marketing Fact Book™ indicated the true proportion to have been 22 percent of that 65 percent.

Significant differences were observed between the Survey and Scanner Panel data when we looked in terms of the purchase interval/cycle/frequency/incidence. The survey data suggested that buyers of canned tuna fish did so

every 15 days. In fact, from their observed purchasing patterns, the real figure was every 44 days. For RTE Cereal the purchase interval was 28 days, though when asked to recall this frequency in the Survey Panel, the mean response was every 12 days. Memory seems to be associated with frequency of consumption rather than purchase.

The real advance for new product evaluation is that Fastrac™ provides an empirically validated set of equations calibrating survey criteria measures with actual purchasing behavior. This data is available from no other source and should enhance the ability of marketing management to manage risk better in new product development.

Interestingly, we have just started a test with another subset of panelists in one of the Behaviorscan® markets to test panelists claimed versus scan-recorded shopping behavior with regard to, for example:

- primary store shopped
- dollars spent on major trip
- number of trips per week
- dollars spent per week
- secondary and tertiary shopping trips
- dollars spent on those secondary/tertiary trips

Hopefully, we'll have the results of this survey analyzed by the end of next month.

Media Services

Just as with our price-promotion research we offer the prospect of improving promotional efficiency, our Media Services division offers the chance for grocery brand manufacturers (and retailers) to improve their media efficiency. The fundamental question in media planning is:

How can manufacturers and agencies improve the process of selecting TV programs on which

to advertise in order to maximize commercial delivery to target households?

In other words, "How can we link consumers' purchase behavior with their TV viewing habits?"

In our view, intermediate data such as demographics, provides a weak link. That is, the advertiser's traditional approach of matching target buyer demographics (usually age and sex) with demographic descriptions of TV audiences for specific day part and shows is, as far as our system and technology are concerned, a rather imperfect means upon which to base media selection decisions.

You'll recall that in discussing Behaviorscan® the "converters" attached to panelists' TV sets were monitoring TV set status every 5 seconds. Well, a subset of 4,500 (out of 20,000) "converters" has been specially modified so that we can record data on whether the panelists' TV set is switched on and to what station it is tuned--all day long. This data is retrieved nightly over phone lines to our central computer and the data integrated with those panelists' purchase records.

Again, as with the electronic collection of scan data, we have a system that is fast, silent and unobtrusive. With our system, real targeting of potential buyers can be achieved rather than the "scattergun" approach that stands for traditional demographic matching of buyers and TV programs. Now target households can be classified directly by their buying behavior, through The Marketing Fact Book™, which means that a target audience can be identified as heavy users of a category or brand, current non-users, current users that are non-loyal to a given brand--or whatever the criterion may be. Linking this with an analysis of TV viewing habits for those same households provides the basis for determining how much more effectively an advertiser's

dollars can be spent; that is, we can ascertain where that 50 percent of ad spending is being wasted.

Efficiency and Consumption Indices

The coupling of our data on product purchasing behavior with TV viewing among panelist households has allowed us to construct what we call a "Daypart Efficiency Index." This is simply an index which directly relates the product consumption among TV viewers at any point in the day versus consumption among all households. We can track this "Consumption Index" hourly during any day for any category and show a "Daypart Efficiency Curve": that is, the relative efficiency of each daypart in terms of the sales potential for that category.

For example, the efficiency curve for pre-sweetened cereal is about 30 percent higher during the morning, indicating that the morning TV audience consists of households that purchase 30 percent more pre-sweetened cereal than the average household.

The index reflects both the relative product purchasing of any particular TV audience and the total amount of TV viewership for that category's buyers. The curve for Ready-To-Drink Fruit Juices is consistently low all day long, indicating a poor efficiency in advertising fruit juices on daytime TV and the fact that fruit juice buyers are light TV viewers. This is a case where TV advertising in daytime will generally accumulate impressions largely against non-buyers of the category.

Let's now look at the Consumption Index in terms of TV shows within daypart. Whereas the daypart as a whole for the Fruit Juice category is low, during the Early Morning News daypart, it had an index of 87. Also, both CBS Morning News and The Today Show were low, but Good Morning America delivers an audience which purchases nearly 50 percent more fruit juice than average. So, irrespective of the low daypart index, an ad on Good Morning America would be particularly efficient since it would reach a heavy juice buyer audience.

Conclusion

You could not get to any of this **single-source** data that links grocery purchasing behavior, TV commercial ad exposure, shopper trips and spending behavior at the level of the individual store and household **without** the new electronics--from laser scanners in supermarkets to micro-computers in the TV sets. The mere existence of information that is "nice to know" is being superseded by the analysis of cause and effect to provide real actionable data. To the extent that manufacturers and retailers are committed to exploit the full informational benefits of the scanner, the resources are in place and waiting.

FDRS, Editor Note: Due to space limitations selective editing had to be done concerning charts and tables. Please contact the author if additional data is needed.