

MODEL-BASED MARKET
RESEARCH IN THE 1980'S

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This paper discusses some of the changes in market research we should expect in the next decade. Currently, studies are issue oriented: they provide answers to specific questions or marketing issues. The next decade will see research projects with a broader scope: to understand how markets work and why consumers behave as they do. Measurements will be more complex, and multivariate analysis techniques will be used extensively to identify the subtle relationships within the data. Marketing models will be the conceptual framework for these more complex studies. Market analysis identifying consumer responsiveness segments provides a case example of what might be expected from model-based market research studies.

1. INTRODUCTION

Some of the market research conducted in the eighties will be very different from that to which we are accustomed. Historically, most market research projects are triggered by a question or a specific problem. Data collection consists of asking a series of questions related to the problem or issue. Data processing is the cross-tabulation of each of the questions with single-dimensional demographic or behavioral respondent classifiers. Analysts study

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the responses by the various cross-tabulation breaks. Findings, conclusions, and recommendations are made.

The project is designed and conducted within the conceptual framework of a specific question or problem. Every time the question changes, the framework changes. Since each study is founded on a different base, it is frustratingly difficult to develop cumulative understanding and learning from a series of studies.

In the eighties, many market research projects will deviate from the traditional pattern. The data collection phase will include more complex measurements and incorporate more sophisticated questioning sequences. These more sophisticated measurements will be analyzed by more complicated algorithms than by simple cross-tabulation. Analysis techniques, such as conjoint analysis, perceptual mapping, factor analysis, multiple discriminant analysis, cluster analysis, and correlation analysis, will be commonplace in the eighties. More and more often, simulation techniques will expand the usefulness of study findings to estimate the effects of change in the marketplace.

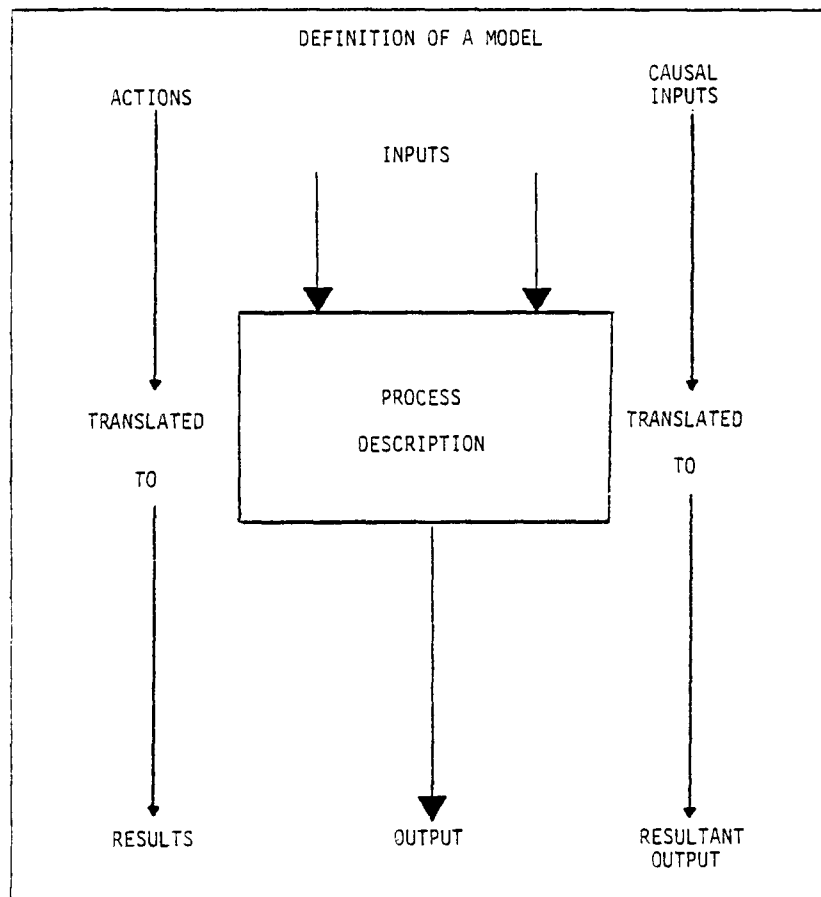
However, the major change to take place in the eighties will be that more and more market research will be conducted within a conceptual framework which will not change from study to study. The more sophisticated measurements coupled with the more powerful analytic procedures will allow researchers to develop a more detailed understanding of how markets really work and why consumers behave as they do. Research will be conducted within a conceptual framework held constant from study to study. Cumulative understanding (learning) will be enhanced; and this increased understanding of consumer behavior will lead to more effective strategies which will show us how we can control and influence this behavior to the benefit of our brand.

2. MODEL-BASED MARKET RESEARCH

The major difference between the past and the future of marketing research is the adoption of a conceptual framework which will remain reasonably stable from study to study. The framework established would be described, understood, agreed upon, documented, and incorporated as the foundation of a series of market research studies. This common conceptual framework is a marketing model.

There are many types of marketing models.¹ Most, if not all, marketing

EXHIBIT 1



¹ Arnold E. Amstutz and August P. Hess, "Simulated Market Response," in Steuart Henderson Britt, editor, The Dartnell Marketing Manager's Handbook, (Chicago: The Dartnell Corporation, 1973), pp. 475-485.

models have three parts: (1) input, (2) a process description, and (3) output. The "input" is usually a set of quantitative measurements. The "process description" acts as a translator to "transform the causal input(s)" into some hierarchical "output(s)." For example, the "input" to a marketing model may be a brand strategy (such as a message positioning statement or a change in product formulation). The "output" may be the expected brand share or the expected change in brand volume.

The "process description" which makes this translation is, in all probability, considerably simpler than the actual process it represents. The "process description" need not replicate the detail of the process. It is only necessary that the process description "acts like" the process it represents. In almost all marketing models, the process description is a highly simplified representation of a much more complex phenomenon. For example, it is totally unrealistic to attempt to model the cognitive processes of consumers which translate marketing inputs into consumer behavior. Even if it were possible to model these highly complex phenomena, the complexity of the model would be such that it would be untenable for marketing people to work with it. Therefore, marketing models, especially behavioral models, incorporate a "process description" which is a greatly simplified representation of extremely complex processes. This is an advantage, rather than a limitation, of the models. Marketing people can comprehend and understand these highly simplified descriptions. They can judge whether or not they feel the simplified model acts sufficiently like the real phenomenon; and, therefore, whether they can believe in and work with it or not.

Successful marketing models are user oriented. The inputs are dimensionally consistent with the marketing actions available to the model users. Potential users must understand how to convert the marketing actions they contemplate into model inputs. The outputs should be consistent with the goals and objectives of the marketing program: implica-

tions of the action on profitability, the magnitude of share changes, and so on.

Marketing models which portray consumer behavior tend to be macro models or micro models. Macro models portray marketing in an aggregate sense. Econometric models and trial/repeat marketing models are examples of the macro approach. They tend to view the marketing process at an aggregate level. Inputs to such models are marketing expenditures expressed in dollars, awareness levels, aggregate levels of advertising awareness, trial rates, etc. This type of model succeeds in translating the inputs into reasonable estimates of market performance. One drawback of macro models is that it is difficult, in many instances, to relate the model inputs to marketing actions that the marketing manager can affect. For the marketing manager, marketing programs are usually described in specific positioning statements or message strategies. The macro model can only respond at the more detached, aggregate level.

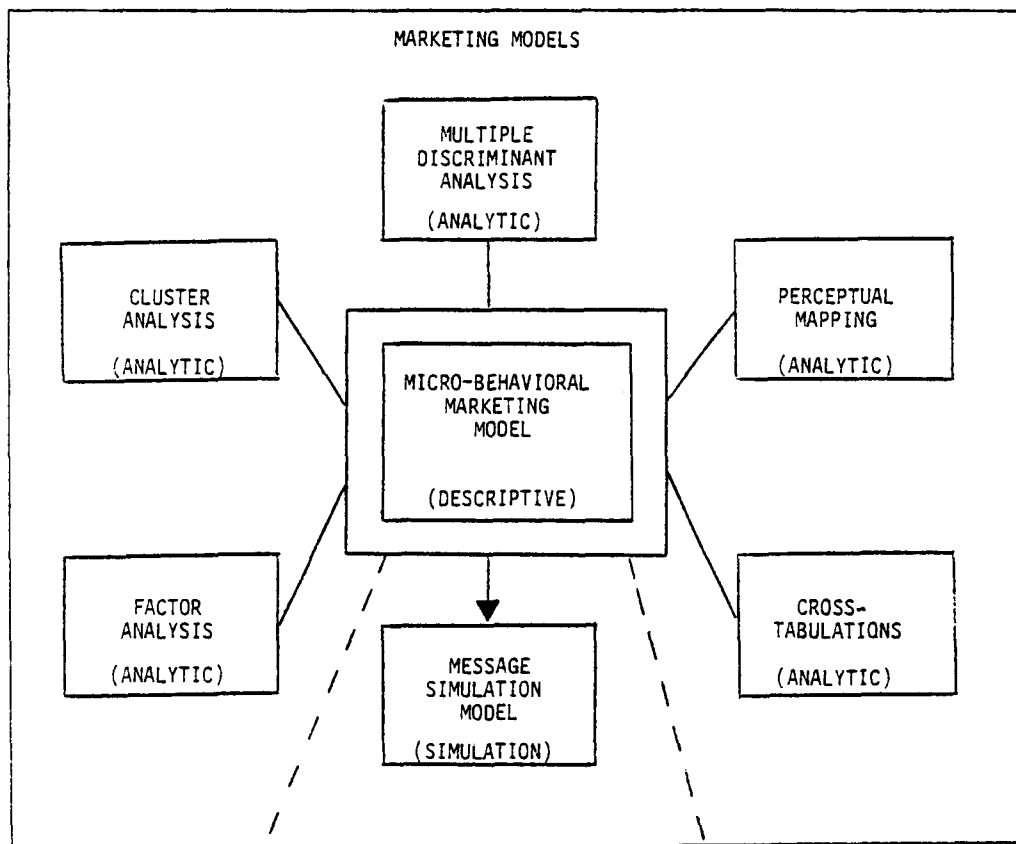
Micro models, on the other hand, require more detailed descriptions as input. These are usually much easier to relate to specific marketing actions than are macro model inputs. A micro model representation can operate at the level of a single individual or, when aggregated across a population of individuals, can represent the behavior of a total market population.

The micro-behavioral model has a three-fold function in model-based market research. First, it establishes a common and reasonably stable conceptual framework from which measurements are derived. Secondly, it provides the conceptual framework by which these measurements (model inputs) are translated into marketing outputs. Finally, it provides the conceptual framework within which marketing measurements, gathered in the research study, can be interpreted and evaluated. Additionally, if

this conceptual framework is maintained from study to study, understanding and learning can be additive across studies. The users can agree about what the data is saying, what the data means, and what to do about it in an action sense. A stable conceptual framework supports the old cliché that we only want to conduct "actionable" marketing research projects.

The micro-behavioral model is supported by two types of models which have proven to be extremely useful: analytic models and simulation models. The analytic models help us to understand the complex interrelationships within the data. Simulation models help us to project the implications of the alternative marketing actions we may consider.

EXHIBIT 2



The evolution of marketing models, as they relate to model-based market research, has been substantial over the past 25 years. Much has been learned about how to analyze and interpret the various kinds of more sophisticated measurements. The computer systems which support this type of market research are constantly changed and improved. However, most of the changes and improvements have been in the area of the analytic and simulation sub-models, as opposed to the basic behavioral model. With very minor exceptions, we are using the same basic behavioral model we started with over 20 years ago. The requirement of stability over time need only relate to the basic behavioral model, which is the nucleus of a model-based market research system.

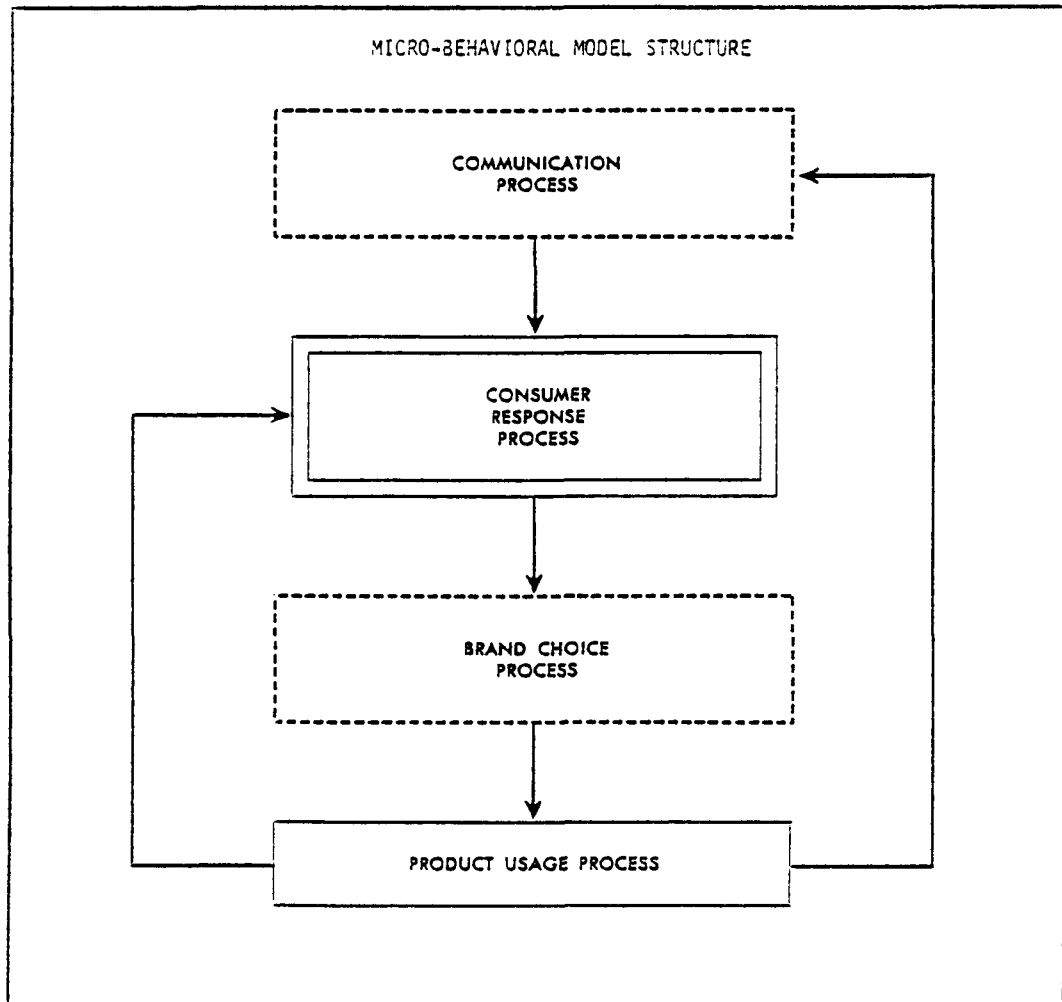
3. MICRO-BEHAVIORAL MARKETING MODEL

The nucleus of the model-based market research system we use is a micro behavioral marketing model. The "process description" in this micro model describes the way in which the consumer imagery and perceptions of competitive brands are formed and translated into consumer behavior, i.e., free-choice decision making. The model separates the marketplace into four worlds. These worlds are linked and interrelated serially to provide an overall description of how the market operates.

The first world is the world of information. This module contains all of the information which is available to the market class. The "process description" within this module describes all of the sources from which information can enter the marketplace. It also contains a communications model (simulation model) which describes the way in which information, in the form of messages, is transmitted from the information world to

the decision makers. (A later section in this paper will describe this simulation model in more detail).

EXHIBIT 3

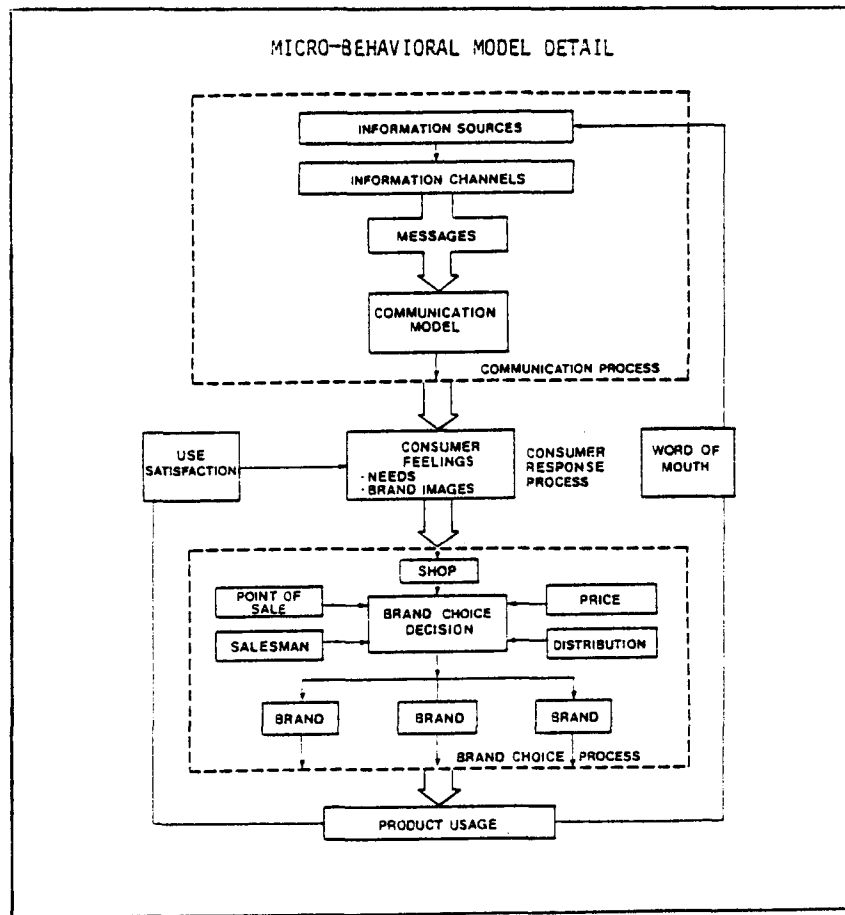


The information module logically links into the world of consumers. That module describes the way in which information messages are translated into product imagery. This is, by far, the most important module. A research study can be viewed as a snapshot of a market at a particular

point in time. This snapshot, typically, portrays the state of the imagery and perceptions of the various brands by consumers. The "process description," which translates these consumer perceptions into consumer behavior, forms the basis on which market understanding is founded.

The model we use is need oriented and describes the formation and reinforcement of brand attitudes in the following fashion. The foundation of consumer perceptions is a set of needs in the minds of consumers. This foundation is made up of a reasonably large number of need elements called "attributes." The measurement of the importance of these need attributes and the linkage of these attributes to brand imagery is the goal of many research studies.

EXHIBIT 4



The next module represents the movement of the consumer into the decision-making process. The decision maker enters the marketplace with the expectation of fulfilling certain needs, which he has in mind at that particular point in time. The competitive product and/or service he chooses will be perceived as fulfilling those needs better than any other competitive alternative. The model is not so naive as to say that the competitive brand or service with the strongest perception will be what he necessarily buys. The model introduces distribution, point of sale, the influence of the salesman or saleswoman, and price as disruptive influences which may override the predisposition to select the brand about which the decision maker has the strongest perceptions.

The final module in the overall marketing model is the world of usage response. The model assumes that the image perceptions, held at the time of the choice decision, are expressed in terms of some expectations which are held relative to product or service performance. If these expectations are adequately met, or surpassed, this module logically links back to the reinforcement of, or the improvement of, the brand perceptions in the brand imagery module. It also links back, as an information source in the information module, as a word-of-mouth disseminator of information. Word of mouth is one of the most effective and believable information sources to consumers.

Model-based market research identifies measurements which are derived from these various model structures. The measures we typically use include:

- unaided brand awareness.

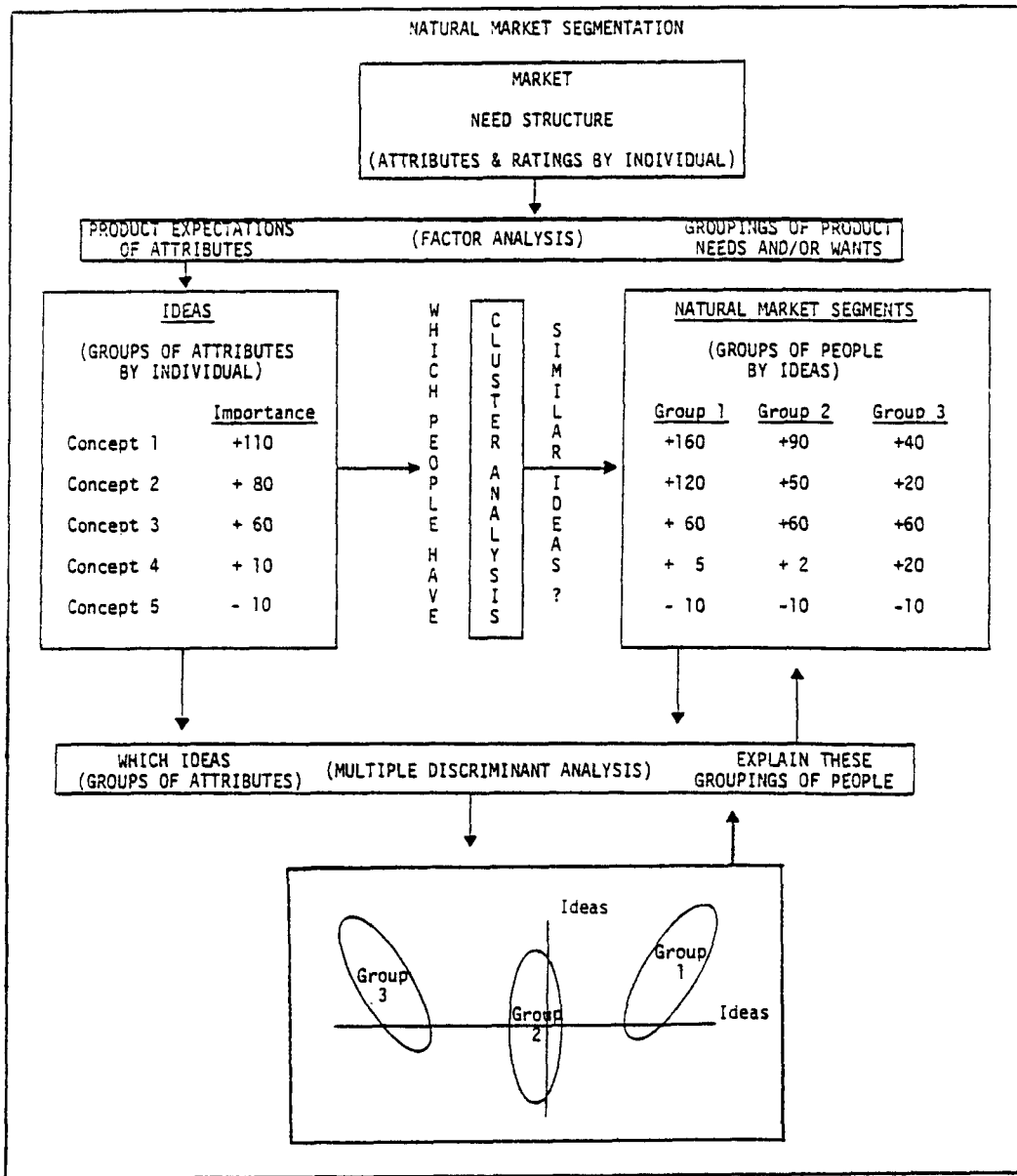
- the measurement of how much a consumer likes or dislikes each attribute in the set of need attributes.

- the measurement of brand profiles as representing the linkages which each brand has to the need attribute set. These profiles typically take the form of open-ended descriptions of the brand, wherein the salient adjectives used in a brand description are identified. They also include forced profile descriptions, wherein the respondent is read a list of attributes and states the degree to which he believes each is associated with a specific brand.

4. NATURAL MARKET SEGMENTATION

Natural market segmentation is an excellent example of the way in which the various analytic models interact with the measurements derived from the micro-behavioral marketing model. The broad purpose of this type of analysis is to group all of the people together who have a similar view of the market. The segments should fall, in the model, as they "naturally" occur in the overall population. Going into a natural market segmentation analysis, one has no idea as to how many segments may naturally occur or how big the segments are likely to be. This natural grouping goes back to the foundation of the behavioral model, i.e., needs in the minds of consumers. If we can group all of the people together who have similar needs and expectations from the market, then we have natural groupings of people who are looking for the same or similar things from the competitive products in the marketplace. If we are successful in accomplishing this, marketing effectiveness will be greatly enhanced. We can direct specific strategies at the common expectations of one or more of the segments.

EXHIBIT 5

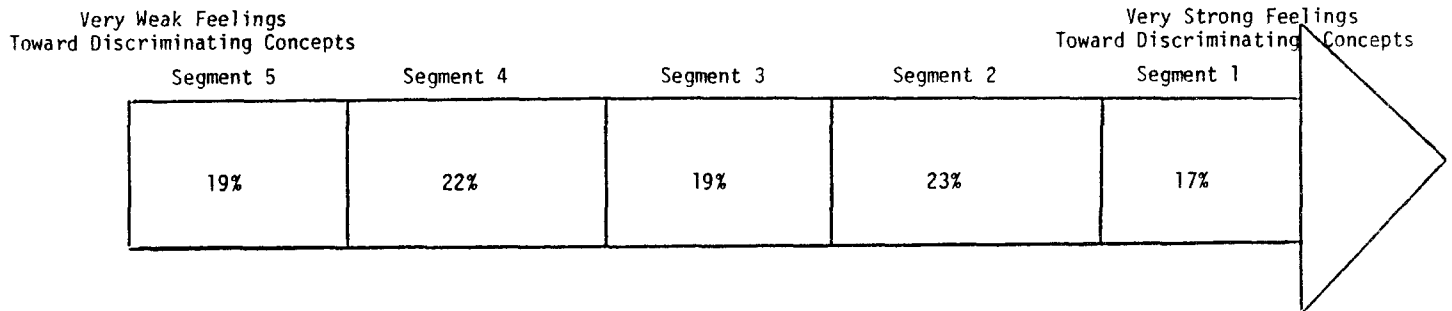


Several analytic models are required to conduct a market segmentation analysis. The need attributes, which are measured in terms of the degree to which each respondent would like or dislike them to be a characteristic of a product in the market class, are first factor analyzed into a set of need concepts. These need concepts consist of groups of attributes which are highly correlated. They represent the hierarchial thought structures of consumers. The factor score for each of these need concepts or factors

is entered into the data base at the level of each respondent. These factor scores are then input into a clustering model, which groups all respondents with similar patterns of scores into a distinct segment. The factor scores for these groups of respondents are next processed through a multiple discriminant analysis model, which identifies those concepts and differentiates the segments. These concepts are the discriminating concepts, which account for the natural market segmentation. Finally, the natural cluster groups are cross-tabulated with all of the data in the study, in order to profile the demographic and behavioral characteristics of each of the naturally occurring market segments.

EXHIBIT 6

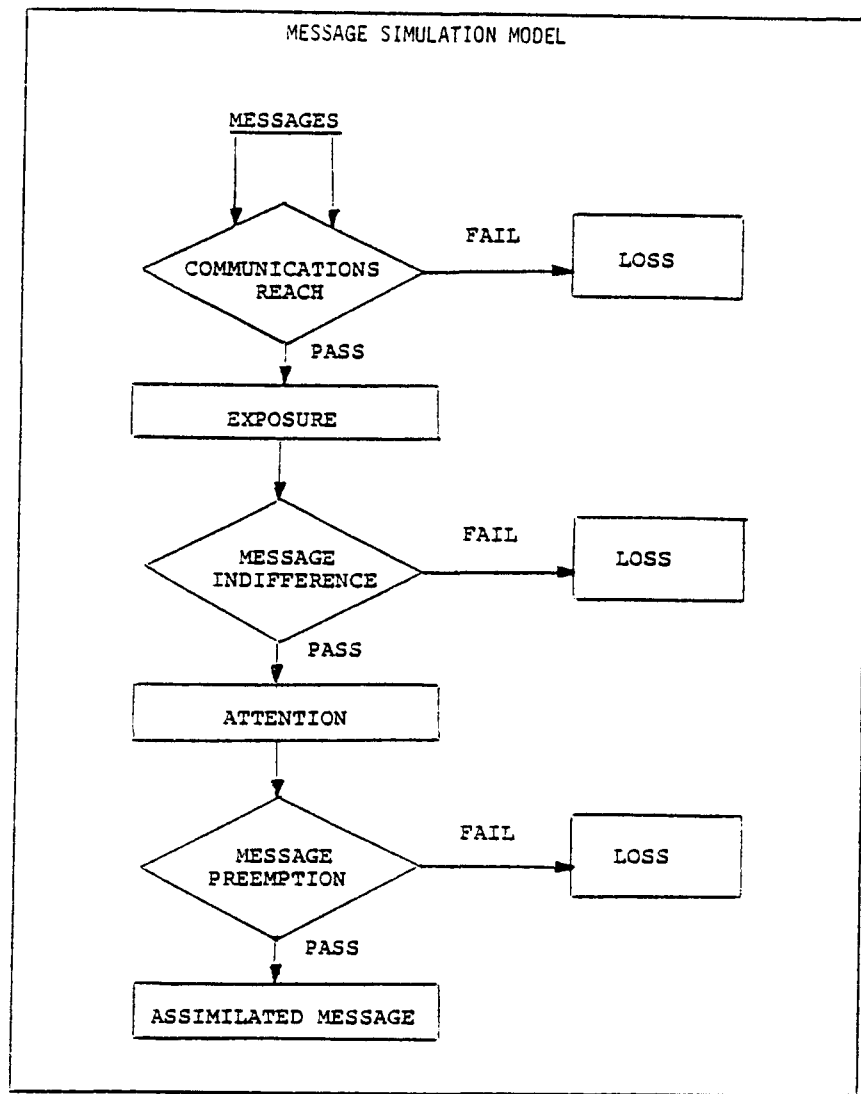
CONTINUUM OF NATURAL MARKET SEGMENTS



5. COMMUNICATIONS SIMULATION MODEL

Some extremely valuable insights can be derived from the analysis of the messages to which each of these segments will be responsive. This analysis requires the use of the communications simulation model which is located within the information world of the overall market model structure.

EXHIBIT 7



The purpose of the communications simulation model is to assess the degree to which various messages will be assimilated by consumers. The simulation model operates on a respondent-by-respondent basis. Each of the attributes in the original attribute set can be simulated as a message. The assimilation rate is the percentage of people who will assimilate the message, and, therefore, have it present in their minds to alter their perception of the brand which communicated the message.

The simulation model subjects each message to a series of tests to identify reasons for failure. Each of these tests acts as a filter through which the message must successfully pass. The first filter is a measurement of the reach of the message. This identifies the proportion of the population who will ever hear the message. A message which successfully passes this filter is assumed to be exposed to the respondent. The next filter represents the degree of indifference the respondent has for the particular message. Only messages which a respondent feels strongly about, either in a positive or negative sense, will pass through this filter. A message which passed through this filter has gained the respondent's attention. The final filter represents the possibility that the message is already preempted by another brand in the marketplace. If it is preempted by a brand which that respondent is already purchasing, the model presumes that the message will fail. If it is preempted by a brand which is not the favorite, a proportion of these messages is allowed to pass. The final output of the simulation model is an assimilation rate, or, the percentage of messages which will be effectively communicated to a given population of respondents.

In market segmentation work, the simulation model is often used as an analytic model. The total of battery need attributes is exposed, one at a time, to each respondent in the population. The result is that each attribute in the attribute battery is assigned an assimilation rate. These simulations are called "all attribute simulations."

The power of a message to change image perceptions has two components; first, it must be assimilated by the consumer. The measure of this is the assimilation rate from the simulation model. Second, it must be important to the consumer. This has been measured in the evaluation of the attributes in the total attribute battery. A communication index is computed which combines these two power components. The communication index is the assimilation rate times the attitude toward that message. Once these indices have been computed, it is possible to rank order messages according to their ability to influence various segments.

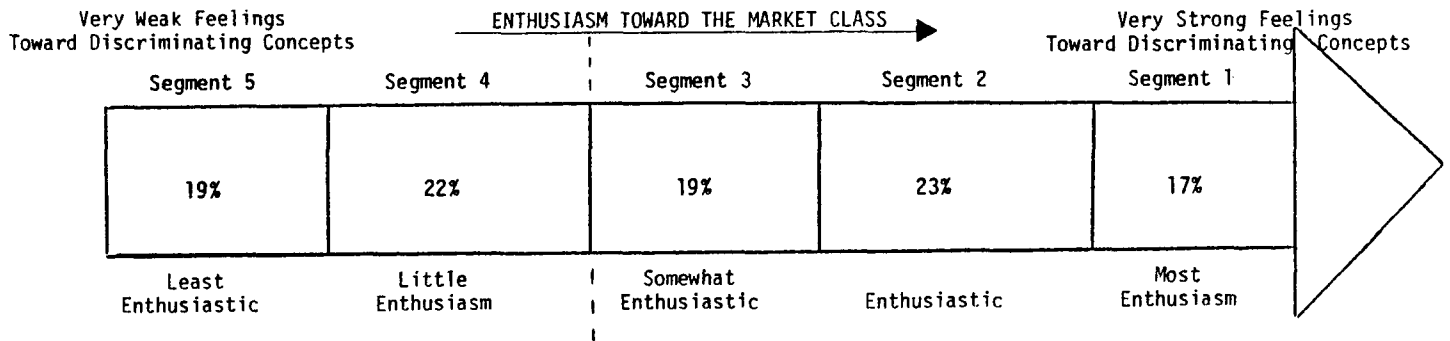
6. CONSUMER RESPONSIVENESS

Consumer responsiveness can be defined as the degree to which the behavior of an individual or group of individuals can be influenced by exposure to information messages (advertising communication). In order for a communication message to affect behavior, it must first be assimilated and, after assimilation, it must have some importance or relevance to the individual. The message power index, discussed in the previous section, represents these two components. The assimilation rate represents the ability of the message to be communicated to an individual and, thus, be assimilated in the respondent's mind. The attitude toward the message is the measure of relevance and represents the degree to which behavior will be influenced following assimilation. The basic assumption of the behavioral model is that the stronger the feeling a person holds toward something, the more apt it is to influence his or her behavior.

The natural market segmentation divides the population into natural groupings who have similar patterns of attitudes toward the discriminating concepts. One dimension of this commonality in pattern is that the people who feel more strongly toward the discriminating concepts tend to be grouped together, and the people with intermediate or lower attitudes also tend to cluster into their own segments. These natural segments can then be arrayed along a continuum of strength of feeling toward the discriminating concepts. In this continuum, the group at one end has the most positive feelings toward the discriminating concepts, while the group at the other end has the weakest feelings, relative to the other groups, toward the discriminating concepts. It can be argued that this continuum of strength of feeling represents a continuum of enthusiasm toward the market class in general.

EXHIBIT 8

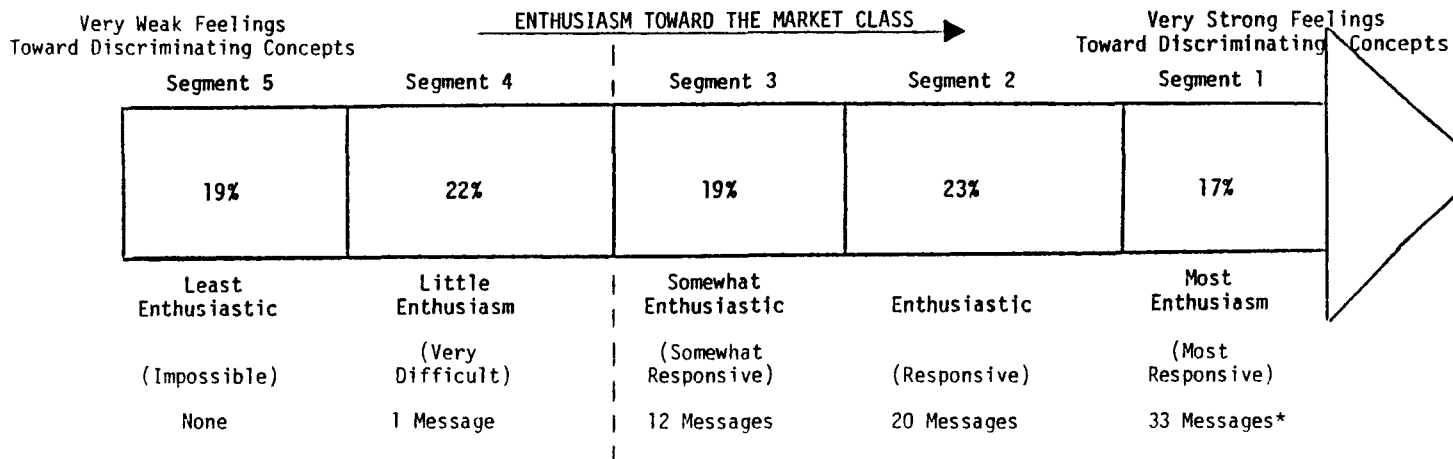
ENTHUSIASM AMONG NATURAL MARKET SEGMENTS



A quantitative measurement of enthusiasm is the number of messages which have sufficient intensity to influence consumer behavior among any of the natural market segments. As discussed earlier, the communication simulation model is the analytical tool from which these quantitative measurements can be derived. The all attribute simulation is first run for the total study population. The message power index for the fifteenth most powerful message in the overall population is identified in this simulation. This message power index becomes the criterion to identify the number of messages to which each of the natural market segments will be responsive. The assumption is that the larger the number of messages which meet this minimum criterion, the higher the probability of influencing this group with communicated messages. Also, the larger the number of effective messages, the greater the variety of messages which can affect consumer behavior positively. Separate "all attribute simulations" are run on each of the natural market segments. Exhibit nine (9) below shows the number of messages which meet this minimum criterion in a typical study.

EXHIBIT 9

RESPONSIVENESS AMONG NATURAL MARKET SEGMENTS



* Number of messages with a message power index equal to or greater than the 15th most powerful message in the total population.

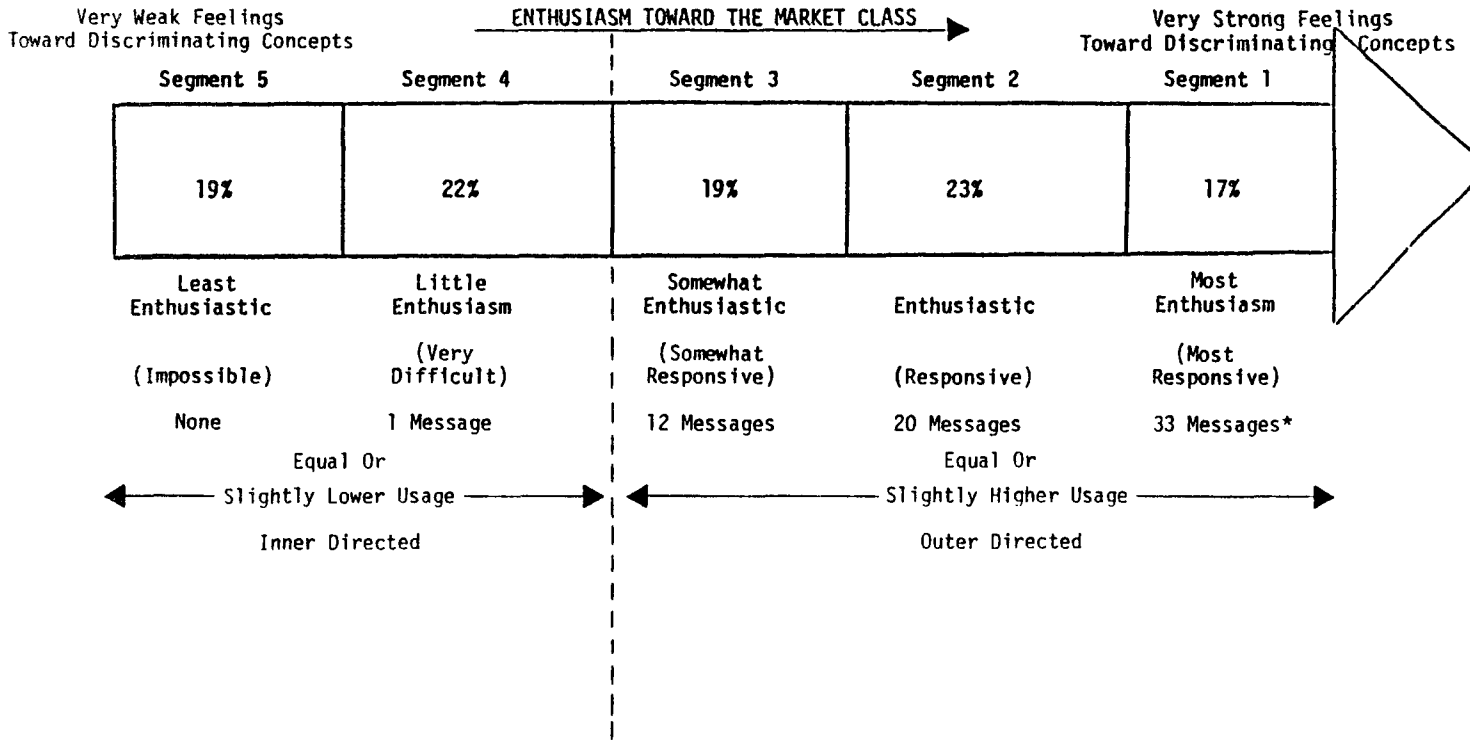
Market segments at the positive end of the continuum have many more messages which can be potentially effective, when compared to the segments at the less enthusiastic end of this continuum.

It was originally hypothesized that high levels of enthusiasm would be strongly related to high levels of consumption. We hoped that we had finally found the way to communicate with the elusive heavy user. Usage rates for the total market class have been related to this type of segmentation. Interestingly, little or no correlation has been established between usage rate and enthusiasm (responsiveness). Typically, light, medium, and heavy users are proportionately distributed across all natural market segments. The only cases where there was a correlation between usage rate and enthusiasm or responsiveness was in highly discretionary market classes, such as premium alcoholic beverages. In several other studies, no correlation was found at all. When correlations were found between higher usage rates and higher levels of enthusiasm or responsiveness, the correlations were marginal.

These findings led to a parcelling of the market into two broad categories. The first broad category consists of the market segments which will be responsive to advertising communications. The second broad category represents that segment of the market which does not appear to be responsive to these same kinds of advertising communications. However, the people in this latter category do consume significant amounts of product in many market classes. They are much more independent, assured, and quite often significantly higher within the socioeconomic spectrum, especially in education and occupation. They appear to be the "inner-directed" people in the population. Marketing strategies which appeal to these segments are much more subtle and nonobtrusive. Originality and creativity in carefully and subtly positioning a product seems to have higher payoffs within this category when compared to large advertising budgets expended in a classical fashion.

EXHIBIT 10

USAGE RATES AMONG NATURAL MARKET SEGMENTS



* Number of messages with a message power index equal to or greater than the 15th most powerful message in the total population.

The other broad category within this dichotomy is responsiveness to classical advertising communications. This broad category typically consists of several natural market segments. Some of these segments are more responsive than others, i.e., many more messages are available to choose from. The analysis of the pattern of messages which were available to the segments lead to other interpretations.

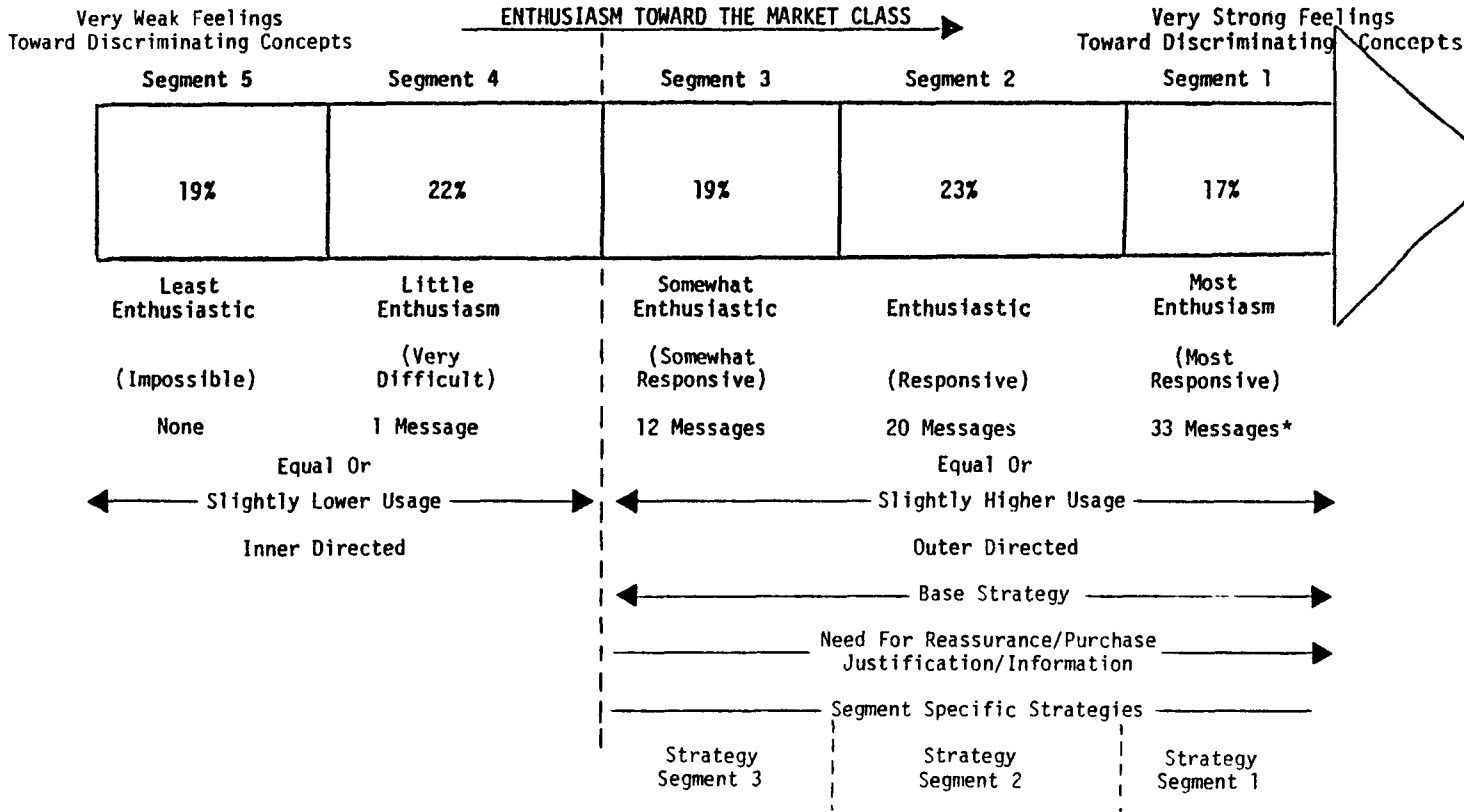
Base strategies have been identified. These consist of the messages which have universal appeal across all of the responsive segments. These base strategies become the foundation for advertising communication where continuity is rigidly maintained over time.

Levels of reassurance have also been determined. As you move toward the natural segments with lower levels of enthusiasm or responsiveness, the need for reassurance diminishes dramatically. These people become increasingly independent; they need little or no justification for their actions or decisions. They seem to be saying, "I am me." They appear to purchase products for what the products can do for them as opposed to what the products say about them. They reject guidance for future actions and need no justification for what they have done in the past.

As you move to the more responsive market segments, levels of reassurance begin to emerge. The first segments encountered in moving along the continuum appear to be looking only for end benefits. This is the group to which it is appropriate to sell the sizzle and not the steak. Finally, as you move toward the most responsive segments, higher levels of reassurance become appropriate. Many of these people are true information seekers. Some are looking for purchase justification, while others are seeking out enabling mechanisms which will allow them to comprehend the end benefits of a product. Many appear to be seeking a broader understanding of the market class in general. These are the ones who are receptive to a very broad spectrum of communication messages.

EXHIBIT 11

MARKETING STRATEGY AMONG RESPONSIVE SEGMENTS



* Number of messages with a message power index equal to or greater than the 15th most powerful message in the total population.

The final type of communications strategy revolves around segment-specific issues. Many times, these strategies are only appropriate to a single segment. Product characteristics, such as low-calorie, or salt-free; consumption issues, such as mixability or usage occasion; or positioning issues, such as premium priced or high quality; are representative of segment-specific communications strategies.

7. SUMMARY

Much of the market research conducted in the eighties will continue to be problem or issue related. There will always be a need for this type of research, and the cost of such projects will be more than cost justified. Additionally, during the eighties, a new type of market research will become more prevalent. This new research will entail model-based studies aimed at the comprehensive understanding of how markets work and why people behave as they do. These studies will include more sophisticated measurement procedures, and more powerful analytic techniques will be employed in data analysis. If properly planned and executed, we believe that these studies will truly contribute to cumulative understanding and learning. Increased understanding and learning will trigger many more problem-related and issue-related studies. The emergence of model-based market research will probably add to the volume of the types of studies we have conducted in the past, as opposed to driving these types of studies out of the competitive marketplace as being archaic and old-fashioned.

RESUME

Ce document expose certains changements qui devraient intervenir dans l'étude des marchés au cours de la prochaine décennie. A l'heure actuelle, les études sont ponctuelles; elles fournissent des réponses à des questions précises ou à des problèmes particuliers de mise en marché. La prochaine décennie verra la réalisation d'études de plus grande portée qui permettront de comprendre les mécanismes des marchés et le comportement des consommateurs. Les mesures seront plus complexes, et les techniques d'analyse à plusieurs variables seront largement utilisées pour discerner les liens d'interdépendance entre les données. Les modèles de mise en marché serviront de cadre conceptuel pour mener ces études complexes. La délimitation des groupes réceptifs de consommateurs est un exemple de ce que pourront donner les études de marché fondées sur des modèles.