

PREFERENCES FOR INFORMATION SOURCES

IN A MARKETING DECISION PROCESS

by

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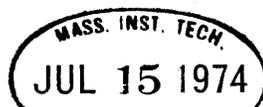
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ABSTRACT

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The objective of this study is to explore managers' actual stated preferences towards information sources considering a specific marketing decision. The concept of viewing awareness, perception, and preference as an important part of an "information-buying-process" should lead to new possibilities for evaluating information sources.

The data are gathered from a group of 24 product managers in the marketing organization of a multi-national company. The specific task which has been considered is an actual packaging decision which was done by all product managers individually for their product.

The applied approach perceives preference as a choice formulation summarizing a multi-dimensional perceptual structure. It is assumed that this process is frequently done within each stage of the decision process, which led to the hypothesis that, the factors of a decision process all have impact on preferences towards information sources. Awareness and perceptions are thought of as mediating elements in this possible impact. They are seen as so strongly linked to preference, that they will be considered as an integral part of the dependent variable. The decision maker, the task and the context, as the factors of the used decision-maker, constitute the independent variables.

The study makes major efforts of integrating perceptual structure and preference to explore this relationship and the assumed impact of the decision process. This will be done on an individual basis using PREF MAP techniques and also as an alternative method across the whole sample applying Pearson product-correlation-coefficients. Both techniques together allow very detailed descriptions of individual preferences and their underlying perceptual structure as well as assumptions about the positioning of "ideal" information sources.

The main conclusion of this study is that the applied methods show considerable promise for use in corporate settings with information systems/communications problems.

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TABLE OF CONTENTS

	Page
I. Description of the Study	7
1.1 Problem Definition.	7
1.2 Problem Indicators.	7
1.3 Rationale.	9
1.4 Relevant Theories about Managerial Decision Making	9
1.5 Conceptual Framework for the Research Design	15
1.6 Hypothesis	18
II. Methodology.	19
2.1 Selection of the Variables.	19
2.2 Selection of the Sample	23
2.3 Concepts for Evaluating the Data.	24
2.4 Possibilities for Testing	26
III. Review of the Literature	28
IV. Applications of the Methodology.	32
4.1 The XYZ Corporation	32
4.2 The Sample of Decision Makers	33
4.3 The Information System.	40
4.4 The Task.	41
4.5 The Development of the Questionnaires and Interviews.	44
4.6 Conducting the Questionnaire and Interview Survey	51

TABLE OF CONTENTS (Con't)

	Page
V. Results	
5.1 Integration of Preference and Perception-Data.	53
5.2 Alternative Evaluation Process	69
5.3 Exploring Relations Between Preferences and Selected Independent Variables	71
5.3.1 Interrelations Between Preference Scores for Different Information Sources.	72
5.3.2 Correlations Between Preference Scores for Different Information Sources and Data De- scribing the Decision Maker and Content.	74
5.3.2.1 The Learning Style Inventory	74
5.3.2.2 Management Style	85
5.3.2.3 The Decision Maker's Assumption about People . . .	86
5.3.2.4 Risk Taking Propensity	87
5.3.2.5 Experiences	87
5.3.3 Correlations Between Preference Scores for Different Information Sources and Data Describing a Specific Task and Its Context.	89
5.3.3.1 Product Data	90
5.3.3.2 Objectives for The Task.	93
5.3.3.3 Structure of The Task.	93
5.3.3.4 Degree of Influence from Different Function and Hierarchical Level	94

TABLE OF CONTENTS (Con't)

	Page
VI. Summary, Conclusions, and Recommendations for Further Studies	96
6.1 Summary.	96
6.2 Conclusions.	98
6.2.1 The Data Base.	99
6.2.2 The Data Evaluation Methods.	100
6.2.3 The Results.	102

APPENDIX

A. Questionnaires

AA-Product Management - Products, Tasks, Decision Making . .	107
AB-Learning Style Inventory.	117
AC-Life Situation Instrument	119
AD-A Particular Product Packaging Decision	130
AE-Product Management - Organizational Setting for Specific Decision Making Tasks	135
AF-Media and Format of Information Sources	142
AS-Supervisory Style and Assumptions About People.	146
AG-Information Sources in a Specific Packaging Decision. . .	151

B. Data Index	167
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TABLE OF CONTENTS (Con't)

APPENDIX (Con't)	Page
C. Data Base and Correlation Matrixes	172
Data for Decision Maker and Context	173
Data for Task and Its Context	175
Information Source Preference Scores.	177
Mean and Standard Deviation for D.M., Task, and Source Preference Data	178
Correlation Matrix: Source Preference with D.M. and Task Data	179
Ratings for Information Sources Along 25 Semantic Scales	188
Information-Format and Medium Data.	197

CHAPTER I

Description of the Study1.1 Problem Definition

One of the major functions of a marketing manager is decision making, most often in unstructured tasks. From experience, it seems that the information on which the problem solving process is based differs not only for different tasks, but also for different decision makers. Going a step further it appears that the quantity of information and the type of sources, the perception of both information and source, their interpretation and use in the decision process differ for each individual as well. Therefore, the value of an information source for a given problem solving task cannot be measured exclusively by its objective content and its statistical significance. Additional attributes related to the information source, individual perceptions of the problem, and the structure of the decision making task must have significant influence on preference and usage. This paper tries to define some of these determinants, by looking at a group of 24 product managers in a large national marketing organization in specific semi-structured decision making tasks.

1.2 Problem Indicators

There are many indications that the question of the decision maker's preference and perception of specific information sources is very crucial in an organizational domain like marketing. Some of them are:

- The amount of data which flows through a modern marketing organization and the number of available

sources is increasing dramatically.

- Decisions in a highly sophisticated market place with more efficient and often very costly marketing instruments include higher risk and must therefore be quite accurate.
- For most marketing decisions, the task is unstructured.
- Information is increasingly gathered, pre-processed, or bought by persons, other than the decision maker.
- Most information is no longer handled as single, separate data sets, but rather as dependent parts of a larger information system.
- Information processing increasingly influences the structure of marketing organizations and their patterns of behavior in the market place.
- New techniques enable new forms of data processing and data communications, and therefore create new types of information sources.
- Information systems have become very expensive and represent long range investments.
- The complexity of information systems generally exceeds most decision maker's comprehension capability. The source of information gets to be a "black box."
- Different information systems with different output compete as the only true sources for a given problem solving task. Information gets merchandized.

These facts, plus the variety of behavioral models for the decision-making process, make it impossible to keep all determining variables for information value in the space of total rationality

1.3 Rationale

The failure to properly assess the potential of information sources is costing each industry millions of dollars in profit every year. Creation of ineffective information not only results in direct costs, but also results in waste of organizational and managerial effort and capacity. An essential feature of any evaluation of an existing information system is the determination of the decision maker's preference and perception of the sources. This is the focus of this paper. It will not present final conclusions for this problem, but it will present new criteria and methods for evaluating information sources for decision making in unstructured tasks.

1.4 Some Relevant Theories about Managerial Decision Making

Preference for information sources must be viewed in the context of the underlying framework for the decision making process (e.g., the Bayesian approach for value of additional information presumes the same rationality for the related decision making process or vice-versa). Because of the close relation between human problem solving behavior and the use of information sources, measurements of the decision maker's attitude towards different information sources must be considered within the frame of the theories of the decision making. From these theories

we synthesize a set of variables that might help us understand differences in managerial preferences.

The introduction of computers has provided a new dimension to our understanding of how the human brain solves problems. In addition, the computer extends the human intellect in terms of information gathering, processing and selecting, at all organizational levels and functions. Special data banks, statistical packages, models and display units for a given decision domain like marketing have led to successful applications for decision support systems.¹ The world has become more complex and this technology has made us more aware of the actual level of complexity. This awareness has led to the progressive enlargement of the scope of concern in viewing management decision making to a level of complexity well beyond the information-processing capacity of the human mind and even beyond the capacity of today's computer systems. The matrix (Exhibit 1) which uses Antony's classification for different levels of organizational planning and control,² and Simon's distinction between structured and unstructured tasks³ gives a good layout for the different categories of decision making and their different levels of complexity.⁴

Categories of Management Decision Making

	Operational Control	Management Control	Strategic Planning
Structured	e.g. Payroll system	e.g. Inventory-control-system	e.g. Overhead Allocation Model
Unstructured	e.g. Media-Allocation	e.g. Packaging Decision	e.g. Investment-Allocation-Decision

Exhibit 1

If we take one of these categories and extend it using Simon's decision stages (intelligence, design, choice) and M. Scott Morton's differentiation between generation and manipulation of information,⁴ it would seem that managerial preference for information sources will be most important in information generation through all stages of the decision making process.

All this suggests that the traditional view of decision-making behavior in terms of the objectives and actions of economic man is too narrow a concept. Developments in the behavioral, management, and organizational sciences, have produced considerably more complex models that focus on:

- The task structure - determining the degree of structure in a decision making task.
- The problem solving process - the process that an individual undertakes in order to perform a task within the limits of his cognitive capacity.
- The decision maker, his abilities and limitations in his cognitive capacity, his learning style, his managerial style.

These different approaches are the underlying points of reference which led to the following models:

A. Problem Solving and Decision Making as a Search Process
Through a Problem Space.⁵

With such a view, the degree of structure in a task is a function of:

1. The ease of generating alternative paths.
2. The ease of evaluating paths.
3. The degree of interdependence between sub-problems.

B. Problem Solving and Decision Making as an Information
Processing Task.⁶

This model describes the degree of structure for a decision making task as a function of:

1. The number of different variables that need to be considered.

2. The uncertainty attached to estimates of variables.
3. The interdependence among variables.

C. A Managerial Perspective.⁷

The structure of the task in this model is dependent on:

1. Certainty and clarity of information relative to objectives and solution determination.
2. Certainty of causal relationships.
3. Time span of definitive feedback.

D. The Human Problem Solver as an Information Processing System with Limited Cognitive Capacity.⁸

Here the main variable for determining the decision process is the cognitive style, a composition of intellectual capacity thinking strategies and habits. The model makes the distinction between:

1. Systematic thinkers.
2. Intuitive thinkers.
3. Receptive thinkers.
4. Perceptive thinkers.

E. The Experimental Learning Model as an Underlying Framework for the Problem Solving Process.⁹

This model describes human decision making behavior as a reflection of his learning style inventory (LSI)

and it distinguishes between four styles:

1. Converger
2. Diverger
3. Assimilator
4. Accomodator

F. Complexity Theory.¹⁰

The basic underlying concept of complexity theory is the view of individuals, interacting with their environment, as active information processing systems. The main sets of determinants of behavior are:

1. The integrative complexity of an individual's cognitions.
2. Environmental complexity.
3. Cognitive domains.

All of these theories concerning managerial decision making, from the science of 'muddling through'¹¹ and seeing the behavior of the decision maker as shaped by the task structure, do not give a complete picture. They are important aids in describing different overlapping areas of the total problem space. They cannot be seen as mutually exclusive, or totally interdependent, but as factors of a multi-dimensional structure. In terms of understanding differences in managerial preferences of information sources, the theories will be used to define different classes of variables that might be relevant. This is an "intuitive" synthesis, which does not define the exact nature of the relationships or

which class of variables might be the most important. This reflects the exploratory nature of the study. The hypothesis that we proceed to formulate, will not be formally tested, but rather will serve to focus the study.

1.5 Conceptual Framework for the Research Design

The conceptual framework guiding the selection and analysis of the variables included in this study is based on the following issues, assumptions and definitions:

- "Information-Generation" is an integral part of decision making and therefore influenced by the decision maker, his perception of the task and the context. It is viewed as a multi-stage process consisting of awareness, perception, preference, and usage of information. "Manipulation" of information, using M. S. Scott Morton's framework for the decision making process, is a follow-up of the "information-buying-process." Awareness (intelligence), perception (design) and preference (choice) constitute a sub-decision making task as mentioned above.
- In their problem solving behavior, decision makers (DM) can be affected by their learning style, their education and experience, their risk-taking propensity, their decision making style, and the perceived position in the organization.

- A specific task (TS) is a variable for the preference for information because of its different setting and perception across managers. This is indicated by the different brands and their importance for the company, their specific environment, the presumed importance of the task, the variance in objectives, the cognition of the task structure, and the degree of influence from different organizational functions and hierarchical levels.
- The context (CT) for the decision making task as far as it is not included as one of the specifics for task and decision maker can be described by the company, its policy, its resources, its markets, its organizational structure, and its information systems.
- Information which the decision maker is aware of, represent chunks¹² at different levels of integration. These chunks can vary from a single task related datum like dollar sales, to pre-manipulated and pre-selected data sets leading to a recommendation for an advertising spending level given from a computerized heuristic decision support system. To get equivalent information units I measure so-called "information elements" (IE). These are defined as the smallest of the decision maker's identifiable units of information and are perceived as relevant for the particular task. The element would lose

its identity and meaning with respect to the task if segmented further.¹³

- Information sources (IS) are defined in this paper as places where "information elements" can be gathered or are offered for use in a decision making task. These sources might use different formats (conversation, report, presentation, group discussion, own observation, computer printout) communicate through different media¹⁴ (meeting, telephone call, desk work, travelling, computer terminal) and might constitute different stages in the information transmission (original input, specific function or pre-finished output of the marketing intelligence). Various combinations of these characteristics are very common.
- An important concept identified in the assumptions stated is the view of awareness, perception and preference as inter-related elements in the information buying process. Awareness and perceptions are thought of as mediating elements in the possible impact of the decision maker, task and context variables to be considered. Preferences summarize the output of the "buying-process" and are, therefore, the key variable in the study. However, awareness and perception are seen as so strongly linked to preference, that they will be considered as an integral part of the key dependent variable.

1.6 Hypothesis

This framework for viewing the decision maker's preference for information sources as an essential factor in information generation, combined with my own experience in the marketing field has led to the following hypothesis of this study:

- Preference for information source in a specific marketing decision making task is a multi-attribute choice, a function of the decision maker, his perception of the task, and the context.

The term 'preference' is used in the sense of managers actual stated preference for an information source and also in the sense of the three interrelated aspects of awareness, perceptions, and preference. The study attempts to summarize the latter more inclusive concept using a technique for transforming a manager's perception and preferences for a number of sources into a single measure¹⁵ his "ideal" source of information. This would lead to a much better understanding of preferences for specific information sources. Assuming that preference is an important link in the information-buying process, we would gain new scales for evaluating information sources in a very complex setting like a marketing organization.

CHAPTER II

Methodology

The methodology can be divided as follows:

- selection of the variables which discriminate the decision makers by their style, their perception of a specific task and their preference and perception of different task-related information sources.
- selection of the sample of decision maker in a marketing organization.
- selection of methods to evaluate the collected data.
- possibilities of testing.

2.1 Selection of the Variables

The following selection of measurements should cover the dependent and independent variables of the hypothesis:

Independent variables:

A. Decision Maker and Context

Learning Style Inventory

Management Style

Education and Experience

Risk-Taking Propensity

Perceived Position in the Organization

B. Task and Context

Product Data

Objectives for the Task

Structure of the Task

Degree of Influence from Different Functions

and Hierarchical Level

Dependent variables:

C. Perceptions and Preferences for Information Sources

Attribute Ratings for Information Sources

Preferences for Information Sources

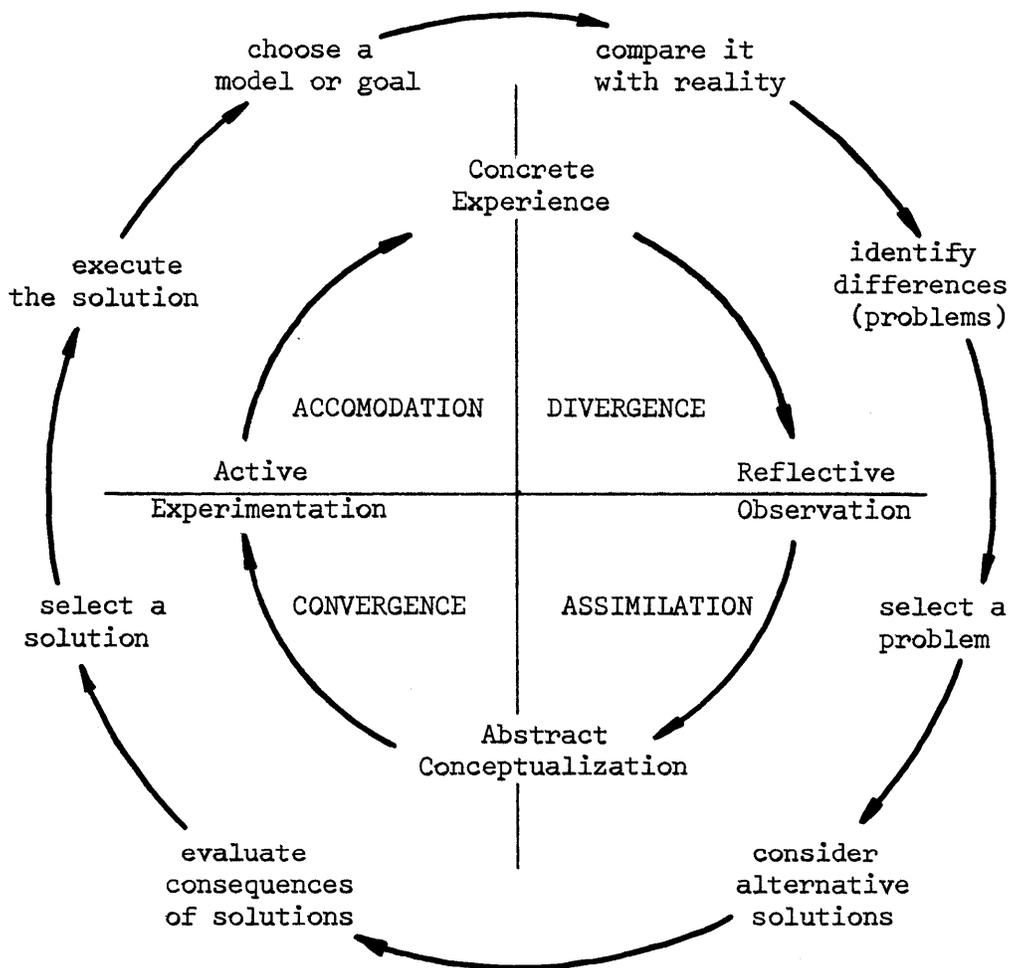
The criteria for selecting these variables have different sources:

- The Learning Style Inventory (see Appendix A), designed by D. A. Kolb, allows one to assess methods of learning. The comparison of the experimental learning models with a typical model of the problem solving process, (after Pounds, 1965¹⁶) (See Figure 1), and the matching between profession and learning style¹⁷ lead to the assumption that with this questionnaire we cover an important part of the decision maker's style regarding information generation.
- D. W. Craven's exploratory analysis of individual information processing¹³ shows that the decision maker's risk taking

propensity¹⁸ has considerable impact on his pattern for information usage.

- The Management Style-Variables (see Appendix A) gives information about the decision maker's supervisory style and his assumption about people. The measurement based on the x-y-theory is designed by E. Schein and should cover the area of interpersonal relations.
- The perceived position of the decision maker in the organization (see Appendix A, 8-10) describes the starting point from which he approaches the task, and could be viewed as a measurement of his self assessment.
- Product Data (see Appendix A, 21-30), and the Degree of Outside Influence (see Appendix AE) could be viewed as context variables but, as they are closely related to the task structure, we retain them as variables for the factor task. The measurements for influence from different hierarchical levels were used by Tannenbaum.¹⁹ These, for degree of influence from other functional areas, were used by Lawrence and Lorsch.⁷
- The Task Structure (see Appendix AD) will be measured by the dispersion of the objectives and the perceived complexity. Some of the scales for complexity of the task are also taken from Lawrence and Lorsch's study about managing differentiation and integration of organization and environment.

Figure 1 - Comparison of the experiential Learning Model
with a typical model of
the problem solving process (after Pounds, 1965)



- The Measurements for the Information Sources (see Appendix AG) are strongly guided by the specifics of the evaluation procedure which will be applied. The procedure is derived from Glen Urban's "PERCEPTOR" Concept, and requires individual preference ranks and perception scales for each source. The preference ranks are gained through pair-wise comparison. The perceptual data are given by scores along twenty-five (25) semantic scales. The design of the questionnaire must assure that both preference and perception of the information sources are related to the specific task chosen before.
- A separate set of questions will give Preference Ranks for Format and Media (see Appendix AF). These data will be important supplements in describing preference for information sources as it is shown in Minzberg's article "Some Distinguishing Characteristics of Managerial Work"¹⁴.

An index for all measured variables is given in the Appendix B.

2.2 Selection of the Sample

The selection of the sample is guided by the principle of keeping as many variables as possible constant. This should lead to the advantageous strategy that all respondents view their decision making in a much more uniform context, so that their perception towards

information sources can be assumed to be more homogenous which is an important presumption for the evaluation process. This is the reason that the sample is limited to a group of product managers in one company at the same hierarchical level and with the same geographical responsibilities. This has the disadvantage that the sample size gets relatively small (24) which limits the quality of the findings, but I also have to consider the time frame in which the study has to be done.

2.3 Concepts for Evaluating the Data

For evaluating the data, I see three major segments:

The first is concerned with analyzing the data which describe the decision maker and his perception of the task. Because of the uncertainty about what the important dimensions are and the ability of the measurements to discriminate, I try to measure many variables in both areas. This implies that the measured data must be screened and reduced drastically. This will be done on the basis of the gained experience from conducting the questionnaires and interviews. Using Pearson product-moment correlation coefficients, I will see whether the measured data show expected relationships and contain the ability to discriminate.

The second part concentrates on preference data for information format and media. The reason I treat this part separately from the third part where we look for preference and perceptual data for the information sources, is the assumption that medium and format constitute attributes of absolutely different natures compared with descriptive

attributes related directly to the content and behavior of the information source itself. The decision maker perceives media and format as independent from specific sources and independent from specific tasks. Even though the questionnaire covering this part of the measurements is also related to the specific task, I assume discrimination only along the variables for the decision maker. These preference data will be handled separately from the hypothesis testing procedure and will only be used as a supplement for describing preferences of decision makers for forms of information transmission from the information source to the decision maker.

The third area of concern will be the evaluation of the data for preference and perception of the different task-related information sources. In this part of the study I rely very heavily on parts of Urban's "PERCEPTOR" Concept. This concept uses multidimensional scaling techniques which make it possible to position different sources in perceptual maps. The measurements necessary for this procedure are covered by Questionnaire G (see Appendix A) which will be described later. The dimensions for these maps are derived through factor analysis which reduces the 25 dimensions of the semantic scale to two or three factors which have to be defined. Having also the individual preference ranks for all information sources, we can obtain (via Carrol and Chang's) "PREFMAP" individual ideal points described by coordinates on the dimensions of the perceptual maps. We then can aggregate the individual ideal coordinates into homogeneous groups by clustering the decision makers on the basis of the distances between

the different sources and the individual ideal points to get average ideal points of clusters of decision makers with homogeneous preference structure.

The hypothesis will be tested by looking for correlations between the perceptual data for the different average ideal points and the data for decision makers and task perception within these clusters of product managers.

2.4 Possibility for Testing

The testing of preference and perception will use the following procedures:

1. We get individual ratings for the ideal information sources for the specific task, which should lead to the same clusters of decision makers as they were found through the derived ideal points. But this test can be misleading because of the different confidence level of the data. The ideal information source is only one rating along the semantic scales. The derived ideal point is based on 5-8 ratings along the same scales and, therefore, statistically quite a bit sounder which, considering the small sample size, is an important point.
2. A second test will be based on data gained through a follow-up telephone-interview. The respondent is asked to name information sources he would use now for gathering specific

"information elements". The "information elements" named are the same as those given by the respondents in Questionnaire G. The frequency of the information sources named will be correlated with the preference ratings each gave previously in the Questionnaire G.

CHAPTER III

Review of the Literature

The literature on the evaluation of information has been in the following categories:

- studies based on information-user perceptions
- information value models
- studies based on observation of results
- studies based on observation of usage

The first is also the one used in this study. It asks the user to evaluate the information source. These studies tend to focus on the attitudes of the users and their preferences, in an effort to uncover general guidelines for designing information systems. One example in this category is the study of Cook.²⁰ Her approach concentrated on the frequency of feedback which was found to be related to user interest, satisfaction, success, and level of aspiration.

Another example in this area is the study done by Gallagher.²¹ The major hypothesis of his study is that monetary and non-monetary value of selected management information can be determined and is totally focused on the demands of the user. The decision maker estimates information dollar-value and, in addition, rates the information source on semantic scales for value and attributes. The aim of the study is to give data for information value and quality of transmission on how it is perceived by the user.

The third example is a research done by Stabell.²² As suggested by the literature on information source usage in an unstructured task, data collected on managers' perception and actual information source usage. The proposal is that this data will be used in the decision support system design and implementation process. In his thesis Stabell also considers managers' perceptions of information sources. However, his wider study is concerned with the relationship between the structure, as opposed to the content, of the information source perception and the information usage process. It is, in other words, a study based on concepts taken from the Complexity Theory.

A fourth study in this group is the one by Cravens.¹³ His paper presents a conceptual framework for examining individual, task-oriented information-processing as a multistage process. The main emphasis here lies in the processing of the information, and therefore covers not only the search phase but also the evaluation and integration phases.

The second approach is based on typical operations research models which require specification of a payoff function which limits them to structured decisions and eliminate their use in this study. They demonstrate considerable effort and accomplishment, however, in defining variables which influence the value of information, their relationship and methods of measuring. Examples in this category are mostly concentrated in the area of structured operational decision making. A large number of examples are available but will not be discussed further here.

The third approach is based on studies which evaluate information on direct observation of the results. The studies fall into two categories. The first includes laboratory type experiments. The second category of studies are performed within a real environment. Those experiments using business games or decision theory models and studies in a real environment conducted in many studies have led to generalizations on the desirable properties of information and on the behavior of individuals toward information. The economics of those techniques, however, are very poor and non-controllable variables and often prevent the reaching of a conclusion. Examples are Green et al's²³ studies of information buyer behavior under simulated conditions, and Wilson's²⁴ attempt to determine the value of an actual management information system by observing financial performance following it's implementation.

The fourth approach can be perceived as a search for descriptive and normative models for information usage. The value of those studies lies in their definitions of information sources regarding content, flow, format, media, and organizational setting. Typical examples of this search work are Mintzberg¹⁴, Cyert and March²⁵, and Pounds²⁶. They describe or define the role of information in the firm and show the basic interdependencies between information usage, decision maker, task and context as it is explained in more detail in the underlying theories for this study.

The literature covers a broad spectrum of methods for evaluating information and their sources. The problem posed in this study, however, -- measurement of preference for specific information sources as a function of the decision maker, his perception of the task and the context, by looking towards their impact on individual managers' perceptual structures -- has not yet been discussed in this form

CHAPTER IV

Application of the Methodology

The purpose of this chapter is to describe the selection of the field research site, the selection of the managers for participation in the study, the selection of the specific task, and the development and conducting of the questionnaires and interviews.

4.1 The X Y Z Company

To keep the influence for the context of the individual decision making approximately constant, I attempted to obtain a sample of decision makers from within one company. Therefore, I looked for a company with a marketing organization which has a sufficiently large number of decision makers with comparable responsibilities at similar hierarchical levels. These were the criteria which led to the selection of the XYZ company. Fortunately the management of this company allowed me to interview a sample of 24 product managers in five different divisions of their North American operation so that I might collect the data necessary for my study. Subsequently, meetings with the product managers designated by the management, were arranged in which I could explain the purpose of my field work. The willingness to cooperate was so overwhelming that I was sure of gaining a great experience in working with this group of decision makers.

The XYZ company is a very large, American-owned, multinational, company in the consumer business for personal products, with its headquarters on the East coast. They employ 28,000 people and have more

than 7 million dollars a day in sales to consumers in some 170 countries and territories around the world. They are organized into three main sub-units: North America, International, and diversified companies within these units. The organization is mainly oriented along major product categories (see Figure 2). Because of its consumer orientation, it is not surprising that the company maintains very extensive and sophisticated marketing organizations within each division (See Figure 3).

4.2 The Sample of Decision Makers

The sample of decision makers consists of product managers from five different divisions of the North American organization. They all are responsible for one brand or product category. An important distinction is made between product managers for new products and product managers for ongoing products. The functioning of both groups, however, is very similar. They are all ranked at the same organizational level and they all serve the same market: the American consumer market for personal products. Even though they are positioned at the 7th salary level of management below the Chairman of the Board, their influence on the success of the company is significant. They act as entrepreneurs and have a high degree of freedom in managing their product. The following job description (which is my modification and synthesis of XYZ's actual job description's) gives the main characteristics of their profession:

THE XYZ COMPANY

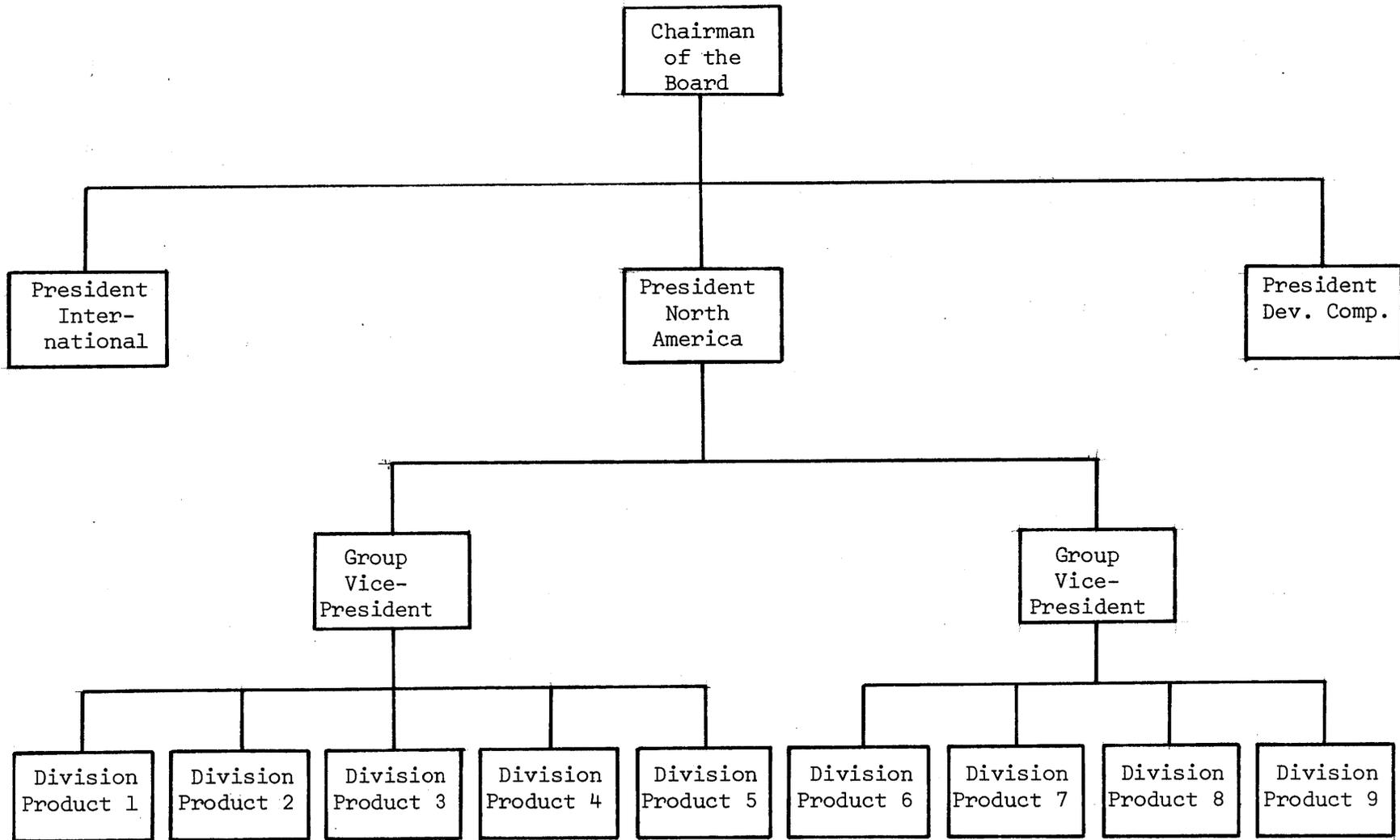


FIGURE 2

Division for Product 1

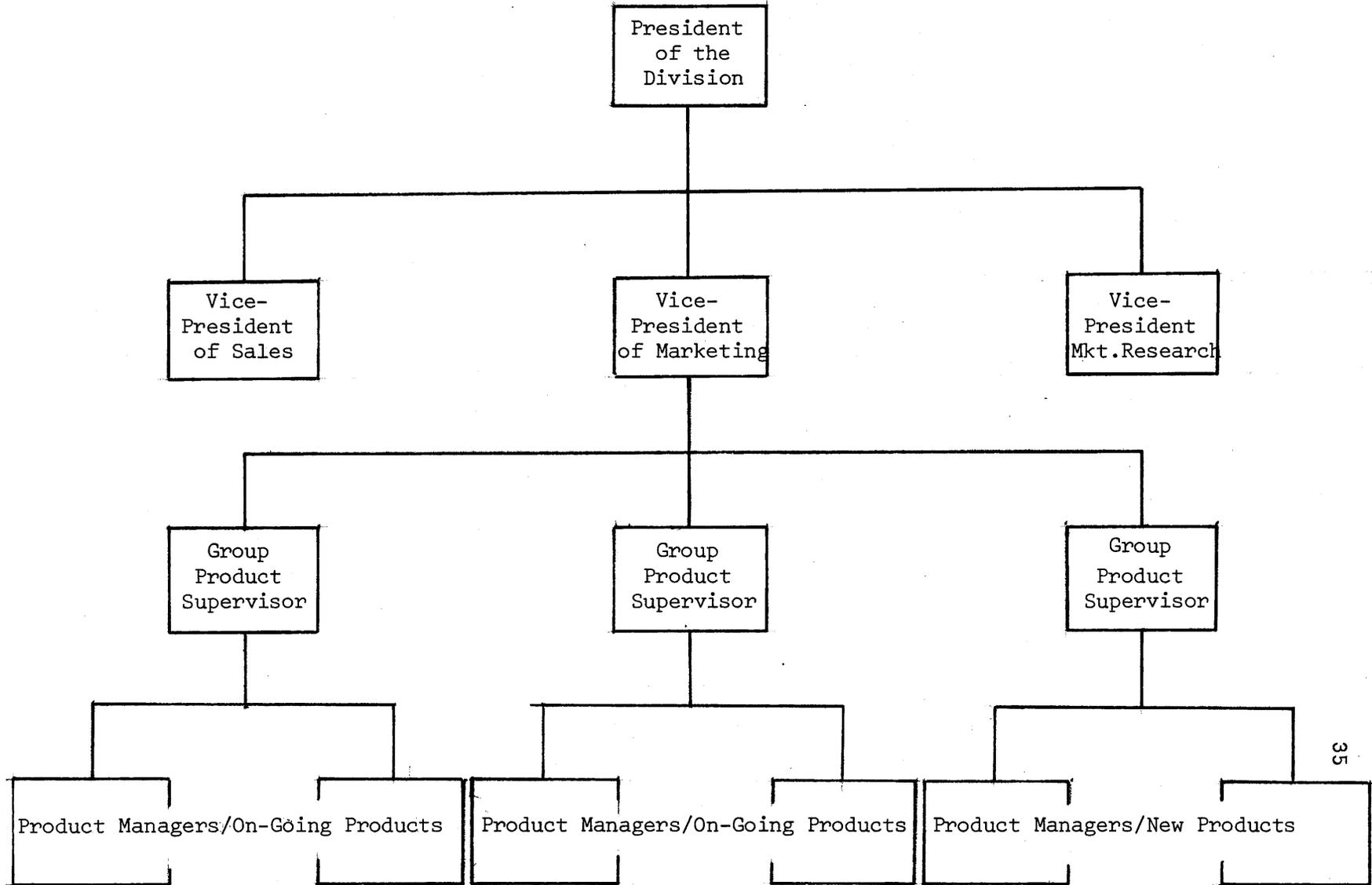


FIGURE 3

1. Develops and recommends short and long term marketing programs designed to maximize long term profitability of assigned products. Recommends initiation of new product projects.
2. Develops marketing strategy and recommends marketing plans consistent with strategy. Explicitly, defines the profile of the consumer market for which each product line is intended, and determines the price points, quality level, distribution and/or promotion approach to be used to reach this market.
3. Enlists the attention and support for the product lines assigned which they require from the various functional areas within the company, including market research, product development, advertising and promotion, sales and manufacturing.
4. Maintains close familiarity with market conditions and competitive actions by analysis of market and sales statistics through personal contact with sales managers, salesmen, wholesalers, retailers, suppliers, vendors and contract fillers.
5. Prepares net profit objectives for each line of products and sets minimum acceptable gross margin standards to assure that existing and new patterns meet these net profit objectives.
6. Initiates market research projects to define the characteristics and size of various market segments and correlate these findings with new products development and advertising programs.

6. Initiates market research projects to define the characteristics and size of various market segments and correlate these findings with new products development and advertising programs.
7. Determines the appropriate size and composition of assigned product lines in light of market needs, competitive lines, and estimated market potential.
8. Determines requirements for new designs in assigned lines by analyzing market research and market data. Prepares requests for product design projects, and in collaboration with the financial, purchasing and manufacturing groups, specifies the generally desired product requirements and manufacturing costs. Establishes criteria for market testing new products, interpreting test results. Coordinates all activities and schedules relating to the development, production and introduction of new merchandise.
9. Analyzes the cost and pricing structure of assigned product lines and formulates pricing plans to maximize sales and profits. Recommend the basic pricing structure, negotiating range and minimum price for all products in assigned product lines.
10. Prepare advertising objectives and an annual advertising budget (total dollars available) for assigned product lines in collaboration with the media manager. Obtain approval of annual product lines advertising objectives and budgets from marketing and general managements.

Work with the advertising agencies to develop an overall plan for national consumer advertising and with the sales, sales promotion and media departments to develop cooperative and trade advertising programs.

Review plans developed by the advertising agencies to assure that advertising programs for assigned new product lines conform to marketing objectives and budgets and are based on current knowledge of consumer and trade characteristics and motivations.

Evaluate the results of all product line advertising programs.

11. Prepare overall promotion objectives and annual promotion budgets for assigned product lines with counsel from the sales department.

Prepare the objectives and budgets for individual consumer and trade promotions that support assigned product lines.

Integrate special selling programs and promotional schedules with product inventory and production plans.

12. Determine the standard selling units for each new product line on the basis of consumer and trade research findings. Work with packaging engineering to develop packages with maximum consumer appeal and ease of processing and handling by the factory, wholesalers, retailers, and consumers.

13. Request that market research and sales analysis periodically investigate trends in distribution methods and in consumer outlet preference. Analyze the relative effectiveness and costs of alternative distribution methods and outlets and recommend policy changes as necessary.
14. Maintain in complete and current market, financial and technical information concerning assigned product lines, their market and competition.
15. Assure that adequate promotional literature, product catalogs, price lists, product bulletins, etc., are prepared for assigned product lines and distributed on schedule.
16. Furnish product line sales data needed for budgets, capital investments, manufacturing planning and purchasing.
17. Assist sales analysis and production planning to determine new product inventory levels and reorder points. Assure that the inventory program for assigned product lines is adequate to meet customer delivery and service requirements and the turnover objectives set for each line.

This detailed description gives an idea of the product management task and its structure. This broad spectrum of requirements and responsibilities in this profession causes a permanent uncertainty about the right level and the right direction of information generation to

optimize their efforts in controlling all events affecting the success of the brand.

4.3 The Information System

The information system as it is viewed by the product manager consists of a variety of information sources which supply information automatically or on request through different media and in different formats. The formal portion of this information flow reacts in time sequences from daily to annually or on request. The question for formal information in Questionnaire A resulted in the naming of 58 formal reports or studies. If we multiply these by the average number of information elements which they might contain, we easily get numbers with 5 and more digits for the amount of information units representing the formal information flow through the marketing organization of a division. If we add the amount of informal information to this number (results of the interviews indicate that a product manager uses nearly as much informal as formal information) we exceed by far the cognitive capacity of each product manager necessary to comprehend this information flow.

This amount of data is supplied by more than 20 different information sources. They all constitute functions which themselves generate, manipulate and select data. This causes not only the creation of the same information by different sources, but also that the same information are presented in a changing context and in different "chunks".

This broad spectrum of information supply leads each product manager to highly individual selection of sources and information on which he bases his decisions, even though it seems that the data used in formal presentation of proposals are, to a large degree, uniform.

Pre-discussions with the product managers have indicated that they perceive the function which supplies them with information and not any specific output of this function as the source of information. The structure of the information system, the high percentage of informal information and the large variance in media and format, make it very difficult to allocate the information source at another stage of the information transmission than at the function which supplies the information to the decision maker. This clear definition has the additional advantage of avoiding confusion between source and its media or format. This is an essential feature for obtaining comparable preference data.

4.4 The Task

The specific task in this study was chosen on the basis of results from Questionnaire A. All product managers were asked to list the decisions they frequently make. One of the decisions which was named by all product managers and which is also mentioned in the shop-description was the Packaging Decision. This task has some features which make it quite suitable for the specific purpose of this study:

- It is a decision which is made frequently by all decision makers within the sample.
- It is an important decision for the success of the products of the XYZ company.
- The problem is semi-structured and the perception of the task seems to vary enough to discriminate different groups of decision makers.
- The product management is one of the most critical functions for this task and influences its outcome to a very high degree.

The task can be described by the following steps:

1. The main data for the problem definition and the formulation of the packaging objectives are given by the product. This is defined by its technical data and its function as well as by its positioning for a specific group of consumers and its expected potential in the market and as a profit contributor.
2. In a meeting which is headed by the product manager, product design, R&D, purchasing and manufacturing collect additional information which lead to a data set from which the product manager or a coordinator can design a plan for action or time table.

3. Alternatives to the basic shape or package concept designed by the packaging design group are pretested by market research and R&D to screen out the most promising alternatives.
4. From these results the product manager chooses the main alternative. This is most often done on the basis of his own judgement and information information.
5. This raw packaging goes to the graphic design group together with a briefing for the layout. Information from the advertising agency as well as historical data for brand awareness assure that the layout ties in with the advertising concept and the image of the brand.
6. The graphic design develops along these information alternatives for the final packaging.
7. Store tests or show tests conducted by market research supply data for the final screening.
8. The copy written by the product manager goes first to the legal department and then to the graphic design group where it is incorporated into the packaging.
9. The resulting packaging is presented for final approval to the management of the division.

This process varies from division to division and product to product to some extent, but this descriptive model gives the general procedure for all packaging decisions made by the sample. Some of the product managers chose only a change in the packaging as the specific task which covers just a part of the procedure. All those variances will be reflected in the collected data for individual perception.

4.5 The Development of the Questionnaires and Interviews

To measure all the variables which should explain the differences in a decision maker's style, his perception of the task and his preference and perception for different information sources, the following questionnaires and interviews were designed or taken over from other studies:

A. PRODUCT MANAGEMENT--PRODUCTS, TASKS, DECISION MAKING-- (Questionnaire A, See Appendix AA)

This questionnaire asks for basic data concerning the different tasks of the product manager, the range of "information elements" and sources generally demanded or given for their decision making, the decision maker's perception of his own image stage compared to that of his peers, the kind of decision that he is making, and the product for which he is responsible. The purpose of this information is to get a better understanding of the specifics of the sample, the similarities and differences in their jobs, and the overall setting of their decision making process. Therefore, some information will be qualitatively

evaluated, some will be quantified. Thus, this questionnaire is very specifically designed for this sample of decision makers.

B. LEARNING STYLE INVENTORY (Questionnaire B, See Appendix AB)

This is one of the questionnaires chosen to gather information about the decision maker. The questionnaire, which is designed by D. A. Kolb, is used without any changes. Pretests have shown that the respondent first complains about difficulties in rating the expression, but these rapidly disappear.

C. LIFE SITUATION INSTRUMENTS (Questionnaire C, See Appendix A)

In this questionnaire, designed by N. Kogan and M. A. Wallach²¹, the respondents are asked for their opinion as to how desirable it is for the person to follow one of the two courses of action described in 9 life situations. The mean of the chosen scores on a probability scale will give a measurement for the risk propensity of the decision maker.

D. SUPERVISORY STYLE AND ASSUMPTIONS ABOUT PEOPLE
(Questionnaire S, See Appendix AS)

This questionnaire, designed by E. Schein, gives information about supervisory style and assumptions about people and, therefore, measures attitudes towards the interpersonal relations of the decision maker. These data are expected to have impact on information generation particularly on the differences in preference for one's own judgement, formal

information and information information. The respondents are given two sets of statements where they have to make judgements on the degree to which the statements accurately reflect their own style and beliefs.

E. A PARTICULAR PRODUCT PACKAGING DECISION, STRUCTURE, OBJECTIVE AND IMPORTANCE (Questionnaire D, See Appendix A)

This is the first of two questionnaires which cover the specific task considered (packaging decision). The decision of which task to consider is based on the results from the first questionnaire (A) and the expected difference in structure, objectives, and setting. Questionnaire D focuses on data for task structure, importance, and objectives.

The structure will be measured by asking about constraints and regulations, difficulties in achievement, feedback period, involvement of other departments and the dispersion of objectives. A second decision making task (pricing decision) is added as a control device because it is assumed that all members of the sample perceive this problem similarly.

F. PRODUCT MANAGEMENT, ORGANIZATIONAL SETTING FOR SPECIFIC DECISION MAKING TASKS (Questionnaire E, See Appendix AE)

This questionnaire concerns the influence that managers from different departments and hierarchical levels have in the decision making process. So the questionnaire is not only supposed to be given to the product manager but also to the president of the divisions,

the marketing managers, and the group product supervisors. The underlying assumptions for these data are that the task setting has great impact on its perception by the decision maker itself. The part concerned with hierarchical control is based on a study by Tannenbaum²². The influence from other functions is measured by a set of questions used by Lawrence and Lorsch in their study about managing differentiation and integration of organization and environment.⁷ Here again the pricing decision is asked parallel to the packaging decision.

G. MEDIA AND FORMAT OF INFORMATION SOURCES
(Questionnaire F, See Appendix AF)

As we try to distinguish between the tangible properties of the information sources and the more content and behavior related attributes, this questionnaire concentrates only on the primary ones. This group of attributes has the advantage to be easy to define and limited. They are divided into two dimensions. One gives information about preferences for media, the other for formats. The preference data are gained through pair-wise comparison.

H. INFORMATION SOURCES IN A SPECIFIC PACKAGING DECISION
(Questionnaire G, See Appendix AG)

In this questionnaire where we are looking for preference and perception data for the related information sources we go one step further in narrowing down the subject to make sure that the dispersion of quoted "information elements" and sources will stay within

the total problem space. In this case it is the promotional factor of the packaging. To get the evoked set of information sources we force all decision makers through a descriptive model of the decision making process for this specific task. Along these steps we ask for "information elements" which one is aware of.

The "information elements" lead us to the information sources evoked by the decision maker. Through pair-wise comparison of the sources and scores along 25 word pair differential, for each of the sources, we get perception and preference data from each decision maker related to the specific tasks. The semantic differentials are based on the following scale assignments:

Term X: 1 2 3 4 5 6 7: Term Y

1: Extremely X	5: Extremely Y
2: Quite X	6: Quite Y
3: Slightly X	7: Slightly Y
4: Neither X nor Y; equally X and Y	

where Y is the opposite attribute to X

The semantic scales cover the following attributes:

Attributes

1. Useful vs. Useless
2. Subordinate vs. Superior
3. Risky vs. Cautious
4. Responsive vs. Unresponsive
5. Applicable vs. Inapplicable
6. Efficient vs. Inefficient
7. Experienced vs. Inexperienced
8. Relevant vs. Irrelevant
9. Current vs. Outdated
10. Informative vs. Uninformative
11. Accurate vs. Inaccurate
12. Complete vs. Incomplete
13. Reliable vs. Unreliable
14. Theoretical vs. Practical
15. Cooperative vs. Uncooperative
16. Precise vs. Sloppy
17. Qualitative vs. Quantitative
18. Required vs. Optional
19. Time Consuming vs. Time Saving
20. Credible vs. Ordinary
21. Sophisticated vs. Ordinary
22. Tested vs. Untested
23. Simple vs. Complex
24. Logical vs. Illogical
25. Standardized vs. Individual

One of the major efforts in developing Questionnaire G was directed towards the selection of the adjective pairs which are used for the semantic scales. Part of the semantics is taken from Gallagher's study where he measures manager perceptions of the value of information²¹. He, himself, obtained a major part of his semantics from a published list of words by Osgood, et.al.²⁹ Other pairs were obtained through interviews with 5 of the product managers. I obtained a total of 80 adjective pairs. A second group of 5 product managers and 2 group product supervisors were asked to select the most useful scales for discriminating information sources. This was done in steps. First each product manager excluded those adjective pairs (they all were written on cards) where he had difficulties relating them to information sources. Then, he had to group the remaining cards in three piles: the first pile should only consist of adjectives related to the value of the source (useful vs. useless), the second pile comprised adjectives connoting content attributes other than values (quantitative vs. qualitative), and the third pile contained adjectives which describe the behavioral side of the information source (cooperative vs. uncooperative). After this sorting, he had to choose the ten best semantics. The frequency of naming over the whole sample of these managers indicated the scales finally used. The selection of the words for the semantic scales and their grouping has no very strong empirical support. Fundamental to the technique, however, is the redundancy. With considerable redundancy included in the semantic differential, it can be assumed that the scales used are suitable for the task.

THE FOLLOW-UP TELEPHONE INTERVIEW

The follow-up telephone interview was developed to test the preference data gained through Questionnaire G. In this interview the product managers were asked to name 2 information sources which they would use to gather a number of specific "information elements", assuming that they would have to make a packaging decision similar to the one considered in the prior survey. The "information elements" they were asked to gather were the same ones they listed in Questionnaire G. The frequency of naming each information source has to be recorded.

4.6 Conducting the Questionnaire and Interview Survey

All questionnaires, except D, E and F, were given to each product manager personally. Questionnaires D, E and F were sent with a letter (see Appendix A) but collected personally. This procedure had the advantage that all questions could be discussed so that misinterpretations were prevented, but the questionnaires are designed as self-explanatory so that personal procedures like mailing could have been chosen. The reason for using the more time consuming method was to get additional information about reactions of the respondents on style and content of the questionnaires. In general it can be stated that most product managers' attitudes towards the survey was very positive, even though they all had a very tight working schedule. Only one questionnaire which was planned for measuring the cognitive style was rejected in the pretesting stage as too time-consuming and too academic. In

Questionnaire G which was conducted as an interview, at one point I had to change the method after the initial testing. By using a descriptive model for the packaging decision, I intended to force each product manager to view this task from a common vantage point. At each step I asked for the "information elements" which were useful to him in achieving the specific part of the task. The pretest had shown that this method would cause only extensive discussions about the "right" descriptive model. Therefore, I changed the procedure by asking him to go through his individual decision-making process for the specific task, using it as a guideline for listing the "information elements". These were the only major changes which were necessary. The reaction on Questionnaires B, C and S was extremely positive. They all were measurements concerning the decision maker's style. The link from the specific task to the evoked set of information sources in Questionnaire G worked very well. Consequently, the procedure from the decision process to "information elements" and from there to information sources gave the questionnaire a high degree of realism and a good introductory phase for the very critical follow up questions.

Additional discussions with group product supervisors and managers from other functional areas were very helpful in assessing the functioning of product management and the specific task. Each meeting with a product manager lasted about three hours.

CHAPTER V

Results

Referring back to the definition of preference (as it is perceived in this study) we see that there are two major areas of data evaluation, and expected results:

- The first area should give the composition of individual perceptions which lead to the formulation of preferences towards specific information sources.
- The second area should explain the impact of the characteristics of the decision maker, his task perception and the context within which the task is performed, on individual perceptions which lead to the expressed preferences.

5.1 Integration of Preference and Perception Data

The "information elements" which are named by the product managers as used in the specific task of a packaging decision, were taken as a means of obtaining the task related evoke set of information sources for each decision maker, by this procedure we obtained 12 different information sources. However, each respondent listed only between 4 and 7 sources. The average number of the evoked set is 6, and 19 out of 24 decision makers named 6 or more sources. The 12 sources on which we have data are:

1. Market Research
2. Sales Management
3. Superiors
4. Colleagues
5. Packaging Design
6. Advertising Agency
7. Research and Development
8. External Market Research
9. NPCW (New Product Concept Workshop)
10. Trade
11. Subordinate
12. Legal

As the last 6 sources were only named up to four times, they were eliminated from further evaluation. For each of these sources I obtained ratings along the 25 semantic scales. One scale (useful vs useless) had to be dropped because of the difficulty it made in rating, even though it was selected in a very careful manner. As the scales included enough value oriented semantics and the scale doesn't contain much information, no effort was made to keep it. The first step in evaluating the data was made by applying factor analysis to reduce the 24 semantic scales to 2 or 3 factors. The package for factor analysis is taken from the SPSS System. As method of factoring we used PA2 (Principal Factoring with Iteration). This procedure has the features to replace automatically the main diagonal elements of the correlation

matrix with communality estimates, and it employs an iteration procedure for improving the estimates of communality; as rotation method we used orthogonal rotated factors (VERIMAX). This has the advantage that the rotated factors are totally uncorrelated and represent, therefore, absolute different dimensions.

In the first run where we limited the program to 3 factors, we obtained the following eigen values and percentage of variance of the semantics across all P.M.:

	Eigen Value	Pct. of Var.	Cum Pct.
Factor 1	8.961	76.4	76.4
Factor 2	1.607	13.7	90.2
Factor 3	1.154	9.8	100.0

The factor 3 still had an eigen value of greater than 1. However, I decided to go down to 2 factors because the third factor had no significant loadings and to use 3 dimensions would have cost 1 degree of freedom in the PREF-MAP Procedure. The second reason was quite important because we had only scores for 6 information sources per manager.

The next run of the analysis with the constraints of 2 factors gave the following result for eigen value:

	Eigen Value	Pct. of Var.	Cum Pct.
Factor 1	8.932	85.0	85.0
Factor 2	1.579	15.0	100.0

The rotated factor matrix has the following loading for the 24 semantic scales:

FACTOR LOADINGS FROM RATINGS OF 6 SOURCES

Var. No.	Semantic Scales	Factor 1	Factor 2
Var 001	Subordinate vs Superior	-0.19922	-0.01306
Var 002	Risky vs Cautious	0.06860	-0.51531
Var 003	Responsive vs Unresponsive	0.84196	-0.02990
Var 004	Applicable vs Inapplicable	0.68502	0.20693
Var 005	Efficient vs Inefficient	0.74251	0.26551
Var 006	Experienced vs Inexperienced	0.76256	-0.02945
Var 007	Relevant vs Irrelevant	0.79061	0.11510
Var 008	Current vs Outdated	0.68117	-0.09741
Var 009	Information vs Uninformative	0.64404	0.07505
Var 010	Accurate vs Inaccurate	0.63239	0.60571
Var 011	Complete vs Incomplete	0.72539	0.32467
Var 012	Reliable vs Unreliable	0.78623	0.41513
Var 013	Theoretical vs Practical	-0.19121	-0.20890
Var 014	Cooperative vs Uncooperative	0.66440	-0.12446
Var 015	Precise vs Sloppy	0.61938	0.30855
Var 016	Qualitative vs Quantitative	-0.00671	-0.58209
Var 017	Required vs Optional	0.33334	0.04869
Var 018	Time Consuming vs Time Saving	-0.34237	0.01572
Var 019	Credible vs Questionable	0.82361	0.18180
Var 020	Sophisticated vs Ordinary	0.65558	0.04965
Var 021	Tested vs Untested	0.45064	0.51036
Var 022	Simple vs Complex	0.01052	0.03489
Var 023	Logical vs Illogical	0.68937	0.36531
Var 024	Standardized vs Individual	-0.25420	0.43226

From the different loadings in the two factors, we assume that the Factor 1 represents the valuative semantics and Factor 2 the descriptive attributes.

Due to the procedure by which the scores of the semantic scales are evaluated, we get the following coordinates:

High negative values for Factor 1 implies that the source is perceived to be very valuable for supplying information for the specific task. High negative values for Factor 2 would define the source as cautious, and quantitative. Also, less high loading scales assure this definition for factor 2. From those we would get, in addition, attributes like accurate, tested & standardized. High positive factor scores for factor 2 would describe the source as risky, qualitative, and individual.

After getting the factor scores for each individual and each information source, we can sum them up to get average factor scores for the 6 sources. This procedure presumes that the individual perceptions towards a source are within homogeneous ranges. This is a very limiting condition for the validity of the results, mainly because of the small sample.

Info. Source	Factor 1	Factor 2
1. Market Research	-0.289705	-1.189328
2. Sales Mgt.	+0.326270	+0.318799
3. Superior	-0.298391	+0.014206
4. Colleague	-0.209839	+0.065388
5. Packaging Design	-0.356431	+0.351838
6. Advertising Agency	+0.508536	+0.538216

If I plot the average scores for each source in the perceptual map (see Chart 1), we get the following setting of the information sources:

Market Research is across the sample perceived as an information source which supplies valuable information and which can be characterized as very cautious, very quantitatively oriented, and is seen as more standardized than individual. Its average preference rating is 20.0, the highest under the six sources.

Sales Mgt. is perceived to be a less valuable information source for a packaging decision and is described as tending towards risk, and informing quantitatively. Its average preference score is the lowest of all sources (10.6).

Superior and Colleague are positioned so close together that the perceptions for them must be very similar. They both are at the 0-coordinate for the descriptive factor and are perceived as

POSITIONING OF INFORMATION SOURCES IN THE PERCEPTUAL MAP

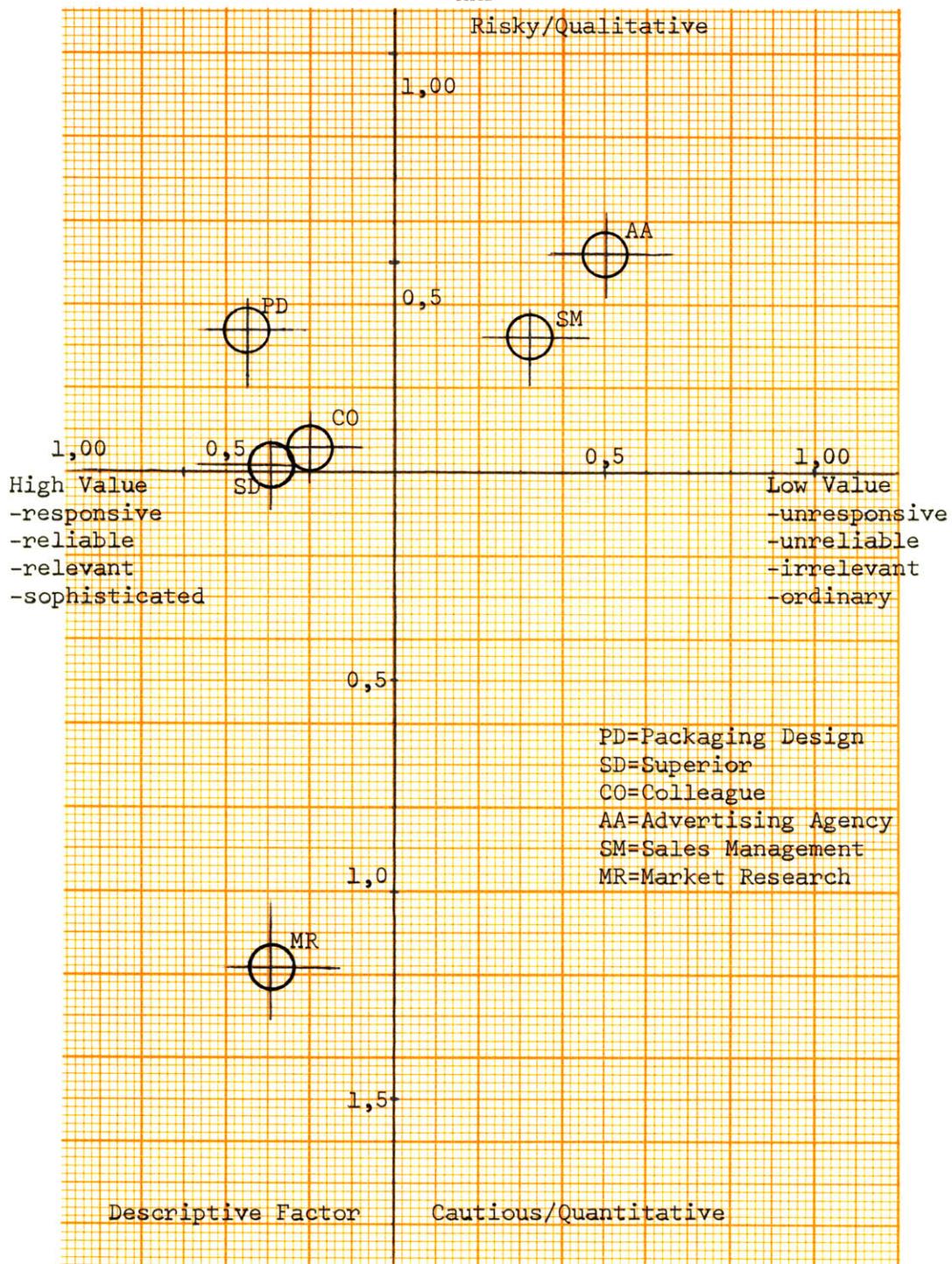


CHART 1

reasonably valuable sources. The average preference scores are 17.1 (superiors) and 13.5 (colleagues).

The Packaging Design is perceived as a valuable information source. However, contrast to market research it is described as more risky, qualitatively oriented, and individual. Its average preference score is 18.5.

The Advertising Agency is seen as a source with less value for packaging decisions. Attributes like risky, unresponsive, ordinary, inefficient, qualitative, and unreliable are characteristic for the quadrant in which the agency is positioned. Its average preference score is 13.4.

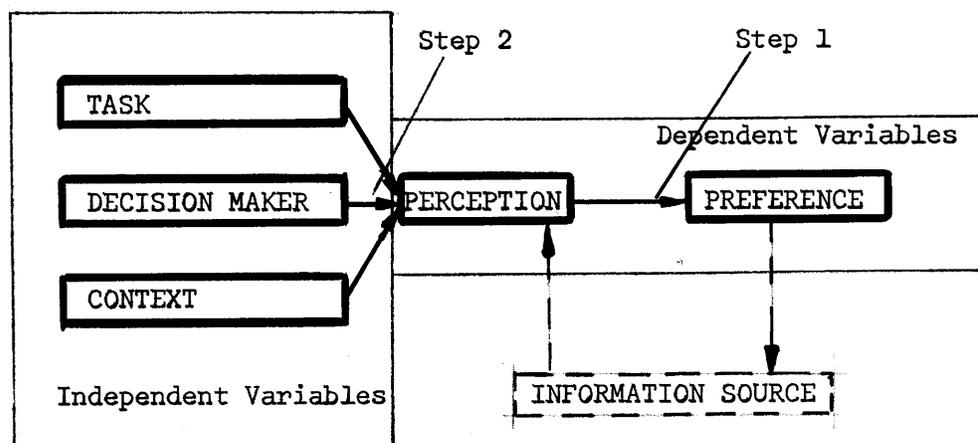
These empirically derived descriptions of the information sources as they are perceived across the sample does match to a very high degree the expected picture. These expectations are based on my own experience as obtained from conducting the questionnaires and interviews, and descriptive data given in Questionnaire A. Market research and packaging design are both perceived as valuable sources for a packaging decision. If we draw a circle with the average negative "ideal" point (which is derived through PREF MAP), as the center, it will be close to the positions of these two sources. The map indicates that they are opposite in their behavior. This differentiation is well known, because the packaging design (DEP) is in contrast to the M.R.-function, very art oriented. Post discussion in Company XYZ confirmed this positioning. Sales mgt. and advertising agency are in the quadrant

where the expected value for obtaining information for the task is low. This is actually the case and it fits very well with the complaints which the president of one of the four divisions mentioned in a personal discussion. He said that the opinions of the sales people seem to be insufficiently considered in the packaging decision.

The positioning of superior and colleague is also very typical. First of all, their very close positioning shows the equality in perception. This can be also seen in the extremely low loading of the scale "superior vs subordinate" on both factors of the perceptual space. The product manager does not distinguish between subordinate and superior as an information source. The reason for their positioning on the 0-coordinate of the behavior describing dimension could be that both sources are perceived as a whole group of people who cannot be labeled by one or the other side of the scale. But this position could also be caused by the fact that nobody likes to evaluate the behavioral factor of his colleagues and superiors. Also their value component is not much different. However, the superior always scores somewhat higher than the colleagues.

The next step in exploring preference as an integral of a multi-dimensional perceptual system is to get individual perceptual coordinates in the above described perceptual map. This will be done with PREF MAP. This model combines the average factor scores of the six sources with the individual preference scores for each source to derive individual "ideal"-points for information sources. The individual "ideal"-points

will be clustered dependent on their position within the perceptual map to test the impact of the decision factors (task, decision maker, context). An additional feature of this evaluation procedure is the fact that it accurately follows the actual sequence of the information buying process. (See Figure 4)



FLOW CHART FOR DATA EVALUATION
PROCESS USING PREF MAP

FIGURE 4

The disadvantage of this method, considering the data I had available and the time constraints in which I had to finish the studies, were given in the following prerequisites:

1. The perception of each information source has to be homogeneous over the sample.
2. The number of stimuli and the number of subjects is critical for the statistical significance.
3. The semantic scales must be designed so that they discriminate in all important dimensions.

The data base which I obtained from the questionnaires had substantial weaknesses in this respect:

1. Because each division in Company XYZ had only a limited number of decision makers in their marketing organization, I had to go to 4 divisions to get a sample of 24 product managers. As it turned out, this had negative effects on the homogeneity of the perceptual ratings.
2. I obtained only 6 information sources which were named across the sample considering the specific task, and 6 product managers did not rate their preferences for one or two out of the six sources. Those missing data could not be added because of the time constraints. As they were always sources from the negative part of the evoke set we substituted the missing data by 0. This might be a reasonable approximation, but the validity could not be tested. Another fact which turned up in the evaluation process was, that two product

managers gave totally opposite perceptual ratings for the information source. The resulting factor scores were so extreme in the opposite direction in comparison with the other 22 product managers that we could not use their data.

3. The procedure for collecting and selecting the right semantic scales were very carefully executed. However, we still obtained an extreme bias in the eigen values of the factors. Factor 1 explains 85% of the variance. This might cause all individual "ideal"-points to be scattered along the one axis.

All these facts made it very difficult to proceed as originally intended. Under these conditions the results from PREF MAP were very good. In Phase III, we obtained an average "ideal"-point with R-square of 0.9304 and a F-ratio of 4.2975 which gives for D.F.1 of 4 and D.F.2 of 16 a Pct. of smaller 0.025 for the significance of the data. But as the data in Table 2 show, the F-ratio for the individual "ideal"-points was very different. In addition they show the weights for axes that we obtained a mixture of "ideal"-points (positive weights) and "anti-ideal"-points (negative weights). This made it impossible to compare their coordinates in the perceptual map. If we decide to use only those points which have an F-ratio of larger than 2.33 to get a P of larger than 0.10 for the tested significance and to use only the "anti-ideal"-points we would have to

reduce the sample to 8 product managers. These points are plotted in the perceptual map and we also added the vectors for the direction of increasing preference, gained from Phase IV of PREF MAP (Table 3) to give a final picture of the method (Chart 2). The test in plotting the direct rated individual "ideal"-points in the perceptual map could not be used, because there is no comparison between positive and negative "ideal"-points possible. From this test, we learn only that the direct rated average "ideal"-point lies in the same quadrant as indicated by the derived vector. However, the map gives some very useful indications about the preference configuration in the perceptual space: the dark colored area around the derived "anti-ideal"-point is the most negative area for positioning an information source. This quadrant is defined by the axis as irresponsible, unreliable, irrelevant and cautious, quantitative, standardized. The sales mgt. is closest to this, which is reflected in its context ratings. Product managers L and J are the great exceptions in this sample because they have their "ideal"-points in this area. The defined direction with steadily increasing preferences is given through the average vector. From this we can assume that the third quadrant, high information value together with cautious and quantitative as behavioral attributes represent perceptual structures which lead to highest preference scores for this sample of product manager considering the specific task and the context. The eight product managers who are displayed through an "anti-ideal"-point and a vector have different major preference directions: Manager E, T, X, D and B give the value-axis more weight, the managers W, C, N

PREF MAP, PHASE III, DATA FOR INDIVIDUAL IDEAL-POINTS

		COORDINATES OF IDEAL POINTS		WEIGHTS OF AXES		CORRE- LATION	F RATIO
		1	2	1	2		
Code	Subj.						
A	1	1.79950	-0.61722	-0.28979	-0.28079	0.6705	0.5445
B	2	1.61415	-0.32028	-0.41330	-0.41330	0.9954	71.6628
C	3	0.34878	-0.25633	-1.24742	-1.24742	0.9822	18.2531
D	4	0.20433	-1.17869	-0.11003	-0.11003	0.9838	20.1183
E	5	0.44789	-0.45456	-1.57823	-1.57823	0.9138	3.3765
F	6	-0.93330	-0.86638	0.24331	0.24331	0.7079	0.6698
G	7	-0.04857	-0.18271	-0.70369	-0.70369	0.6244	0.4261
H	8	2.27594	0.36127	-0.14202	-0.14202	0.6860	0.5927
J	9	0.59392	-0.60622	1.43575	1.43575	0.9940	55.4445
K	10	1.70645	-0.38978	-0.30959	-0.30959	0.7573	0.8964
L	11	0.32832	-0.61235	1.37158	1.37158	0.9641	8.7886
N	12	0.33073	-0.37150	-1.57568	-1.57568	0.9339	4.5474
O	13	0.84573	-0.53553	-0.89584	-0.89584	0.8433	1.6416
P	14	0.46804	-0.41249	0.67265	0.67265	0.4208	0.1434
R	15	0.15078	-0.49304	-1.13880	-1.13880	0.7479	0.8461
S	16	0.54363	-0.18919	-0.79158	-0.79152	0.8788	2.2601
T	17	0.35757	-0.45637	-1.67311	-1.67311	0.9155	3.4498
U	18	-0.03069	0.03574	-0.67670	-0.67679	0.8799	2.2855
V	19	0.47196	-0.56430	-1.03425	-1.03425	0.6314	0.4410
W	20	0.40616	-0.30281	-1.34653	-1.34653	0.9945	60.4098
X	21	0.59270	-0.38062	-1.23838	-1.23838	0.9753	12.9947
Z	22	0.47452	-1.01359	0.42054	0.42954	0.6643	0.5260
	Ave	0.58653	-6.27423	-0.50055	-0.50055	0.9304	4.2975

TABLE 2

PREF MAP, PHASE IV, DATA FOR INDIVIDUAL
DIRECTION OF PREFERENCE

Direction Cosines of Fitted Subject Vectors					
		Dimension		Correlation	F-Ratio
Code	Subject	1	2		
A	1	0.9949	-0.1097	0.6516	1.1068
B	2	0.9945	0.1046	0.9695	23.4753
C	3	0.0861	0.9963	0.7082	1.5007
D	4	0.9925	-0.1223	0.9821	40.7444
E	5	1.0000	0.0052	0.3962	0.1551
F	6	0.9510	0.3862	0.6954	1.4046
G	7	-0.8128	0.5825	0.4925	0.4003
H	8	0.9220	0.3872	0.6217	1.3019
J	9	-0.8666	0.4991	0.6120	0.8082
K	10	0.9898	0.0475	0.7382	1.7963
L	11	0.0335	0.9994	0.6079	0.8702
N	12	-0.0105	0.9999	0.3649	0.2304
O	13	0.9889	-0.1545	0.6873	1.3426
P	14	-0.9550	-0.2967	0.2059	0.0664
R	15	-0.9787	-0.2051	0.4163	0.3145
S	16	0.6234	0.7819	0.7653	2.1207
T	17	0.9989	-0.0466	0.0696	0.0073
U	18	-0.6032	0.7976	0.7986	2.6418
V	19	0.7894	-0.6139	0.2833	0.1300
W	20	0.4395	0.8982	0.6704	1.2244
X	21	0.9616	0.2745	0.7034	1.4687
Z	22	-0.2479	0.9688	0.6216	0.9445
	Avr	0.8155	0.5788	0.7703	2.1888

TABLE 3

give the risky vs cautious, qualitative vs quantitative, more weight in their preference differentiation.

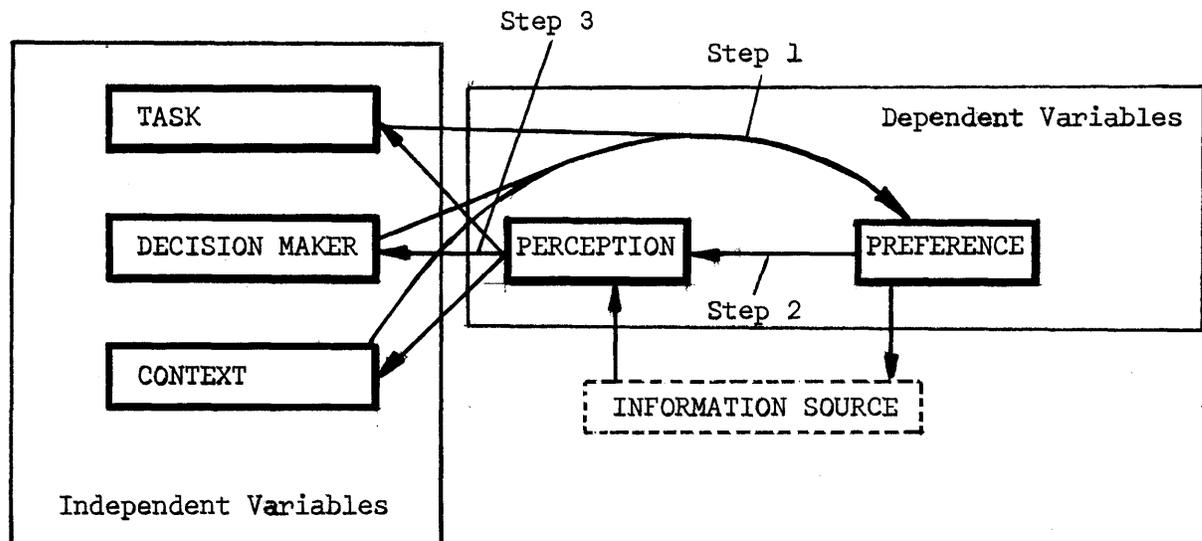
The direct-rated average "ideal"-point is positioned in the most preferred quadrant, which gives the results some additional confidence. But we still cannot continue on this data. By comparing the two groups of managers using analysis of variance, we obtain degrees of freedoms of $DF1 = (P-1) = 1$ and $DF2 = (N-P) = 6$. This would require an F-ratio of 3.78 to get a significance of $P < .10$. This cannot be reached with the data and we could not continue on this basis.

5.2 The Alternative Evaluation Process

As the character of the data base did not allow one to explore individual correlations between the independent variables - decision maker, the task and the context - and the individual perceptual coordinates, we had to go one step further in using direct preference data. The alternative for the evaluation process is found in correlating the individual preference scores of each manager for each information source with the independent variables. The preference data are based on ratio-scales and not on ranks from ordered scales, so that we have no limits for their processing and a very correct picture of the preference structure.

The first step is to observe presumed correlations in the matrix which have high significance. The second step is to go back into the

perceptual map using the positioning of the information source as a linkage. The third step is to explain the impact of the independent variables on the perceptual structure. The disadvantage of this procedure doesn't only lie in the fact that we do not get individual data, but that it doesn't correspond with the assumed actual sequence of the "information-buying-process": awareness, perception and preference (see Figure 5)



FLOW CHART FOR ALTERNATIVE
DATA EVALUATION PROCESS

FIGURE 5

The 3-step evaluation process will allow us to explore the hypothesis explaining the impact of variances of independent variables across the sample on the preference towards different information sources. The perceptual coordinates define in addition, the underlying structure on which the preference is formulated.

5.3 Exploring Relations Between Preferences and Selected Independent Variables

Relationships between preference data and selected characteristics of decision maker, task and context, are explored using the Pearson product moment correlation coefficients. With this correlation analysis we get a statistic which describes the strength of association between two variables to determine the degree of covariation between two variables. This is done by examining the joint frequency distribution of the two variables. The strength of association is indicated by a single summary statistic - the coefficient. The Pearson correlation analysis is linear which limits its reliability in interpreting association through the correlation coefficient. The input matrix was given by the preferences for the six information sources (IP1 to IP6) and the independent variables which characterize decision maker, task and context (Var 101 to Var 111 and Var 201 to Var 214). The labelling of the used variables can be looked up in the Data Index (Appendix B). We asked for an output of pair-wise correlation of all data. Thus we obtained, for each measured data, his correlation coefficients with all of them. This is done over the whole sample of

24 decision makers. Unfortunately, we had complete ratings for the preferences of a common set of six sources for only 16 managers, so that in looking for the linkage between them and the decision maker, task and context-data, we had to decrease the sample size.

In the following chapter we will discuss some of the most characteristic variables drawn from each group of measurements. The presumed associations for the variables of cross points in the matrix are compared with the derived correlation coefficients and their significance. Some variables will be discussed very extensively, some only very briefly (depending on their presumed significance and testability). A complete matrix for all data is included in the Appendix so that additional points of interest can be looked up (see Appendix C).

5.3.1 Interrelations Between Preference Scores for Different Information Sources

The matrix shown in Table 4 is another means of displaying the interrelations between the preference data and gives statistical confidence in the positioning of the sources in the perception-map. We can see that the close positioning of superior and subordinate as information sources for the specific task correlate positively and significantly ($P < .04$, two tailed test of significance, the data in the tables for S are based on a one-tailed test). The negative correlation of IP6 (advertising agency) with IP5 (packaging decision) and IP4 (colleague) as well as the negative correlation of IP5 with

PEARSON CORRELATION COEFFICIENTS FOR PREFERENCE
SCORES OF SIX INFORMATION SOURCES (IP1 to IP6)

	IP1	IP2	IP3	IP4	IP5
IP2	-0.0680 S=0.401				
IP3	0.0250 S=0.463	-0.0431 S=0.437			
IP4	0.1095 S=0.343	0.0175 S=0.474	0.6671 S=0.002		
IP5	0.2255 S=0.200	-0.4212 S=0.052	-0.2111 S=0.216	-0.1317 S=0.313	
IP6	-0.3167 S=0.116	-0.1250 S=0.322	0.0869 S=0.375	-0.4411 S=0.043	-0.4397 S=0.044

(Coefficient/Significance)

IP1: Market Research

IP4: Subordinate

IP2: Sales Mgt.

IP5: Packaging Design

IP3: Superior

IP6: Advertising Agency

TABLE 4

IP2 (sales mgt.) show the extreme incline along the value axes of the perceptual map close to the 0-coordinate for the behavioral factor (See also Chart 2). The points correlate with a 2-tail tested significance of $P < .10$. Of interest is the positive correlation between IP1 (market research) and IP5 which is evident, even though both points are very differently positioned. This confirms the position of the average "anti-ideal"-point because the theory for PREF MAP says that points on the same circle, which have the "anti-ideal"-point as center, have the same preference level. This is approximately the case for market-research and packaging design.

5.3.2 Correlations Between Preference Scores for Different Information Sources and Data Describing the Decision Maker

Table 5 gives an extract of the measurements conducted in the questionnaires. The pre-selection was done on the basis of the overall matrix given in Appendix C). Correlation coefficients of different cross-points indicate the probability of significance which was the criterium for the screening process.

5.3.2.1 The Learning Style Inventory

The learning style inventory is represented by two coordinates:

- active/reflective (AE - RO)
- abstract/concrete (AC - CE)

As it is assumed that AC-CE are both pairs of data on the

PEARSON CORRELATION COEFFICIENTS FOR PREFERENCE
 SCORES OF SIX INFORMATION SOURCES (IP1 to IP6) WITH
 DATA FOR THE DECISION MAKER AND HIS CONTEXT (VAR 101 to VAR 111)

	IP1	IP2	IP3	IP4	IP5	IP6
Var 101	-0.0851 S=0.377	0.0474 S=0.431	0.1370 S=0.306	0.2088 S=0.219	-0.3429 S=0.097	-0.0290 S=0.458
Var 102	0.2478 S=0.177	0.4309 S=0.048	-0.0996 S=0.357	-0.0330 S=0.452	0.1204 S=0.328	-0.5240 S=0.019
Var 103	-0.3191 S=0.114	-0.3538 S=0.089	-0.1652 S=0.270	0.0622 S=0.409	0.2551 S=0.170	-0.1359 S=0.308
Var 104	-0.2316 S=0.194	-0.2844 S=0.143	-0.1407 S=0.302	-0.1445 S=0.297	0.4658 S=0.035	-0.1229 S=0.325
Var 105	-0.1205 S=0.328	0.2195 S=0.207	0.0596 S=0.413	0.1226 S=0.325	0.2899 S=0.138	-0.1862 S=0.245
Var 106	0.2072 S=0.221	-0.4777 S=0.031	-0.3433 S=0.097	-0.4801 S=0.030	0.3302 S=0.106	0.1158 S=0.335
Var 107	-0.4255 S=0.050	0.0213 S=0.469	-0.1845 S=0.247	-0.3394 S=0.099	-0.2112 S=0.216	0.3493 S=0.092
Var 108	-0.5010 S=0.024	0.3831 S=0.072	0.0884 S=0.372	0.0501 S=0.427	-0.3044 S=0.126	0.0471 S=0.431
Var 109	0.2200 S=0.206	0.0163 S=0.476	0.1668 S=0.269	0.5568 S=0.013	-0.0875 S=0.374	-0.4836 S=0.029
Var 110	-0.1189 S=0.330	-0.2243 S=0.202	0.3311 S=0.105	0.0593 S=0.414	0.0163 S=0.476	0.2092 S=0.218
Var 111	0.0646 S=0.406	-0.0325 S=0.452	-0.5459 S=0.014	-0.7111 S=0.001	0.2896 S=0.138	0.2546 S=0.171

(Coefficient/Significance)

16 Cases

(Var 101 to Var 111, See Data Index, Appendix B)

same axes, we can subtract RO from AE and CE from AC and get final scores for each dimension. The scores for (AC-CE) varied from -8 to +14 and for (AE-RO) from -9 to +14. This represents a distribution similar to the one Kolb found in his study of learning style,⁴ for a sample of 229 managers and 512 graduate students. This is surprising, as studies of LSI often try to position specific professions at a specific point in the map. However, this group of product managers have also a strong bias towards one quadrant (see Chart 3). In the literature, the marketing manager is typically seen in the second quadrant, (active/concrete).

This is not the case for the major part of the product managers. If I use Kolb's LSI-Norms, which he derived from the results of a large sample, I obtain the following listing along the two axes: (Table 6)

Percentiles	AG-CE	Respondents	AE-RO	Respondents
90 - 100	12-14	C,E,H,N, S	11-14	G,H,J,K,O Y
80 - 90	0-10	J,L	8-10	L
70 - 80	8-9		7-8	A,E,W,X
60 - 70	6-7	F,Z	5-6	D,R,S
50 - 60	5-6	O,R,Y	4-5	N
40 - 50	3-4	D,P	2-3	B,F,U,Z
30 - 40	1-2	K,T	0-1	C,Y
20 - 30	(-1)-0	B,G,Q	(-2)-0	P
10 - 20	(-5)-(-2)	A,X	(-5)-(-3)	
0 - 10	(-9)-(-6)	U,V,W	(-9)-(-7)	Q,T

TABLE 6

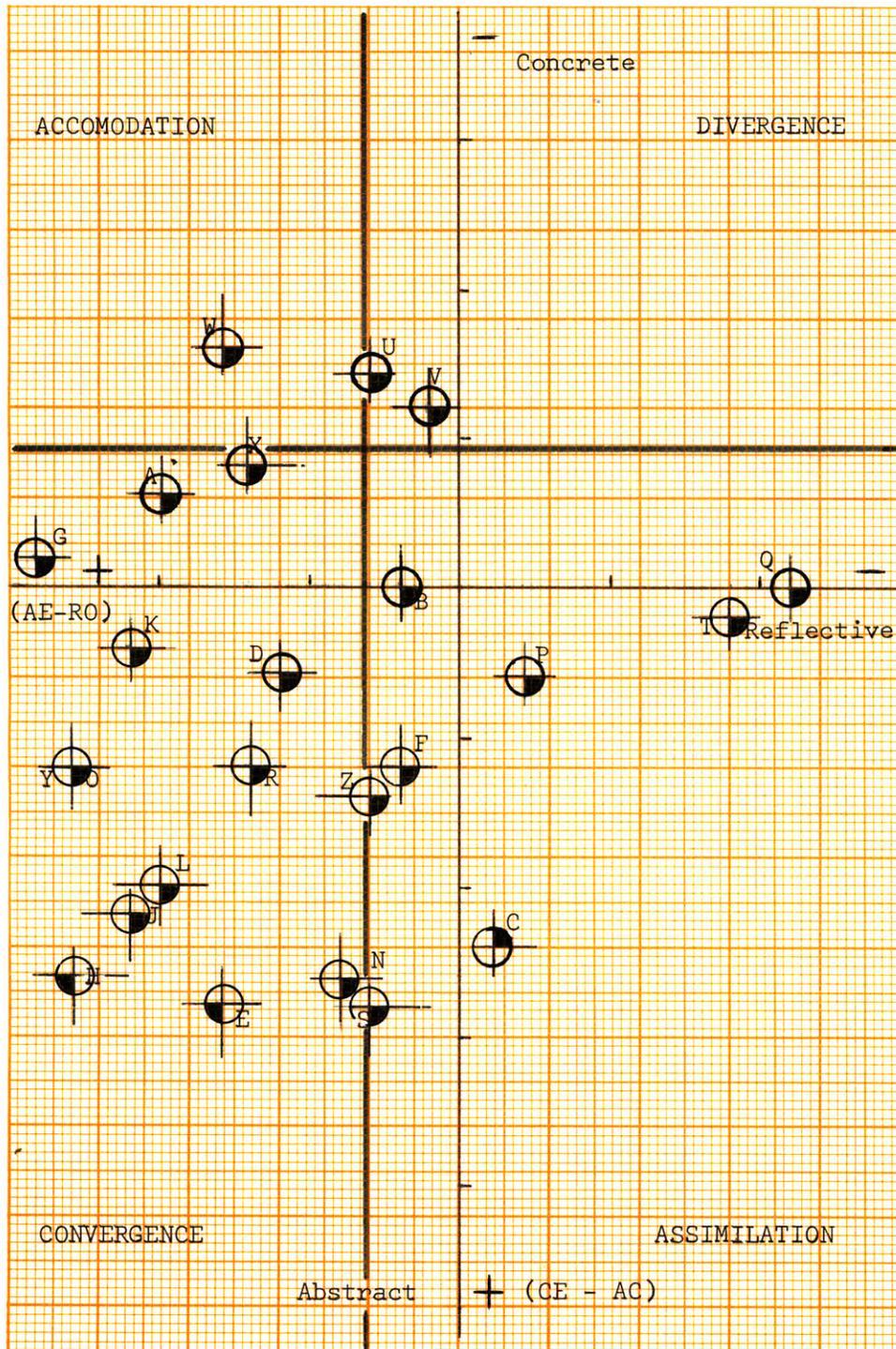


CHART 3

If we draw the o-coordinate at 50%, we get a grouping in four quadrants as shown in Chart 3. The quadrants are named:

1. Quadrant = Divergence
2. Quadrant = Accomodation
3. Quadrant = Convergence
4. Quadrant = Assimilation

Grouping the product manager under this labeling we get:

Quadrant	% of Sample
Divergence	8%
Accomodation	4%
Convergence	59%
Assimilation	29%

If we compare the means and standard dev. resulting from these data and those collected by Kolb over a large scale, the group of product managers would be positioned between the groups of social and physical scientists:

	Abstract/ Concrete (AC - CE)		Active/ Reflective (AE - RO)	
	\bar{X}	SD	\bar{X}	SD
Arts	+1.31	6.18	+0.96	5.95
Social Science	+3.86	6.23	+3.31	6.37
Product Manager	+5.29	6.54	+4.08	6.87
Physical Science	+5.64	5.83	+3.83	5.69

This is interesting as the setting shows that most product managers in Company XYZ do not have the typical non-quantitative "intuitive" approach to their work as is usually found in sales-oriented groups. This group of managers have a strong bias towards the quadrant which is characterized by convergers. Kolb gives the following definition for this quadrant:

"The Converger's dominant learning abilities are abstract conceptualization (AC) and Active Experimentation (AE). His greatest strength lies in the practical application of ideas. We have called

this learning style the converger because a person with this style seems to be best in those situations like conventional intelligence tests where there is a single correct answer or solution to a question or problem (cf Torrealba, 1972). His knowledge is organized in such a way that, through hypothetical-deductive reasoning, he can focus it on specific problems. Liam Hudson's (1966)"

Their job-description asks for exactly this type of manager. Their task is characterized by a transformation process starting with a product concept and ending with the thrust for capturing the market. The coordinates which define the converger (active, abstract) and the coordinates derived through PEF MAP which describe the preferred quadrant for information sources, seem to have linked characteristics:

LSI	Active	Abstract
PEF MAP	Effective Sophisticated Relevant Responsive	Quantitative Cautious

The product managers show similarities with the sales-oriented groups along the active/reflective axis of the LSI because both are seen on the active side. This similarity comes up in the correlation between this LSI-factor (AE-RO) and the preferences for sales management as an information source. The correlation is positive and significant ($P < .10$, two-tailed test of significance)

The negative correlation of the (AE-RO)-axes with the preference for the advertising agency is very significant ($P < .05$, two-tailed test of significance). This confirms the reflective role the advertising agency plays as an outside service organization, and expresses a mismatching with the learning style of most of the product managers. This might be a major determinant for the low average preference level given to the advertising agency, and it is not surprising that out of the 5 managers who gave the advertising agency the highest rating, 3 have a reflective learning style and the other 2 are close to the 0-coordinate along the axis.

The concrete/abstract-factor indicates significantly less impact on preferences. But this is presumably due only to the fact that the discrimination along this axis is not very strong. This could also be the reason that the semantic scales "theoretical vs practical" and "simple vs complex" do not have high loadings in both factors of the perceptual map.

Step 2 in the data evaluation process projects the correlations between the "active/reflective" axis and the preferences in the perceptual map. Based on the method for PREF MAP we know that the largest variance for preference is along the line which goes through the position of the information source and the "anti-ideal"-point. If we project the variances along this line on the axis of the perceptual map we get the impact of the independent variable on the perceptual dimensions. (See Chart 4). From the positioning of the two sources for which

PROJECTIONS OF VARIANCES FOR
RATINGS ON THE AXES OF THE PERCEPTUAL MAP

40 MASS. AVE., CAMBRIDGE, MASS.

TECHNOLOGY STORE, H. C. S.

FORM 3 H

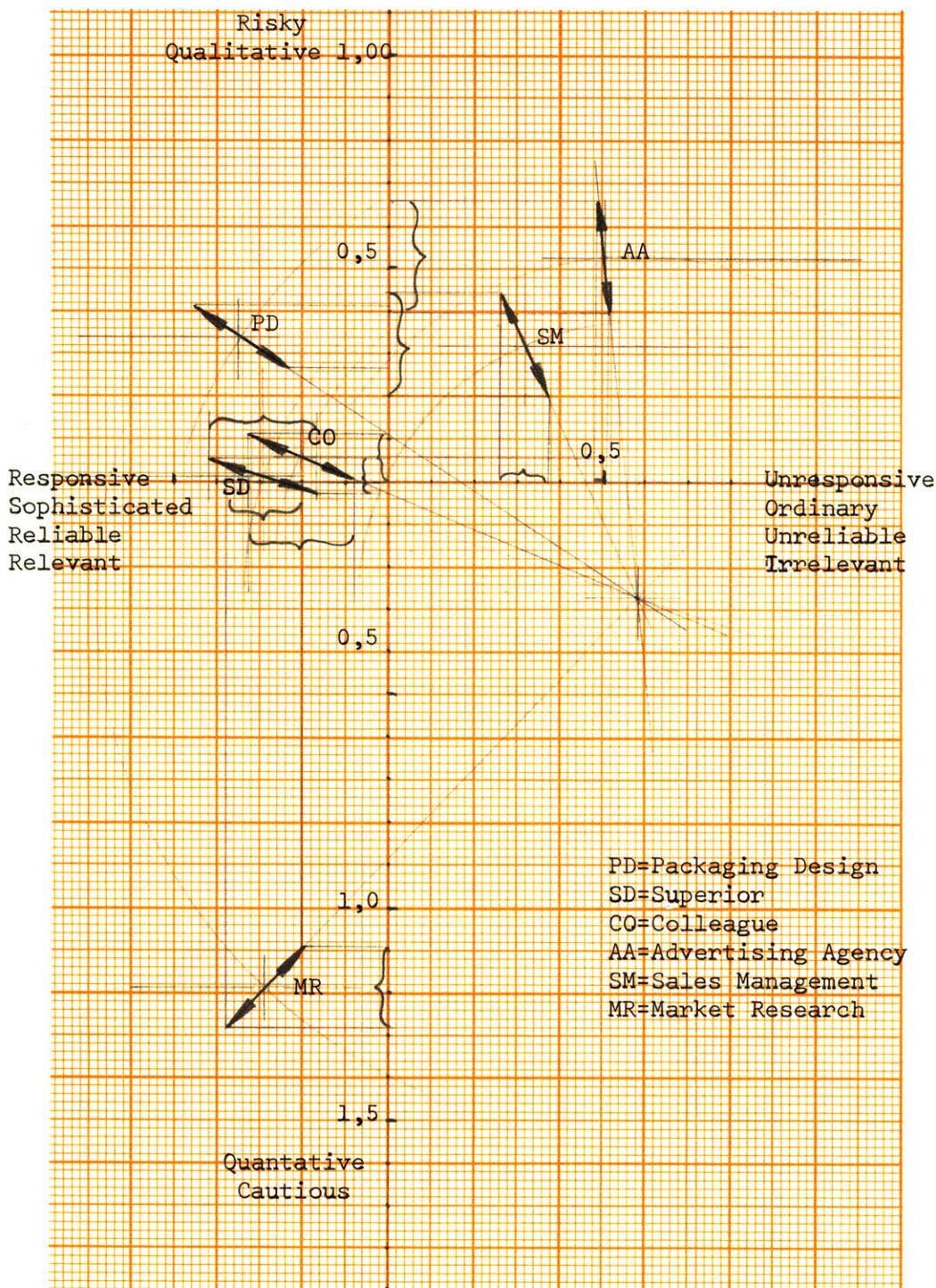


CHART 4

the preferences are highly influenced by the independent variables as it is discussed above, and the "anti-ideal"-point within the perceptual map we derive the following assumptions:

1. The "active/reflective" axis of the LSI has its highest impact on the descriptive factor of the perceptual map. (the major dimensions for this factor are given through the axis 'risky vs cautious' and 'qualitative vs quantitative'.)
2. The advertising agency could improve its level of preference on the average across the group of product managers by tending to a less risky and more quantitative approach.
3. The sales mgt. could improve its level of preference on the average across the group of product managers by tending more to a less cautious and a more qualitative approach.

If, in addition, we put the data for market research in this picture (this must be done with large reservations because of the low significance; $P = .30$ for 2-tailed test) we would derive the result that market research could improve its level of preference by tending to a less cautious and a more qualitative approach.

Based on my own experience and the interviews with the product managers, it seems that the results meet the actual situation. But

without more exploration, those empirically derived results cannot be upheld. They are only documented as the last link in the designed evaluation process.

5.3.2.2 Management Style

The Management style is measured by gathering data for:

- Supervisory style
- Assumptions about people
- Decision making style
- Risk taking propensity

The scores for the Supervisory style are derived by adding up the results of individual judgement on statement pairs. To set the degree of orientation towards a theory-Y-type manager, we added only the points which were allocated out of a constant sum to the theory-Y statements. High scores mean a very subordinate-concerned leadership with a high degree of participation. The opposite would be a very "boss"-centered dictatorship.

It is very typical that this variable correlates highly with the LSI. We have a correlation coefficient of 0.4249 and high significance ($P < .05$, two-tailed test of significance) with the "concrete/abstract" axis. This means that theory-y-type managers are more abstract and theory-x-type managers tend to be more

concrete. The management style also correlates positively with high significance with the managers positive assumption about people. This could also explain the positive correlations with the ratings for importance of the division and the function of the product management as their closest organizational environment. They rate "own judgement" in a decision process, high. The variable shows no impact on the preference for one specific kind of information. The average score for the theory-y-factor is 72.7 and it is constant over the different divisions. The data vary from 55.0 to 89.0 Other results for this measurement, based on large samples, show the same average and the same variances.

5.3.2.3 The Decision Maker's Assumption About People

The results for "assumptions about people" which are computed in the same way as the data above, also approach the average of other tests (75.7). From the correlation analysis we get a positive relation with the risk taking propensity. This would mean that people with a positive approach towards people behavior in a more risky fashion, and negative assumptions about people lead to more cautious behavior. The data show also a negative correlation with age. The variable correlates positive with significance ($P < 0.10$, two-tailed tested significance) with the preference for packaging design, considering the specific task. The position of packaging design in the

perceptual map gives the value axis and the descriptive axis both an equally high weight. As all other sources are differently positioned and their preference level correlates without exception, negative, we can assume that this variable correlates only positive with preferences for information sources if their behavioral change to more risk, and a more qualitative approach is combined with additional information value, they exert less information value if the source takes risk and a qualitative approach.

5.3.2.4 Risk Taking Propensity

Cravens obtained in his study about individual information processing¹³, an average index of 71.6. The average of this sample lies at 59.0 and the variance at 13.5. That would mean that the product managers are not very risk prone. Within the group of independent variables the risk data correlate only with the data for "assumptions about people". This could be due to the fact that the used life situation instrument doesn't relate to the job-environment of the product manager. The high variance, considering a sample size of 16, make the validity of the results very questionable. Therefore, the data were not used.

5.3.2.5 Experiences

Experiences, general and specific ones, are measured by:

Month of PM experience

Month in current position

Age

We know that the sample on the average has 17.4 years of education and, therefore, have higher degrees. 71% of them studied in the field where they are now working (business) and 75% of the product managers had prior experience in other marketing functions. Of particular interest, is that the ratings for the importance of the division are strongly negatively correlated with the experience as a product manager. His link to the product is higher and also his opinion of the importance of his own decision.

The months in the current position provides some insight into the nature of their profession. While the average for PM-experience is 4 years, the average time in the current position is 12.5 months. This shows a high frequency rate of moves in this job. The highest correlation with this variable over the sample is given with the importance rate for the packaging decision. Newcomers in general, rate the importance of the task higher (which is logical).

The time in the current position is negatively correlated (significance: $P < 0.05$ for a two-tailed test) with the preference for market research. Derived from the positioning of market research in the perceptual map we can assume that this context variable highly influences the descriptive factor. Product managers who are new in their current position, prefer sources with low risk and quantitative orientation like market research. This changes with time.

The age was mentioned earlier in Craven's correlation with other variables. The only additional point of importance can be seen in the very high negative correlation with the ratings for the division, and the degree of influence the superior has on the product management function. This trend is also clearly drawn in the correlation between age and his preference for superiors and colleagues as information sources. The correlation is negative and highly significant ($P < 0.05$ for both sources, two-tailed tested significance). Considering the positioning of the two sources we get a high impact of age on the expected value of the information. Older people are more critical in their choice of information sources, or if we keep age constant, decision maker and colleagues can increase their level of preference by increasing their value as information sources, a reaction which seems "correct".

5.3.3 Correlations Between Preference Scores for Different Information Sources and Data Describing a Specific Task and Its Context

The task and its context is described by four sets of variables:

Product Data	(Var 201 to Var 202)
Objectives	(Var 203 to Var 207)
Structure	(Var 208 to Var 209)
Degree of Influence	(Var 210 to Var 214)

The correlation between the dependent variables IP1 to IP6, which

are preference scores for the six information sources, and the task and context variables is displayed in Table 7. The complete matrix, which includes the correlation coefficients for the correlations within the group of independent variables, is given in Appendix C.

5.3.3.1 Product Data

Var 201 gives the purchasing cycle in weeks and Var 202 stands for the retail price for this product. The two variables were selected from a set of data which describe the product and its market. Both data were the most significant ones related to the preference scores. Because of their character, they are very reliable and excellent scales. Purchasing cycle and price have a high impact on the objectives of the packaging decision. They both are highly positively correlated because the purchasing cycle for low-priced products is usually shorter than that for high priced products. The replacement rate varies from 2 weeks to 260 weeks and the retail prices from \$0.50 to \$26.00. This explains why their impact on the preferences for specific information sources is similar. Both data correlate negatively and significantly ($P < .05$, two-tailed test of significance) with the preference toward market research and positively with the rating for the superior as an information source ($P < .10$), and the preference scores for the advertising agency ($P < .05$, two-tailed test for significance). The reason

TABLE 7

PEARSON CORRELATION COEFFICIENTS FOR PREFERENCE
SCORES OF SIX INFORMATION SOURCES (IP1 to IP6) WITH
DATA FOR # SPECIFIC TASK AND ITS CONTEXT (VAR 20 to VAR 207)

	IP1	IP2	IP3	IP4	IP5	IP6
Var 201	-0.5925 S=0.008	-0.0251 S=0.463	0.3971 S=0.064	-0.0881 S=0.373	-0.3326 S=0.104	0.4993 S=0.024
Var 202	-0.6082 S=0.006	-0.0390 S=0.443	0.4265 S=0.050	-0.0486 S=0.429	-0.3127 S=0.119	0.4949 S=0.026
Var 203	0.3566 S=0.088	-0.1687 S=0.266	-0.6010 S=0.007	-0.3149 S=0.117	0.1835 S=0.248	-0.1781 S=0.255
Var 204	0.3923 S=0.066	0.1285 S=0.318	0.0214 S=0.469	-0.1762 S=0.257	0.2319 S=0.194	-0.0517 S=0.425
Var 205	-0.2383 S=0.187	-0.1189 S=0.330	0.2144 S=0.213	0.0548 S=0.420	-0.5065 S=0.023	0.5049 S=0.023
Var 206	0.3861 S=0.070	0.1661 S=0.269	-0.3427 S=0.097	-0.1488 S=0.291	0.3132 S=0.119	-0.3715 S=0.078
Var 207	-0.4639 S=0.036	-0.1560 S=0.282	0.1476 S=0.293	0.2270 S=0.199	-0.4448 S=0.435	-0.0209 S=0.469
Var 208	-0.2358 S=0.190	-0.1504 S=0.289	0.0827 S=0.380	-0.0660 S=0.404	-0.1370 S=0.306	0.1859 S=0.245
Var 209	0.2890 S=0.139	-0.1139 S=0.337	0.0119 S=0.483	0.3291 S=0.107	0.0278 S=0.459	-0.2184 S=0.208
Var 210	0.1134 S=0.338	-0.4629 S=0.036	-0.1900 S=0.241	0.0152 S=0.478	0.1244 S=0.323	0.0611 S=0.411
Var 211	-0.1983 S=0.231	-0.3583 S=0.086	0.4346 S=0.046	0.3454 S=0.095	-0.0600 S=0.413	0.0832 S=0.380
Var 212	-0.1283 S=0.318	0.4936 S=0.061	0.0117 S=0.483	-0.2315 S=0.194	-0.1657 S=0.270	0.2149 S=0.212
Var 213	-0.0687 S=0.400	0.1034 S=0.352	0.1527 S=0.286	-0.1834 S=0.248	-0.2655 S=0.160	0.6576 S=0.012
Var 214	0.1392 S=0.304	-0.2512 S=0.174	0.6455 S=0.003	0.4189 S=0.053	0.1411 S=0.301	-0.1306 S=0.315

(Coefficient/Significance)

16 cases

(Var 201 to Var 214, See Data Index, Appendix B)

for this pattern lies in the correlation between the two variables and the ratings for importance of the task. This correlation is negative and significant ($P < 0.05$, two-tailed test of significance). This leads to the assumption that in less important cases of packaging decisions, the service of the advertising agency is appreciated much more than it is for products with high purchasing frequency where the packaging decision is perceived to be much more important. Surprisingly, the same trend is shown for the superior as an information source. The preference scores for the market research department have the opposite trend. The preference for market research as an information source increases for tasks where the product has a short purchasing cycle and is a low priced mass merchandise product. This reflects the effort of market research in Company XYZ for the latter product category. By consulting the perceptual map we could derive from the positioning of the three sources discussed, that the perception for an ideal information source for the packaging decision moves from attributes cautious and quantitative to more risky and qualitative, while the expected value of the information decreases, if we change the task from considering a low priced product with high purchasing frequency to a higher priced product with a longer purchasing cycle.

5.3.3.2 The Different Objectives for the Task

The different objectives for the packaging task were defined by:

	\bar{X}	SD
- Product Protection	18.9	4.3
- Optimal Economy	13.4	4.3
- Consumer Convenience	16.8	4.5
- Promotional Function	16.8	5.6

The numbers give the average ratings and standard deviation for the weights of the objectives. The relatively low ratings for the objective for optimal economy is surprising, considering the high impact of the packaging on the cost of the product (up to 50%). The most significant information which is gained by this data lies in the fact that the different weights for the objectives have nearly no impact on the preferences towards one or another information source.

5.3.3.3 The Structure of the Task

The variables which are selected from the measurements for the task structure are:

Degree of Regulation, and

Degree of Difficulties for Performing the Task.

The average ratings for both scales were around 3.8 on a 1 to 7 scale where 1 is equal to a high degree of regulation and no difficulties at all. Their impact on the preferences towards different sources is also not significant.

5.3.3.4 Degree of Influence from Different Functional and Hierarchical Levels

In cases of different functions we asked to what degree they are perceived to be critical for the success of the task. The pattern of the cross-points of correlations with high significance show the strong relationship between the perception for the critical functional area and the perceptions which lead to the preferences. It seems that, except for market research, the choices which led to the ratings were based on the same perceptual dimensions. The ratings for market research as a critical function were based on the dimensions which were given by the positioning of the source in the perceptual space. But, the correlation is much stronger as reflected on the line-function "sales" which has the opposite positioning in the perception-map. The packaging design group was not rated in this questionnaire, because the selection of the specific task was done after this questionnaire was designed. The degree of influence coming from the group product supervisor is very positively correlated with the preference for the supervisor as an information source ($P < .05$, two-tailed test of significance). The weights for

different organizational units seem to correlate very well with the expressed preferences.

6.1 Summary

The objective of this study was to explore the setting of managers' actual stated preference for an information source considering a specific task and the context in which the task has to be performed. Preference is viewed as an important linkage in the information generation process summarizing a multi-dimensional perceptual space as a reaction of the individual value system to different stimuli. This choice formulation is a continuous process within each stage of the decision process which led to the assumption that the factors of a decision process all have impact on preference towards information sources. Based on theories of decision making, we defined the decision maker, his perception of the task, and the context as the independent variables. Awareness and perception are seen as the underlying structure on which preference, the dependent variable, is based.

The study makes a major effort to implement specific evaluation procedures to integrate perceptual structure and preference on an individual basis to explore at that level the assumed impact of the independent variables. The applied techniques were PREF MAP and Pearson product-moment correlation coefficients. Together they made it possible to describe dimensions which presumably cause relationships as they are stated in the hypothesis. The small sample and the lack of homogeneity within this group of product managers made it necessary to change the methodology. The collected data base did not allow the

combination of preference and perception on an individual level. Therefore, the findings regarding the impact of decision making factors on the preference towards specific sources are related to variance correlations across the whole sample. These data are projected on perceptual coordinates for information sources. This led to a structure of differently weighted dimensions. These weights vary with the decision making factors task, decision maker and context.

The strongest correlations were found with the learning style, age and ratings for influence from other organizational functions and hierarchical level. Task defining variables such as the weights for different objectives or measurements for its structure did not show any significant impact on the preference ratings.

6.2 Conclusions

The conclusions should be more perceived as an intermediate report of an ongoing study than as a presentation of final results. They should express the uncertainty which still characterizes the relationship stated in the hypotheses and also the possibility for future search based on the findings and applied techniques.

6.2.1 The Data Base

The critical points for questionnaire design and data collection were:

- The semantic scales
- The definition of task related information sources
- The homogeneity in perceptions of the information sources over the sample
- The preselection of the important measurements

All four points can only be solved in a satisfactory fashion within a longer time frame. It would be necessary to stay with the decision maker for weeks, to develop more knowledge about the decision making process within which the information-buying-processes occur. We would obtain some idea about their value systems on which they differentiate information sources to develop better semantic scales. The definition of the information sources and their perception is assumed to be uniform. As the study showed, this is not the case. Observation of usage patterns could improve the questionnaire which

leads to the task related evoke set, so that we would obtain more stimuli and more awareness of their role in the actual task.

The last and very important point is, that the evaluation process was handicapped through the large size of the data base. A stronger preselection at the beginning of the study is necessary.

6.2.2 The Data Evaluation Methods

The results of this study were gained by applying two different methods:

The first, based on the concept of PREF MAP, integrates preferences and perceptions on an individual basis. This step allows very extensive assumptions about the impact of the decision process on preference and the underlying perceptual structure. The positioning of the information sources and the individual "ideal"-points for an information source in the perceptual map and the overall configuration of those points and directions of increasing preferences give a detailed picture of the relationships. Therefore, we are in the position not only to demonstrate correlations between preferences and data for decision makers, task and context, but, also to develop actions for improvement of those relationships. PREF MAP, therefore, seems to be a very powerful method for exploring problems of information supply.

The second method, based on Pearson product moment correlation coefficient, relates the data for decision maker, task and context, with the individual preference scores. This has the disadvantage of obtaining only data across the total sample and losing the information of the direct impact on the perceptual structure. The procedure to link perception and preference together is also in the second method based on PREF MAP in using the derived average "anti-ideal"-point. This was possible because the R-square and F-ratio for the average "anti-ideal"-point was very high (.9304/4.2975).

6.2.3 The Results

The findings can be summarized as follows:

- Preference for an information source is not only based on dimensions which express value of information, but also on those which describe behavior. Even though the value oriented factor represents 85% of the variance, the results of PREF MAP, Phase IV, indicate that the behavioral factor has great importance for the final choice.
- Preference for an information source is determined much more by decision maker characteristics (such as learning style) and age and context facts (such as functional and hierarchical influence) than on the objectives of the task for which information has to be generated.

- There are generally preferred areas in the perceptual space for information sources. For this group of decision makers, considering packaging decision as the task-category, it is the third quadrant in the perceptual map. The dimensions for this quadrant are: responsive, sophisticated, reliable, relevant and cautious, quantitative.

- The loss for R-square and F-ratio from Phase III to Phase IV shows that the summarizing of the different directions of preferences in one main vector for steadily increasing preference is not a good representation of the data. This allows the assumption that the product manager prefers not only one "ideal"-information source but a "portfolio" of information sources with different character. The three clusters

- Advertising Agency

- Sales Mgt.

- Superior

- Colleague

- Market Research

could be a typical configuration of the preferred "leverage".

- The information sources are able to improve their preference ranks marginally. But, this makes it necessary for them to consider their positioning in the perceptual map because the optimal direction for marginal change is different. Therefore, we could give, based on the results of this study, very exact recommendations for each information source.

These results make it very questionable to evaluate information sources on a totally rational basis. It seems that each decision maker has his own imagination of the ideal information source based on a multi-dimensional perceptual value system to which he always refers back to when he formulates his preferences. This relatively constant behavior allows the assumption that preference is a reliable predictor for usage. Considering these findings, the preference ratings for an information source could be a very good measurement for the value of an information source.

6.3 Recommendations

It is very difficult to draw on the basis of measurement from a sample of 16 product managers' general lines for further studies, but, from the experience gained in the data collection phase and, in applying the different evaluation techniques (we also used canonical-correlation analysis as a second and more advanced correlation method) it seems to be quite sure that this approach for evaluating information systems

shows promise. The methodology applied could not only be useful for evaluating existing information sources, but it would also be possible to discover gaps or reposition sources. The findings would get quite more valuable if, in addition to preference data, used data could be selected.

If we extend this methodology and collect data over a longer time period and not on a one-shot basis (as it had to be done in this study), we could institutionalize this measurement. Then, it could be used for exploring all kinds of communication problems between organizational units which have to cooperate in one task. A typical example would be the design phase of a new product where marketing had R&D have to work very closely together. This technique could show the mutual expectations as supplier and user of information, as well as the individual positioning in this communication process. Detailed recommendations could be developed to improve mutual understanding.

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APPENDIX A

QUESTIONNAIRES

PRODUCT MANAGEMENT

- Products, Tasks, Decision Making -

Questionnaire A

(10 pages)

1. NAME: _____
(last) (first) (middle)
2. CODE LETTER* _____

*This randomly chosen letter will be the code for your data throughout the whole project. It is only known by me and you to guarantee absolute confidential handling of all the given information.

The purpose of this questionnaire is to get basic data for your task in product managing. This information will not only help us to get a better understanding for your job but will also provide first data about similarities and differences within the total sample regarding the decision you make, the information you use, and the product you are responsible for.

3. Position _____

4. Division _____

5. Ongoing Products _____

6. Tel. No. _____

New Products _____	

7. Could you list up to 10 activities which describe your day-to-day work best and weigh them A) in regard to their time consumption, and B) in regard to their importance so that the sum of the weights add up to 100.

	(Activity)	(A)	(B)
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

SUM:	100%	100%
------	------	------

8. How, in your opinion, dependent is the success of the Gillette Company upon the success of your division in relation to any of the other divisions?

- 1. Totally dependent on our division _____
- 2. More dependent on our division than on most of the others _____
- 3. Equally dependent on our division than on most of the others _____
- 4. Less dependent on our division than on most of the others _____
- 5. Totally independent of our division _____

9. How, in your opinion, dependent is the success of the division upon the success of your product line in relation to any of the other product lines?

- 1. Totally dependent on my product line _____
- 2. More dependent on my product line than on most of the others _____
- 3. Equally dependent on my product line than on most of the others _____
- 4. Less dependent on my product line than on most of the others _____
- 5. Totally independent of my product line _____

10. How, in your opinion, is the success of your product line dependent on your decisions?

- | | |
|----------------------------------|--------------------------|
| 1. Totally dependent _____ | <input type="checkbox"/> |
| 2. Very dependent _____ | <input type="checkbox"/> |
| 3. Somewhat dependent _____ | <input type="checkbox"/> |
| 4. Not sure whether or not _____ | <input type="checkbox"/> |
| 5. Totally independent _____ | <input type="checkbox"/> |

11. How would you weigh the influence of the following factors on decisions made in your position?

1. Personal judgement
(e.g. experience, taste) _____
2. Formal information
(e.g. market research data) _____
3. Informal information
(e.g. discussion with salesmen) _____
4. People involved _____

SUM: 100%

12. What are your responsibilities expressed in

1. \$ Sales/year \$ _____
2. \$ Marketing expenses/year \$ _____

13. How many years of experience do you have in brand management?

_____ (years)

14. How many years/months are you in your current position?

_____ (years/months)

15. What kinds of decision, or proposal, do you have to make relatively frequently?

1.	_____	_____
	(kind of decision)	(frequency/year)
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____
10.	_____	_____

16. What are your sources for formal information?

e.g.	<u>Towne-oller-report</u>	<u>Market Research</u>	<u>xyz</u>
1.	_____	_____	_____
	(Title)	(Department)	(Person)
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____

16. (Con't)

9.	_____	_____	_____
10.	_____	_____	_____
11.	_____	_____	_____
12.	_____	_____	_____
13.	_____	_____	_____
14.	_____	_____	_____
15.	_____	_____	_____

(If you have samples of this data on hand, I would be glad if you could attach copies. Thanks!)

17. What are your main sources for informal information?

e.g.	<u>Ed xyz</u>	<u>Sales-Dept.</u>	<u>Dealer Complaints</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

18. Who are the people who get constantly involved in the decision process besides information suppliers?

	(Name)	(Position)	(Dept.)
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

19. What percentage of your formal recommendation or proposal have been rejected last year?

@ _____ %

20. What influence does this rate have on your further decision making?

1. Negative influence	_____	_____
2. Positive influence	_____	_____
3. Normal influence	_____	_____

The purpose of the following questions is to get a picture of your product and its environment. (If you are responsible for more than one product, relate the questions only to one product of your own choice. If you work on new products, relate the questions to the estimations for year 2 after introduction for one specific product.

21. What is (will be) the replacement rate of your product?

_____ (days/months/years)

22. What is (will be) the retail price of your product?

_____ (\$)

23. What is (will be) the quantity of your product/year?

_____ (unit/year)

24. How is the profitability of your product in relation to other Gillette products?

1. Far better than average	_____	<input type="checkbox"/>
2. Better than average	_____	<input type="checkbox"/>
3. Average	_____	<input type="checkbox"/>
4. Less than average	_____	<input type="checkbox"/>
5. Far less than average	_____	<input type="checkbox"/>

25. At what stage of its life cycle is your product now?

1. Conception	<input type="checkbox"/>
2. Introduction	<input type="checkbox"/>
3. Growth	<input type="checkbox"/>
4. Maturity	<input type="checkbox"/>
5. Decline	<input type="checkbox"/>

26. What are the market shares of....

1. Your product _____ (%)
2. Competitor 1 _____ (%)
3. Competitor 2 _____ (%)
4. Competitor 3 _____ (%)

27. What are the demographics for the consumers of your product?

1. Sex: Male Female
2. Age: _____ to _____ (years)
3. Income: _____ (\$/year/family)
4. Brand loyalty: High Low

28. What percentage of your product is sold through

1. Independent retailers _____
2. Retail chains _____
3. Department stores _____
4. Supermarkets _____
5. Discounters _____
6. Mail Order Houses _____
7. Others _____

SUM: 100%

29. At how many outlets is your product available?

30. What percentage of the total U.S. Market, for your product,
is covered by these outlets?

_____ (%)

Questionnaire B

(2 Pages)

Code Letter _____

The learning style inventory is designed to assess your method of learning. As you take the inventory, give a high rank to those words which best characterize the way you learn and a low rank to the words which are least characteristic of your learning style.

You may find it hard to choose the words that best describe your learning style because there are no right or wrong answers. Different characteristics described in the inventory are equally good. The aim of the inventory is to describe how you learn, not to evaluate your learning ability.

1. There are nine sets of four words listed below. Rank order each set of four words assigning a 4 to the word which best characterizes your learning style, a 3 to the word which next best characterizes your learning style, a 2 to the next most characteristic word, and a 1 to the word which is least characteristic of you as a learner. Be sure to assign a different rank number to each of the four words in each set. Do not make ties.

- | | | | | |
|-----|----------------------------|-----------------------|----------------------------------|--------------------------------|
| 1.1 | <u> </u> discriminating | <u> </u> tentative | <u> </u> involved | <u> </u> practical |
| 1.2 | <u> </u> receptive | <u> </u> relevant | <u> </u> analytical | <u> </u> impartial |
| 1.3 | <u> </u> feeling | <u> </u> watching | <u> </u> thinking | <u> </u> doing |
| 1.4 | <u> </u> accepting | <u> </u> risk-taker | <u> </u> evaluative | <u> </u> aware |
| 1.5 | <u> </u> intuitive | <u> </u> productive | <u> </u> logical | <u> </u> questioning |
| 1.6 | <u> </u> abstract | <u> </u> observing | <u> </u> concrete | <u> </u> active |
| 1.7 | <u> </u> present-oriented | <u> </u> reflecting | <u> </u> future-oriented | <u> </u> pragmatic |
| 1.8 | <u> </u> experience | <u> </u> observation | <u> </u> conceptualiza-
tion | <u> </u> experi-
mentation |
| 1.9 | <u> </u> intense | <u> </u> reserved | <u> </u> rational | <u> </u> responsible |

Please give the following additional information about your education and experience:

- | | |
|-------------------------------|--|
| 2. Age _____ | 5. Prior Experience (Recent one first) |
| 3. Years of Education _____ | 5.1 _____ years: _____ |
| 4. Major Field of Study _____ | 5.2 _____ years: _____ |
| | 5.3 _____ years: _____ |

Questionnaire C

(11 Pages)

Code Letter _____

On the following pages you will find a series of situations which could occur in everyday life. The central person in each situation is faced with a choice between two courses of action. We want your opinion as to how desirable it is for the person to follow one of the two courses of action. Read each situation carefully before giving your opinion.

Please do not discuss the material in this questionnaire with any of your friends, even if they have already taken part in the experiment.

Mr. A, an electrical engineer who is married and has one child, has been working for a large electronics corporation since graduating from college five years ago. He is assured of a lifetime job with a modest, though adequate, salary, and liberal pension benefits upon retirement. On the other hand, it is very unlikely that his salary will increase much before he retires. While attending a convention, Mr. A. is offered a job with a small, newly founded, company with a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership of the company survived the competition of the larger firms.

Imagine that you are advising Mr. A. In the list below are several probabilities or odds of the new company's proving financially sound. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE TO MAKE IT WORTHWHILE FOR MR. A. TO TAKE THE NEW JOB.

_____ Check here if you think Mr. A. should take the new job no matter what the probabilities are.

_____ The chances are 1 in 10 that the company will prove financially sound.

_____ The chances are 3 in 10 that the company will prove financially sound.

_____ The chances are 5 in 10 that the company will prove financially sound.

_____ The chances are 7 in 10 that the company will prove financially sound.

_____ The chances are 9 in 10 that the company will prove financially sound.

_____ Check here if you think Mr. A. should not take the new job, no matter what the probabilities are.

Mr. B, a 45-year old accountant, has recently been informed by his physician that he has developed a severe heart ailment. The disease would be sufficiently serious to force Mr. B to change many of his strongest life habits - reducing his work load, drastically changing his diet, giving up favorite leisure time pursuits. And, even with this reduced pace of living, there is a possibility that the disease will eventually incapacitate Mr. B. The physician suggests that a delicate medical operation could be attempted which, if successful, would completely relieve the heart condition. But its success could not be assured, and in fact, the operation might prove fatal.

Imagine that you are advising Mr. B. In the list below are several probabilities or odds that the operation will prove successful. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR THE OPERATION TO BE PERFORMED.

_____ Check here if you think Mr. B should not have the operation, no matter what the probabilities are.

_____ The chances are 9 in 10 that the operation will be a success.

_____ The chances are 7 in 10 that the operation will be a success.

_____ The chances are 5 in 10 that the operation will be a success.

_____ The chances are 3 in 10 that the operation will be a success.

_____ The chances are 1 in 10 that the operation will be a success.

_____ Check here if you think Mr. B should have the operation no matter what the probabilities are.

Mr. D is the captain of College X's football team. College X is playing its traditional rival, College Y, in the final game of the season. The game is in its final seconds, and Mr. D's team, College X, is behind in the score. College X has time to run one more play. Mr. D, the captain, must decide whether it would be better to settle for a tie score with a play which would be certain to work; or, on the other hand, should he try a more complicated and risky play which could bring victory if it succeeded, but defeat if not.

Imagine that you are advising Mr. D. In the list below are several probabilities or odds that the risky play will work. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR THE PLAY TO BE ATTEMPTED.

_____ Check here if you think Mr. D should not attempt the risky play, no matter what the probabilities are.

_____ The chances are 9 in 10 that the risky play will work.

_____ The chances are 7 in 10 that the risky play will work.

_____ The chances are 5 in 10 that the risky play will work.

_____ The chances are 3 in 10 that the risky play will work.

_____ The chances are 1 in 10 that the risky play will work.

_____ Check here if you think Mr. D should attempt the risky play, no matter what the probabilities are.

Mr. F is currently a college senior who is very eager to pursue study in chemistry leading to the Doctor of Philosophy degree. He has been accepted by both University X and University Y. University X has a world-wide reputation for excellence in chemistry. While a degree from University X would signify outstanding training in this field, the standards are so very rigorous that only a fraction of the degree candidates actually receive the degree. University Y, on the other hand, has a lesser reputation in chemistry, and consequently the degree has somewhat less prestige than the corresponding degree from University X. However, almost everyone admitted to University Y is awarded the Doctor of Philosophy degree.

Imagine that you are advising Mr. F. In the list below are several probabilities or odds that Mr. F would be awarded a degree at University X, the one with the greater prestige. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE TO MAKE IT WORTHWHILE FOR MR. F TO ENROLL IN UNIVERSITY X RATHER THAN UNIVERSITY Y.

_____ Check here if you think Mr. F should enroll in University X, no matter what the probabilities are.

_____ The chances are 1 in 10 that Mr. F would receive a degree from University X.

_____ The chances are 3 in 10 that Mr. F would receive a degree from University X.

_____ The chances are 5 in 10 that Mr. F would receive a degree from University X.

_____ The chances are 7 in 10 that Mr. F would receive a degree from University X.

_____ The chances are 9 in 10 that Mr. F would receive a degree from University X.

_____ Check here if you think Mr. F should not enroll in University X, no matter what the probabilities are.

Mr. G, a competent chess player, is participating in a national chess tournament. In an early match he draws the top-favored player in the tournament as his opponent. Mr. G has been given a fairly average ranking in view of his performance in previous tournaments. During the course of his play with the top-favored man, Mr. G notes the possibility of a deceptive though risky maneuver which might bring him a quick victory. At the same time, if the attempted maneuver should fail, Mr. G would be left in an exposed position and defeat would certainly follow. Also, Mr. G is playing quite well and might win at a later stage of the game if he decides not to take this particular risky move.

Imagine that you are advising Mr. G. In the list below are several probabilities or odds that Mr. G's deceptive play would succeed. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR THE RISKY PLAY IN QUESTION TO BE ATTEMPTED.

- Check here if you think Mr. G should attempt the risky play, no matter what the probabilities are.
- The chances are 1 in 10 that the play would succeed.
- The chances are 3 in 10 that the play would succeed.
- The chances are 5 in 10 that the play would succeed.
- The chances are 7 in 10 that the play would succeed.
- The chances are 9 in 10 that the play would succeed.
- Check here if you think Mr. G should not attempt the risky play, no matter what the probabilities are.

Mr. J is an American who was captured by the enemy in World War II and placed in a prisoner-of-war camp. Conditions in the camp are quite bad, with long hours of hard physical labor and a barely sufficient diet. In addition, prisoners are often subjected to torture-treatment sessions. After spending several months in this camp, Mr. J notes the possibility of escape by concealing himself in a supply truck that shuttles in and out of the camp. Of course, there is no guarantee that the escape would prove successful. Recapture by the enemy could well mean execution.

Imagine that you are advising Mr. J. In the list below are several probabilities or odds of a successful escape from the prisoner-of-war camp. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR AN ESCAPE TO BE ATTEMPTED.

_____ Check here if you think Mr. J should not try to escape no matter what the probabilities are.

_____ The chances are 9 in 10 that the escape would succeed.

_____ The chances are 7 in 10 that the escape would succeed.

_____ The chances are 5 in 10 that the escape would succeed.

_____ The chances are 3 in 10 that the escape would succeed.

_____ The chances are 1 in 10 that the escape would succeed.

_____ Check here if you think Mr. J should try to escape, no matter what the probabilities are.

Mr. L, a married 30-year-old physicist with two children, has been given a five-year appointment by a major university laboratory. As he contemplates the next five years, he realizes that he might work on a difficult long-term problem which, if a solution could be found, might resolve basic scientific issues in the field and bring high scientific honors. If no solution were found, however, Mr. L would have little to show for his five years in the laboratory, and this would make it extremely difficult for him to get a good job afterwards. On the other hand, he could, as most of his professional associates are doing, work on a series of short-term problems where solutions would be easier to find, but where the problems are of lesser scientific importance, although still interesting and challenging.

Imagine that you are advising Mr. L. In the list below are several probabilities or odds that a solution would be found to the difficult long-term problem that Mr. L has in mind. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE TO MAKE IT WORTHWHILE FOR MR. L TO WORK ON THE MORE DIFFICULT LONG-TERM PROBLEM.

_____ Check here if you think Mr. L should not choose the long-term problem, no matter what the probabilities are.

_____ The chances are 9 in 10 that Mr. L would solve the long-term problem.

_____ The chances are 7 in 10 that Mr. L would solve the long-term problem.

_____ The chances are 5 in 10 that Mr. L would solve the long-term problem.

_____ The chances are 3 in 10 that Mr. L would solve the long-term problem.

_____ The chances are 1 in 10 that Mr. L would solve the long-term problem.

_____ Check here if you think Mr. L should choose the long-term problem, no matter what the probabilities are.

Mr. M, a 45-year old dentist, with two children in high school, has recently been informed by his physician that he has a partially plugged artery (sclerosis) in his right arm. The condition causes continuous severe pain. He is able to carry on his work, but the quality of his work has been progressively deteriorating. The physician informs Mr. M. that there is a new surgical operation which, if successful, would completely relieve the condition. If the operation failed, his hand would be left useless, and it would be impossible for him to go on with his work as a dentist.

Imagine that you are advising Mr. M. In the list below are several probabilities or odds that the operation will prove successful. PLEASE CHECK THE LOWEST PROBABILITY THAT YOU WOULD CONSIDER ACCEPTABLE FOR THE OPERATION TO BE PERFORMED.

_____ Check here if you think Mr. M should have the operation, no matter what the probabilities are.

_____ The chances are 1 in 10 that the operation will be a success.

_____ The chances are 3 in 10 that the operation will be a success.

_____ The chances are 5 in 10 that the operation will be a success.

_____ The chances are 7 in 10 that the operation will be a success.

_____ The chances are 9 in 10 that the operation will be a success.

_____ Check here if you think Mr. M should not have the operation, no matter what the probabilities are.

Mr. O is planning a short pleasure trip to a resort over the Labor Day vacation. He does not have a car and is debating whether to make train or bus reservations for the trip. The bus makes a number of local stops on the way to the resort and, in addition, Mr. O does not enjoy riding buses. On the other hand, the train trip would be much quicker since the train trip would be much quicker since the train is a non-stop express to the resort area. However, a contract for railway workers soon expires and, as a result, a strike might possibly be called immediately before Labor Day, halting all train transportation. Mr. O cannot wait to see if the strike does or does not materialize since the bus reservations are already quite limited.

Imagine that you are advising Mr. O. In the list below are several probabilities or odds that the train strike will not be called. PLEASE CHECK THE LOWEST PROBABILITY OF NO STRIKE THAT YOU WOULD CONSIDER ACCEPTABLE FOR MR. O TO MAKE A TRAIN RESERVATION.

_____ Check here if you think Mr. O should make the train reservation, no matter what the probabilities are.

_____ The chances that the strike will not be called are 1 in 10.

_____ The chances that the strike will not be called are 3 in 10.

_____ The chances that the strike will not be called are 5 in 10.

_____ The chances that the strike will not be called are 7 in 10.

_____ The chances that the strike will not be called are 9 in 10.

_____ Check here if you think Mr. O should not make the train reservation, no matter what the probabilities are.

APPENDIX

CONFIDENCE INSTRUMENT

Of course, the advice you have given is the best that you can give, but how certain are you of your advice? Please review each situation briefly and indicate below how certain you are of your choice on each situation. Be sure to match up the proper letter with each situation as the alphabetic order below is different from the order in which you read the situation.

Make one check for each situation.

	very sure	quite sure	moderately sure	slightly sure	not sure at all
Mr. A - new job offer	_____	_____	_____	_____	_____
Mr. B - heart operation	_____	_____	_____	_____	_____
Mr. D - football game	_____	_____	_____	_____	_____
Mr. F - environment in university	_____	_____	_____	_____	_____
Mr. G - chess tournament	_____	_____	_____	_____	_____
Mr. J - prisoner-of-war	_____	_____	_____	_____	_____
Mr. L - lab physicist	_____	_____	_____	_____	_____
Mr. M - dentist	_____	_____	_____	_____	_____
Mr. O - bus/train trip	_____	_____	_____	_____	_____

A PARTICULAR PRODUCT PACKAGING DECISION
Structure, Objectives and Importance

130

Questionnaire D

(5 Pages)

Code Letter _____

All discussions with the product manager and the results from Questionnaire A have indicated that the function of a product manager consists of a large number of very complex sub-tasks. To measure the degree of complexity or structure we focus on one particular decision for a specific product. Considering the results from Questionnaire A we would like to concentrate on a recent product packaging decision which you made for the product you considered when answering the first questionnaire (A). It is extremely important that you do not switch from this specific task when you go through the questions. (It would be very helpful to us if we could get a copy of the proposal for this specific task.) To get a reference point, in most questions we also ask you to rate the pricing decision for your product.

1. In your opinion, to what degree did this specific packaging decision affect the success (profit contribution) of your product? To what degree is that the case for the pricing decision?

Its success has been. . .

	<u>Packaging Decision</u>	<u>Pricing Decision</u>
1. To an extreme extent affected	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent affected	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent affected	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent affected	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent affected	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent affected	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all affected	<input type="checkbox"/>	<input type="checkbox"/>

2. What percentage of direct production cost of your product was affected by this specific packaging decision?

_____ %

3. In the following question I give a list of pairs of the most common overall objectives for packaging. It might be that all of them, or only one, have been relevant to your specific task. Suppose you had eleven (11) chips and you wanted to divide them between the two objectives according to how important they were in this recent packaging decision you made for your product. Suppose the two objectives are called A and B. How might you divide the eleven chips between them? For example, if you think A was quite a bit more important than B, you might give A eight chips and B three chips. On the other hand, if you think B has been more important than A, but only a little, you might give B six chips and A five. If the objective has been not relevant at all give 0 chips. You can divide the eleven chips between the two alternatives any way you want.

	<u>Chips</u>		<u>Chips</u>
1. A. Product Protection	_____	B. Optimal Economy	_____
2. A. Consumer Convenience	_____	B. Promotional Function	_____
3. A. Optimal Economy	_____	B. Consumer Convenience	_____
4. A. Promotional Function	_____	B. Product Protection	_____
5. A. Optimal Economy	_____	B. Promotional Function	_____
6. A. Product Protection	_____	B. Consumer Convenience	_____

4. In this question we are interested in the extent to which you are constrained by company regulations or procedure requirements in making packaging and pricing decisions.

	<u>Packaging Decision</u>	<u>Pricing Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>

5. From your experience in this specific task, to what extent should a P.M. expect to encounter difficulties in reaching decisions on pricing and packaging recommendations.

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. Not at all	<input type="checkbox"/>	<input type="checkbox"/>
2. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
7. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>

6. Please check the alternative which most nearly describes the typical length of time it takes for you to get feedback on the success of meeting the main pricing and packaging objectives.

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. One Day	<input type="checkbox"/>	<input type="checkbox"/>
2. One Week	<input type="checkbox"/>	<input type="checkbox"/>
3. One Month	<input type="checkbox"/>	<input type="checkbox"/>
4. Six Months	<input type="checkbox"/>	<input type="checkbox"/>
5. One Year	<input type="checkbox"/>	<input type="checkbox"/>
6. Three Years or More	<input type="checkbox"/>	<input type="checkbox"/>

7. We would like you to check the statement which most nearly describes the extent to which decision on pricing and packaging are influenced by departments other than product management (R&D, Finance, Manufacturing, etc.).

The decision making task is influenced by other departments. . .

	<u>Packaging Decision</u>	<u>Pricing Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>

Organizational Setting for
Specific Decision Making TasksQuestionnaire E

(7 Pages)

Code Letter _____
(For Product Manager Only)NAME: _____
(For All Other Functions)

POSITION: _____

DIVISION: _____

Because of rapid changes in the industry, the state of technological development used by the industry, the vast differences in customer requirements, etc., there are often varying degrees of certainty concerning the optimal process for accomplishing different tasks. Consequently, there are also questions about the influence that managers from different departments and hierarchical levels should have in this process. The following series of questions is an effort to obtain actual data on these issues for certain tasks performed by product managers. The tasks are: 1) packaging-decisions and 2) pricing decisions for the brand(s) for which you are directly or indirectly responsible. (We know that product managers in your organization accomplish tasks by preparing a proposal or recommendation as a basis for the final decision. Since these proposals or recommendations can, from our point of view, be perceived as similar to actual decisions, we do not distinguish between proposal and decision in this questionnaire.)

This questionnaire will be answered by:

The President of the Division
The Marketing Manager
The Group Product Supervisor
The Product Manager

1. Below is a list of the major functional specializations involved in pricing decisions and packaging decisions. While adequate performance by each of these departments is certainly necessary for an optimal solution, a high level of competence in one or two of these departments may be more critical to the successful reaching of goals and objectives. We would like you to check the statement which most nearly describes the extent to which each functional area is the critical one for the success of the two tasks considered.

1.1 Market Research

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>

1.2 Manufacturing

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. Not at all	<input type="checkbox"/>	<input type="checkbox"/>
2. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
7. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>

1.3 Product Management

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>

1.4 Research and Development

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. Not at all	<input type="checkbox"/>	<input type="checkbox"/>
2. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
7. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>

1.5 Controller

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>

1.6 Sales Management

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. Not at all	<input type="checkbox"/>	<input type="checkbox"/>
2. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
7. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>

1.7 Advertising Agency

	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>

2. In contrast to the previous question which was primarily concerned with the relationships across departments, we would like you to answer the question stated below to get a better understanding of how the two tasks considered fit into your organization from a hierarchical perspective. Our question is:

How much influence do the following different hierarchical levels have in the functioning of your division

- 1) as a manager of products in general, and
- 2) specifically as a decision maker for packaging and pricing.

Please check the alternative which most nearly describes to what extent this is the case:

2.1 The President of the Division influences the . . .

	<u>Product Mgt.</u>	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.2 The Marketing Manager influence the. . .

	<u>Product Mgt.</u>	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. Not at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.3 The Group Product Supervisor influeces the. . .

	<u>Product Mgt.</u>	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Not at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.4 The Product Manager influences the. . .

	<u>Product Mgt.</u>	<u>Pricing Decision</u>	<u>Packaging Decision</u>
1. Not at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. To very little extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. To a small extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. To some extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. To a considerable extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. To a very great extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. To an extreme extent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MEDIA AND FORMAT OF INFORMATION SOURCES

Questionnaire F

(4 pages)

Code Letter _____

In this set of questions we are concerned about your preference for ways that information is gathered (media) and presented (format). It is important to notice that this questionnaire also relates to the one specific task considered before.

In each section you are asked for your preference on specific items, two at a time.

In giving your preference in this section, please include in your consideration all the stated alternatives, even if some of these have not been available to you up until now.

1. We would like to consider your preference for the following six (6) ways of having information presented to you:

- Conversation
- Report
- Presentation
- Group Discussion
- Own Observation
- Computer Printout

To do this, we have listed all possible pairs of these different ways of presenting information. Suppose you had eleven (11) chips and were asked to divide them between the two ways of being presented information, in pairs, according to your preference (independent of availability). Suppose the two are called A and B. How might you divide the eleven chips between them? For example, if you prefer A quite a bit more than B as a way of having information presented, you might give A eight chips and B three chips. On the other hand, if you thought B is better than A, but only a little, you might give B six chips and A five. You can divide the eleven chips between the two alternative ways of having information presented any way you want.

	<u>Chips</u>		<u>Chips</u>
1. A. Conversation	_____	B. Report	_____

(Continued on next page)

1. (Continued)

	<u>Chips</u>		<u>Chips</u>
2. A. Group Discussion	_____	B. Presentation	_____
3. A. Own Observation	_____	B. Computer Printout	_____
4. A. Conversation	_____	B. Group Discussion	_____
5. A. Report	_____	B. Own Observation	_____
6. A. Computer Printout	_____	B. Group Discussion	_____
7. A. Presentation	_____	B. Report	_____
8. A. Group Discussion	_____	B. Own Observation	_____
9. A. Report	_____	B. Computer Printout	_____
10. A. Conversation	_____	B. Own Observation	_____
11. A. Computer Printout	_____	B. Presentation	_____
12. A. Presentation	_____	B. Conversation	_____
13. A. Group Discussion	_____	B. Report	_____
14. A. Own Observation	_____	B. Presentation	_____
15. A. Conversation	_____	B. Computer Printout	_____

2. Here we would like to evaluate your preference for the following five (5) methods you use to gather information.

- Meeting
- Telephone Call
- Desk Work
- Traveling
- Computer Terminal

2. (Continued)

To do this, we have listed all possible pairs of these different situations, and again using the same procedure as specified for question 1. Please indicate your preference by allocating chips. (If you have no experience with one of the situations, you can skip these pairs.)

	<u>Chips</u>		<u>Chips</u>
1. A. Meeting	_____	B. Desk Work	_____
2. A. Telephone Call	_____	B. Traveling	_____
3. A. Computer Terminal	_____	B. Meeting	_____
4. A. Desk Work	_____	B. Telephone Call	_____
5. A. Telephone Call	_____	B. Computer Terminal	_____
6. A. Traveling	_____	B. Meeting	_____
7. A. Meeting	_____	B. Telephone Call	_____
8. A. Computer Terminal	_____	B. Desk Work	_____
9. A. Desk Work	_____	B. Traveling	_____
10. A. Traveling	_____	B. Computer Terminal	_____

SUPERVISORY STYLE AND ASSUMPTIONS
ABOUT PEOPLE

Questionnaire S

(5 pages)

Code Letter _____

The 2 sets of statements on the following pages, arranged in pairs, are drawn from the problem-area of inter-personal relations at your working place. The first part contains statements about supervisory style; the second part gives assumptions about people.

As we are interested in your personal opinion about the relative accuracy of the statements considering your own management style and underlying beliefs in people, please do not discuss the material in this questionnaire with any of your friends.

Questionnaire S

Page 2

Part 1:

Assign a weight from 0 to 10 to each statement to show the relative accuracy of the statements in each pair for describing your management style. The points assigned to each pair must total 10 in each case.

- | | | |
|----|--|-------|
| 1. | (a) Easy to talk to, even when under pressure. | _____ |
| | (b) You have to pick carefully the time when you can talk to him. | _____ |
| | | 10 |
| 2. | (a) May ask for ideas, but usually his mind is already made up. | _____ |
| | (b) Tries to see the merit in your ideas, even when they conflict with his. | _____ |
| | | 10 |
| 3. | (a) Tries to help his people understand company/family objectives. | _____ |
| | (b) Lets his people figure out for themselves how company/family objectives apply to them. | _____ |
| | | 10 |
| 4. | (a) Tries to give his people access to all the information they want. | _____ |
| | (b) Gives his people the information he thinks they need. | _____ |
| | | 10 |
| 5. | (a) Tends to set his people's job goals and tells them how to achieve them. | _____ |
| | (b) Involves his people in solving problems and setting job goals. | _____ |
| | | 10 |
| 6. | (a) Tends to discourage his people from trying new approaches. | _____ |
| | (b) Tries to encourage people to reach out in new directions. | _____ |
| | | 10 |
| 7. | (a) Takes your mistakes in stride, so long as you learn from them. | _____ |
| | (b) Allows little room for mistakes, especially those that might embarrass him. | _____ |
| | | 10 |

Questionnaire S

8. (a) Tries mainly to correct mistakes and figures out
how they can be prevented in the future. _____
(b) When something goes wrong, tries primarily to find
out who caused it. 10
9. (a) His expectations of subordinates tend to fluctuate. _____
(b) Consistent, high expectations of subordinates. 10
10. (a) Expects superior performance and gives credit when
you do it. _____
(b) Expects you to do an adequate job; doesn't say much
unless something goes wrong. 10

Questionnaire SPart 2:

Assign a weight from 0 to 10 to each statement to show the relative strength of your belief in the statements in each pair. The points assigned for each pair must in each case total 10.

- | | | |
|----|--|-------|
| 1. | (a) It's only human nature for people to do as little work as they can get away with. | _____ |
| | (b) When people avoid work, it's usually because their work has been deprived of its meaning. | _____ |
| | | 10 |
| 2. | (a) If employees have access to any information they want, they then tend to have better attitudes and behave more responsibly. | _____ |
| | (b) If employees have access to more information than they need to do their immediate tasks, they will usually misuse it. | _____ |
| | | 10 |
| 3. | (a) One problem in asking for the ideas of employees is that their perspective is too limited for their suggestions to be of much practical value. | _____ |
| | (b) Asking employees for their ideas broadens their perspective and results in the development of useful suggestions. | _____ |
| | | 10 |
| 4. | (a) If people don't use much imagination and ingenuity on the job, it's probably because relatively few people have much practical value. | _____ |
| | (b) Most people are imaginative and creative but may not show it because of limitations imposed by supervision and the job. | _____ |
| | | 10 |
| 5. | (a) People tend to raise their standards if they are accountable for their own behavior and for correcting their own mistakes. | _____ |
| | (b) People tend to lower their standards if they are not punished for their misbehavior and mistakes. | _____ |
| | | 10 |

Questionnaire S

Page 5

6. (a) It's better to give people both good news and bad news because most employees want the whole story, no matter how painful it is. _____
- (b) It's better to withhold unfavorable news about business because most employees really want to hear only the good news. _____
10
7. (a) Because a supervisor is entitled to more respect than those below him in the organization, it weakens his prestige to admit that a subordinate was right and he was wrong. _____
- (b) Because people at all levels are entitled to equal respect, a supervisor's prestige is increased when he supports this principle by admitting that a subordinate was right and he was wrong. _____
10
8. (a) If you give people enough money, they are less likely to be concerned with such intangibles as responsibility and recognition. _____
- (b) If you give people interesting and challenging work, they are less likely to complain about such things as pay and supplemental benefits. _____
10
9. (a) If people are allowed to set their own goals and standards of performance, they tend to set them higher than the boss would. _____
- (b) If people are allowed to set their own goals and standards of performance, they tend to set them lower than the boss would. _____
10
10. (a) The more knowledge and freedom a person has regarding his job, the more controls are needed to keep him in line. _____
- (b) The more knowledge and freedom a person has regarding his job, the fewer controls are needed to insure satisfactory job performance. _____
10

INFORMATION SOURCES IN A
SPECIFIC PACKAGING DECISION

151

Questionnaire G

(14 Pages)

(Outline for a Personal Interview)

Code Letter _____

In prior questions we narrowed our scope down to packaging decisions. But discussions with you and your colleagues have shown to us that though we concentrated on this one decision process, the task is still so divergent and complex over the total sample that we will have to go one step further. We will cover only one objective within the total task. It is the promotional function of the packaging that we will focus on now. There we would like to measure data for awareness, perception, preference and usage of "informational elements" and of information sources. To keep the process of memorizing what information you used in this defined setting, I will go with you step by step through a descriptive model for packaging decision making which is based on interviews within the sample.

(Question 8 is only relevant in the pre-test for getting attributes for information sources related to the content and the specific task.)

Code Letter _____

1. What "information elements" can you think of which are relevant in a packaging decision to cover the promotional function of the packaging?

As one of many possible methods for capturing the whole decision making process, we will go along a descriptive model for getting all "information elements" which could be used in each step. The "information element" is defined as the smallest from the decision maker identifiable unit of information perceived as relevant for the particular task. The element would lose its identity and meaning if segmented further. We need all "information elements" which you can relate to this specific task. It doesn't matter whether they are used or not, available to you or not, "demanded" or "given", formal or informal, and in what form or at what occasion they could be presented to you.

(For answers use form G1.)

2. Do you know whether or not and if yes, in which form, the "information elements" asked in 1. are available to you?

Definitions: The "information elements" are distinguished by the following characteristics: (For answers use form G1.)

-Available (1) vs. Not Available (0)

-"Demanded" (D) vs. "Given" (G)

2. (Continued)

- Formal (F), Informal (IF), Own Judgement (J)
- Forms: Report (R), Conversation (CN),
Group Discussion (GD), Presentation (P),
Computer Printout (CP), Own Observation (OO)
- Medium: Telephone Call (TC), Desk Work (DW),
Meeting (M), Traveling (TG), Computer Terminal (CT)

3. Please write all formal and informal information sources which could be used for gathering the "information elements" you gave in question 1 on the given cards. (For informal information sources, don't use names but label them by their functional area.)
4. Which of these information sources have you ever used for packaging decisions similar to the specific one considered?
5. Which of these information sources have you actually used for making the considered packaging decision?
6. Which of these information sources would you never use for making packaging decisions similar to the specific one considered?
7. Which of these information sources would you consider in the future for gathering "information elements" related to the specific task objective: promotional function of the packaging for your product?

8. The purpose of the next question is to try and get a picture of what are the important dimensions, aspects or characteristics of the information sources you have selected in question 4 to 7. You should perceive these attributes as useful distinctions. (The respondent is presented a series of triads, each consisting of three of the information sources named in the previous steps.) Please think about these three information sources. Using a short phrase or a word, could you describe in what important way two of the information sources are alike, but different from the third: I would like you to give me attributes which are important in choosing the information source related to the defined objective within the specific packaging decision. I would like to have those attributes expressed in the most positive and the most negative form.

Attributes for Information Sources		
	One Side of the Scale	Opposite Side of the Scale
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

8. Continued

Attributes for Intormation Sources	
One Side of the Scale	Opposite Side of the Scale
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

9. Here are the two piles of cards on which we have the information sources you have listed before. Suppose you had eleven (11) chips and you wanted to divide them between a pair of information sources weighted according to your preference. Suppose the two information sources were called A and B. How might you divide the eleven chips between them? For example, if you prefer information source A much more than source B, you might give source A eight chips and B three chips. You can divide the eleven chips between the two information sources any way you want. We are interested in how much you prefer one information source compared to another. (The scores should be written directly onto the cards.)

10. From previous interviews we selected attribute scales which were considered to be useful distinctions for choosing the information sources when gathering "information elements" necessary for the specific packaging decision. Would you please weigh them as they are used below in regard to their importance for you. Check one box along side each item. If an item is "not at all important" check box 1, box 4 is "between", box 5 or 6 indicates the factor is more on the important side, but you do not consider it to be extremely important.

<u>Attributes</u>	<u>Extremely Important</u>						<u>Not at All Important</u>
	7	6	5	4	3	2	1
Eg. Good vs Bad	'	'	'	'	'	'	X

10. (Continued)

<u>Attributes</u>	<u>Extremely Important</u>					<u>Not at All Important</u>	
	7	6	5	4	3	2	1
1. Useful vs Useless	'	'	'	'	'	'	'
2. Subordinate vs Superior	'	'	'	'	'	'	'
3. Risky vs Cautious	'	'	'	'	'	'	'
4. Responsive vs Unresponsive	'	'	'	'	'	'	'
5. Applicable vs Inapplicable	'	'	'	'	'	'	'
6. Efficient vs Inefficient	'	'	'	'	'	'	'
7. Experienced vs Inexperienced	'	'	'	'	'	'	'
8. Relevant vs Irrelevant	'	'	'	'	'	'	'
9. Current vs Outdated	'	'	'	'	'	'	'
10. Informative vs Uninformative	'	'	'	'	'	'	'
11. Accurate vs Inaccurate	'	'	'	'	'	'	'
12. Complete vs Incomplete	'	'	'	'	'	'	'
13. Reliable vs Unreliable	'	'	'	'	'	'	'
14. Theoretical vs Practical	'	'	'	'	'	'	'
15. Cooperative vs Uncooperative	'	'	'	'	'	'	'
16. Precise vs Sloppy	'	'	'	'	'	'	'
17. Qualitative vs Quantitative	'	'	'	'	'	'	'
18. Required vs Optional	'	'	'	'	'	'	'
19. Time Consuming vs Time Saving	'	'	'	'	'	'	'
20. Credible vs Questionable	'	'	'	'	'	'	'
21. Sophisticated vs Ordinary	'	'	'	'	'	'	'

10. (Continued)

<u>Attributes</u>	<u>Extremely Important</u>					<u>Not at all Important</u>	
	7	6	5	4	3	2	1
22. Tested vs Untested	!	!	!	!	!	!	!
23. Simple vs Complex	!	!	!	!	!	!	!
24. Logical vs Illogical	!	!	!	!	!	!	!
25. Standardized vs Individual	!	!	!	!	!	!	!

11. On a separate page we have listed 25 attribute scales. You are to judge the "ideal information source" which you would like to have for gathering the "information elements" considered as necessary in meeting the specific objective for the packaging of your product on each of the scales by placing a check-mark on the scale. If you feel that the ideal information source is very closely related to one end or the other of the scale, place your check-mark in the closest position to that end. For example:

reputable: ^{here} X : _____ : _____ : _____ : _____ : _____ : ^{or here} X : disreputable

If you feel that the ideal information source is quite closely related (but not extremely), place your check-mark in the second position from the end.

reputable: _____ : ^{here} X : _____ : _____ : _____ : ^{or here} X : _____ : disreputable

11. (Continued)

If you consider the ideal information source to be only slightly related to one end as opposed to the other end (but not really neutral), place your check-mark in the third space from the related end.

reputable: : : X : : X : : : disreputable

If the ideal information source seems to be neutral on the scale, or if the scale is completely irrelevant and unrelated to the ideal information source, then check the center space on the scale.

reputable: : : : X : : : : disreputable

-mark every scale

-work quickly; your first impression is what is wanted

-make each item a separate and independent judgement

-do not place check-marks between spaces.

11. (Continued)

- useful : ___ : ___ : ___ : ___ : ___ : ___ : ___ : useless
- subordinate : ___ : ___ : ___ : ___ : ___ : ___ : ___ : superior
- risky : ___ : ___ : ___ : ___ : ___ : ___ : ___ : cautious
- responsive : ___ : ___ : ___ : ___ : ___ : ___ : ___ : unresponsive
- inapplicable : ___ : ___ : ___ : ___ : ___ : ___ : ___ : applicable
- efficient : ___ : ___ : ___ : ___ : ___ : ___ : ___ : inefficient
- inexperienced : ___ : ___ : ___ : ___ : ___ : ___ : ___ : experienced
- relevant : ___ : ___ : ___ : ___ : ___ : ___ : ___ : irrelevant
- current : ___ : ___ : ___ : ___ : ___ : ___ : ___ : outdated
- uninformative : ___ : ___ : ___ : ___ : ___ : ___ : ___ : informative
- accurate : ___ : ___ : ___ : ___ : ___ : ___ : ___ : inaccurate
- incomplete : ___ : ___ : ___ : ___ : ___ : ___ : ___ : complete
- reliable : ___ : ___ : ___ : ___ : ___ : ___ : ___ : unreliable
- theoretical : ___ : ___ : ___ : ___ : ___ : ___ : ___ : practical
- uncooperative : ___ : ___ : ___ : ___ : ___ : ___ : ___ : cooperative
- precise : ___ : ___ : ___ : ___ : ___ : ___ : ___ : sloppy
- qualitative : ___ : ___ : ___ : ___ : ___ : ___ : ___ : quantitative
- required : ___ : ___ : ___ : ___ : ___ : ___ : ___ : optional
- time consuming : ___ : ___ : ___ : ___ : ___ : ___ : ___ : time saving
- questionable : ___ : ___ : ___ : ___ : ___ : ___ : ___ : credible
- sophisticated : ___ : ___ : ___ : ___ : ___ : ___ : ___ : ordinary
- tested : ___ : ___ : ___ : ___ : ___ : ___ : ___ : untested
- simple : ___ : ___ : ___ : ___ : ___ : ___ : ___ : complex
- illogical : ___ : ___ : ___ : ___ : ___ : ___ : ___ : logical
- standardized : ___ : ___ : ___ : ___ : ___ : ___ : ___ : individual

Information source: _____

12. Now, please rate this specific information source on each of the 25 attribute scales. (The information source is one of those which you listed before.) Please make your judgements as described in the outline before.

useless	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	useful
superior	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	subordinate
cautious	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	risky
unresponsive	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	responsive
applicable	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	inapplicable
inefficient	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	efficient
inexperienced	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	experienced
irrelevant	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	relevant
outdated	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	current
informative	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	uninformative
inaccurate	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	accurate
complete	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	incomplete
unreliable	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	reliable
practical	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	theoretical
cooperative	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	uncooperative
sloppy	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	precise
quantitative	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	qualitative
optional	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	required
time saving	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	___	:	time consuming

(Continued on next page)

12. (Continued)

credible : ___ : ___ : ___ : ___ : ___ : ___ : ___ : questionable
ordinary : ___ : ___ : ___ : ___ : ___ : ___ : ___ : sophisticated
untested : ___ : ___ : ___ : ___ : ___ : ___ : ___ : tested
complex : ___ : ___ : ___ : ___ : ___ : ___ : ___ : simple
logical : ___ : ___ : ___ : ___ : ___ : ___ : ___ : illogical
individual : ___ : ___ : ___ : ___ : ___ : ___ : ___ : standardized

Questionnaire G

FORM G1

Information Element	0	1	D	G	I	F	IF	OJ	R	CN	GD	P	CP	OO	TC	DW	M	TG	CT
1																			
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			

Code Letter _____

FORM G2

Descriptive model of the packaging decision making task (general model similar for the total sample):



This correspondence is a part of
research work being
done for a Master's thesis

Massachusetts Institute of Technology
Alfred P. Sloan School of Management
50 Memorial Drive
Cambridge, Massachusetts, 02139

In reply write to:

MEMORANDUM

TO: XYZ Co. Product Managers
FROM: Gerhard H. Schulmeyer
DATE: 19 March 1974
SUBJECT: Questionnaires B, C, S

Thank you very much for your help in completing our questionnaire 'A'. We have already begun analyzing the data, and are sure that the results will be quite interesting.

The goal of the attached set of questionnaires is to get information on your style -- that is, the way in which you approach problem solving situations. Since we feel that each manager has a highly individualized approach, we ask that you not discuss this with anyone else. All of your answers should reflect only your personal methods -- not those of colleagues or superiors.

Should you have a reservation about a specific question, please do not answer it. You can either call me (861-7412), or wait until I stop by to pick up the completed forms.

If I have not already made an appointment to see you, I will do so within the next few days.

Again, many thanks for all your help.



This correspondence is a part of
research work being
done for a Master's thesis

Massachusetts Institute of Technology
Alfred P. Sloan School of Management
50 Memorial Drive
Cambridge, Massachusetts, 02139

In reply write to:

2 May 1974

Mr. Glen S. Archibald
XYZ Company
Division 1

Dear Glen:

I wanted to write to thank you for the tremendous help you gave me in the preparation of my thesis. My project is now complete, and the data I gathered at XYZ provided me with a fantastic amount of raw material which I needed. I know how much time pressure you are under, and I am particularly grateful to you for your prompt attention to my many questionnaires.

We collected more than five hundred "information elements", which have all been processed by the computer now, and we have found the results quite enlightening.

In a few days I will be leaving the country on another project, but when I return I will get in touch with you to share with you the results of our study. You may be confident that your privacy and anonymity will be preserved in all discussions of this study, and that the specific data you provided will be available to you only.

Again, thank you very much for your help.

Sincerely yours,

Gerhard H. Schulmeyer

APPENDIX B

DATA INDEX

DATA INDEX

No.	Name	Code	Var. No.	Scale
1	Ongoing vs. New Product	CO		0,1
2	Division	CD		1,2,3,4,5
3	AC-CE	DLC	Var 101	-8 to +13
4	AE-RO	DLR	Var 102	-11 to +14
5	Supervisory Style	DMS	Var 103	Y=
6	Assumptions About People	DMA	Var 104	%
7	Own Judgement %	DMP	Var 105	%
8	Formal Information %	DMF		%
9	Informal Information %	DMI		%
10	Superior Involvement %	DME		%
11	Risk Taking Propensity	DMR	Var 106	\bar{X}
12	Years of Education	DEY		Years
13	Field of Education	DEF		0,1
14	Prior Experience	DEP		0,1
15	Month of PM-Experience	DEE	Var 107	Month
16	Month in Current Position	DEM	Var 108	Month
17	Importance of Division	DPD	Var 109	1 → 5
18	Importance of Product	DPP		1 → 5
19	Importance of Decisions	DPE		1 → 5
20	Sales \$ Responsibility	DPS		MM\$
21	Marketing Expense & Responsibility	DPM		MM\$
22	Rejection Rate	DPR	Var 110	%

DATA INDEX (Con't)

No.	Name	Code	Var. No.	Scale
23	Influence of R. Rate	DPI		+1 to -1
24	Age	DAG	Var 111	Years
25	Purchasing Cycle	TBR	Var 201	Weeks
26	Retail Price	TBE	Var 202	\$
27	Quantity	TBQ		MM
28	Importance Rate	TII	Var 203	1 - 7
29	Cost Effect %	TIC		%
30	Product Protection (Objective)	TOP	Var 204	0 → 33
31	Optimal Economy (Objective)	TOO	Var 205	0 → 33
32	Consumer Convenience (Objective)	TOC	Var 206	0 → 33
33	Promotional Function (Objective)	TOR	Var 207	0 → 33
34	Degree of Regulation	TTR	Var 208	7 → 1
35	Degree of Difficulty	TTD	Var 209	1 → 7
36	Feedback Time	TTF		1 → 7
37	Variance in Objectives	TTV		Var. 30 33
38	Market Research	TFR	Var 210	1 → 7
39	Manufacturing	TFM		1 → 7
40	Product Management	TFP	Var 211	1 → 7
41	Research & Development	TFD		1 → 7
42	Controller	TFC		1 → 7
43	Sales Management	TFS	Var 212	1 → 7

DATA INDEX (Con't)

No.	Name	Code	Var. No.	Scale
44	Advertising Agency	TFA	Var 213	1 → 7
45	President of the Division	THD		1 → 7
46	Marketing Manager	THM		1 → 7
47	Group Product Supervisor	THG	Var 214	1 → 7
48	Product Manager	THP		1 → 7
49	Conversation (Format)	IFC	Var 301	0 → 55
50	Report	IFR	Var 302	0 → 55
51	Presentation	IFP	Var 303	0 → 55
52	Group Discussion	IFG	Var 304	0 → 55
53	Own Observation	IFO	Var 305	0 → 55
54	Computer Printout	IFM	Var 306	0 → 55
55	Meeting (Medium)	IMM	Var 307	0 → 44
56	Telephone Call	IMT	Var 308	0 → 44
57	Desk Work	IMD	Var 309	0 → 44
58	Traveling	IMR	Var 310	0 → 44
59	Computer Terminal	IMC	Var 311	0 → 44
60	Source 1 Market Research	IP1	IP1	%
61	Source 2 Sales Mgt.	IP2	IP2	%
62	Source 3 Superior	IP3	IP3	%
63	Source 4 Colleague	IP4	IP4	%
64	Source 5 Packaging Decision	IP5	IP5	%
65	Source 6 Advertising Agency	IP6	IP6	%

DATA INDEX (Con't)

No.	Name	Code	Var. No.	Scale
66	Source 7 Research & Devel.	IP7		%
67	Source 8 Ext. Marketing	IP8		%
68	Source 9 NPCW*	IP9		%
69	Source 10 Trade	IP10		%
70	Source 11 Subrodinate	IP11		%
71	Source 12 Legal	IP12		%

*New Product Concept Workshop

APPENDIX C

DATA BASE AND CORRELATION MATRIXES

10 DECISION MAKER AND RELATED CONTEXT 1													
CODE	FCO	CD	DLC	DLR	DMS	DMA	DMP	DMF	DMI	DME	DMR	DEY	DEF
1A	1	1	-03	08	68	87	40	20	25	15	3.7	16	0
1R	0	2	00	02	74	71	40	40	10	10	4.7	16	0
1C	0	1	12	-01	77	79	20	40	20	20	4.0	18	1
1D	1	2	03	06	89	74	40	40	15	05	3.0	18	1
1F	0	2	14	08	87	96	25	50	20	05	5.9	18	1
1F	1	4	06	02	70	73	20	40	10	30	4.8	16	0
1G	1	3	-01	14	73	59	50	20	10	05	3.8	17	0
1H	1	1	13	13	81	84	50	20	10	20	3.4	18	1
1J	1	1	11	11	89	90	40	20	10	30	4.9	16	0
1K	0	1	02	11	78	76	35	20	05	10	4.8	18	1
1L	1	1	10	10	66	73	25	30	20	25	3.0	18	1
1N	0	3	13	04	76	75	30	25	25	20	4.7	18	1
1O	1	2	06	13	63	72	30	30	10	30	4.9	18	1
1P	1	4	03	-02	58	73	30	20	20	30	3.2	18	1
1Q	1	3	00	-11	66	75	15	50	05	30	5.1	18	1
1R	0	4	06	07	80	81	20	50	15	15	3.7	16	1
1S	1	2	14	06	67	62	15	50	30	05	3.8	18	1
1T	0	3	01	-09	76	71	20	40	20	20	5.0	18	1
1U	1	3	-07	03	55	51	15	35	40	20	2.8	18	1
1V	0	4	-06	01	72	86	35	15	10	40	4.0	16	0
1W	1	2	-08	08	75	82	45	35	10	10	4.9	16	1
1X	1	5	-04	07	56	86	15	30	25	30	5.8	18	0
1Y	0	2	06	13	79	75	60	20	10	10	3.9	18	1
1Z	1	1	07	03	70	68	20	50	20	10	4.4	18	1

10 DECISION MAKER AND RELATED CONTEXT 2											
CODE	DEP	DEF	DEM	DPD	DPP	DPE	DPS	DPM	DPR	DPI	DAG
1A	1	30	15	4	4	4	75	14	15	0	33
1R	1	60	36	4	4	5	50	15	00	1	31
1C	1	48	03	4	4	5	20	10	00	1	29
1D	1	24	02	4	3	4	23	11	20	1	25
1F	1	48	27	4	3	5	16	11	10	0	32
1F	1	24	13	3	2	3	06	01	50	1	25
1G	1	48	14	2	5	4	23	06	20	0	32
1H	0	24	12	4	2	5	70	10	00	1	31
1J	0	30	18	4	3	3	25	04	05	0	30
1K	1	60	15	4	3	4	10	03	20	0	29
1L	1	72	12	4	4	4	60	10	10	0	31
1N	0	42	26	2	4	4	02	01	50	-1	31
1O	1	30	04	4	5	4	100	30	10	0	26
1P	1	72	36	2	5	3	40	07	25	0	30
1Q	1	72	24	2	3	3	10	02	30	0	34
1R	1	120	04	2	3	4	06	01	10	0	32
1S	1	24	02	4	2	4	05	02	20	1	31
1T	0	120	04	2	3	4	04	02	20	1	37
1U	1	15	06	2	3	3	09	02	30	0	29
1V	0	07	07	3	4	4	07	01	45	-1	31
1W	0	30	03	3	3	3	15	05	20	-1	35
1X	1	48	05	2	4	3	20	10	20	1	35
1Y	1	24	07	4	2	5	40	01	15	0	27
1Z	0	36	07	4	2	3	16	02	10	0	29

20 TASK AND RELATED CONTEXT 1

CODE	TBR	TRE	TRO	TII	TIC	TOP	T00	TOC	TOR	TTR	TTD
2A	8	1.3	200.0	4	40	24	08	25	09	2	3
2B	6	.9	60.0	4	28	07	16	17	26	5	4
2C	2	2.9	7.0	5	04	21	17	16	12	2	5
2D	6	1.6	30.0	4	20	19	09	11	27	4	5
2E	9	1.6	12.0	7	15	11	09	24	22	4	5
2F	160	24.0	0.4	5	07	16	19	19	12	5	4
2G	12	0.5	92.0	5	07	20	06	20	20	5	5
2H	10	1.0	25.0	6	40	15	18	11	22	6	1
2J	18	1.5	25.0	7	12	24	07	23	12	2	1
2K	260	4.5	4.8	5	25	18	11	17	20	6	2
2L	8	1.2	10.0	4	10	15	18	16	17	5	4
2N	30	1.5	2.4	7	38	15	08	20	23	4	6
2O	12	1.2	112.0	4	01	23	12	18	13	5	6
2P	160	25.0	1.6	3	06	20	15	09	22	4	2
2Q	4	0.5	60.0	1	01	23	20	17	06	2	6
2R	160	26.0	0.4	3	06	23	20	07	16	4	2
2S	36	1.5	5.0	6	50	22	09	19	16	2	4
2T	18	0.7	12.0	5	40	19	16	19	12	5	4
2U	26	1.0	7.0	6	30	19	13	17	17	4	3
2V	150	25.0	0.4	4	05	16	17	12	21	4	3
2W	16	1.6	9.0	5	40	24	14	13	15	3	3
2X	4	1.3	14.0	5	33	22	12	21	11	5	3
2Y	2	0.6	80.0	6	20	18	12	14	22	4	4
2Z	8	2.9	2.0	4	25	21	16	18	11	3	5

20 TASK AND RELATED CONTEXT 2

CODE	TF	TTV	TFP	TFM	TFP	TFD	TFC	TFS	TFA	THD	THM	THG	THP
2A	4	9.3	4	5	6	6	4	5	3	6	4	5	6
2B	2	7.7	6	4	7	2	1	1	1	3	5	4	5
2C	5	3.7	6	5	6	4	4	4	5	4	5	5	6
2D	5	8.2	4	3	7	3	1	1	1	4	6	6	7
2E	3	7.6	5	6	7	5	1	1	1	4	5	3	7
2F	4	3.3	5	4	7	1	1	4	6	6	0	7	7
2G	4	7.0	2	5	5	2	1	3	4	4	6	0	5
2H	3	4.6	5	2	7	2	2	2	3	5	4	5	6
2J	3	8.3	3	4	6	3	3	5	5	4	4	5	6
2K	4	3.9	1	2	6	2	1	4	1	2	3	4	7
2L	3	1.3	2	4	6	3	2	3	2	3	4	4	5
2N	4	6.6	5	4	7	2	2	2	3	4	5	0	7
2O	4	5.1	4	3	6	2	1	3	1	6	6	6	6
2P	4	8.9	4	5	7	2	4	4	5	7	0	7	5
2Q	5	7.4	4	5	6	4	1	5	2	7	7	0	4
2R	4	6.9	2	5	6	2	1	5	4	4	0	4	6
2S	4	5.6	4	4	7	6	1	3	2	6	5	5	6
2T	3	3.3	5	3	6	4	5	4	3	4	4	0	5
2U	4	2.5	4	5	4	1	2	5	6	4	5	0	7
2V	4	3.7	3	6	7	1	1	3	7	4	0	6	7
2W	3	5.1	4	5	7	4	1	1	4	5	6	5	7
2X	1	5.8	4	5	5	4	4	4	4	4	7	7	5
2Y	2	4.4	5	3	7	3	3	5	4	7	7	7	7
2Z	5	4.2	5	2	7	4	2	3	4	3	5	5	7

40 INFORMATION SOURCE PREF. SCORES												
CODE	IP1	IP2	IP3	IP4	IPK	IP6	IP7	IP8	IP9	IP10	IP11	IP12
4A	19	19	16	14	26	06	00	00	00	00	00	00
4B	28	00	23	16	27	00	06	00	00	00	00	00
4C	22	13	16	14	18	17	00	00	00	00	00	00
4D	19	05	24	21	25	06	00	00	00	00	00	00
4E	15	10	08	10	19	12	14	00	12	00	00	00
4F	20	11	24	16	15	14	00	00	00	00	00	00
4G	20	19	17	10	17	17	00	00	00	00	00	00
4H	27	21	16	11	25	00	00	00	00	00	00	00
4J	17	21	17	17	00	13	00	15	00	00	00	00
4K	14	00	07	18	24	05	16	00	00	00	00	16
4L	20	18	21	18	11	12	00	00	00	00	00	00
4N	29	00	12	09	24	26	00	00	00	00	00	00
4O	16	00	17	16	21	14	00	00	00	00	16	00
4P	14	15	25	15	11	20	00	00	00	00	00	00
4Q	00	12	41	00	39	08	00	00	00	00	00	00
4R	13	13	15	08	15	18	00	00	00	18	00	00
4S	24	11	20	12	18	15	00	00	00	00	00	00
4T	17	06	13	10	20	21	13	00	00	00	00	00
4U	20	15	10	12	14	13	00	00	00	16	00	00
4V	15	08	22	12	20	23	00	00	00	00	00	00
4W	24	10	12	11	20	14	09	00	00	00	00	00
4X	26	07	18	10	26	13	00	00	00	00	00	00
4Y	18	00	12	22	11	00	09	16	00	00	00	00
4Z	22	12	23	16	10	17	00	00	00	00	00	00

PEARSON CORR. PREF.WITH DM AND TASK DATA

04/30/74

PAGE 2

FILE NONAME (CREATION DATE = 04/30/74)

VARIABLE	CASES	MEAN	STD DEV
IP1	16	19.3750	3.7925
IP2	16	12.0000	4.3970
IP3	16	17.7500	5.2726
IP4	16	13.0625	3.4731
IP5	16	17.8125	5.0757
IP6	16	14.8750	4.7311
VAR101	16	2.9375	7.3618
VAR102	16	4.4375	5.4890
VAR103	16	71.1875	9.8130
VAR104	16	75.0625	11.5670
VAR105	16	27.1875	11.3972
VAR106	16	4.1125	0.9521
VAR107	16	47.8750	33.4761
VAR108	16	10.0000	9.5778
VAR109	16	3.0625	0.9287
VAR110	16	20.3125	12.8412
VAR111	16	31.0000	3.2660
VAR201	16	48.9375	65.3233
VAR202	16	7.3812	10.5312
VAR203	16	4.6875	1.0782
VAR204	16	19.5000	3.5402
VAR205	16	13.6250	4.3340
VAR206	16	16.6250	5.1104
VAR207	16	16.2500	5.0531
VAR208	16	3.8125	1.1087
VAR209	16	3.7500	1.0646
VAR210	16	4.0625	1.1815
VAR211	16	6.2500	0.9309
VAR212	16	3.3125	1.3525
VAR213	16	3.8125	1.7595
VAR214	16	4.3125	2.4144

FILE NCNAME (CREATION DATE = C4/3C/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	IP1	IP2	IP3	IP4	IP5	IP6	VAR101	VAR102	VAR103	VAR104
IP1	1.0000 (0) S=0.001	-0.0680 (16) S=0.401	0.0250 (16) S=0.463	0.1095 (16) S=0.343	0.2255 (16) S=0.200	-0.3167 (16) S=0.116	-0.0851 (16) S=0.377	0.2478 (16) S=0.177	-0.3191 (16) S=0.114	-0.2316 (16) S=0.194
IP2	-0.0680 (16) S=0.401	1.0000 (0) S=0.001	-0.0431 (16) S=0.437	0.0175 (16) S=0.474	-0.4212 (16) S=0.052	-0.1250 (16) S=0.322	0.0474 (16) S=0.431	0.4309 (16) S=0.048	-0.3538 (16) S=0.089	-0.2844 (16) S=0.143
IP3	0.0250 (16) S=0.463	-0.0431 (16) S=0.437	1.0000 (0) S=0.001	0.6671 (16) S=0.002	-0.2111 (16) S=0.216	0.0869 (16) S=0.375	0.1370 (16) S=0.306	-0.0996 (16) S=0.357	-0.1652 (16) S=0.270	-0.1407 (16) S=0.302
IP4	0.1095 (16) S=0.343	0.0175 (16) S=0.474	0.6671 (16) S=0.002	1.0000 (0) S=0.001	-0.1317 (16) S=0.313	-0.4417 (16) S=0.043	0.2088 (16) S=0.219	-0.0330 (16) S=0.452	0.0622 (16) S=0.409	-0.1445 (16) S=0.297
IP5	0.2255 (16) S=0.200	-0.4212 (16) S=0.052	-0.2111 (16) S=0.216	-0.1317 (16) S=0.313	1.0000 (0) S=0.001	-0.4397 (16) S=0.044	-0.3429 (16) S=0.097	0.1204 (16) S=0.328	0.2551 (16) S=0.170	0.4658 (16) S=0.035
IP6	-0.3167 (16) S=0.116	-0.1250 (16) S=0.322	0.0869 (16) S=0.375	-0.4417 (16) S=0.043	-0.4397 (16) S=0.044	1.0000 (0) S=0.001	-0.0290 (16) S=0.458	-0.5240 (16) S=0.019	-0.1359 (16) S=0.308	-0.1229 (16) S=0.325
VAR101	-0.0851 (16) S=0.377	0.0474 (16) S=0.431	0.1370 (16) S=0.306	0.2088 (16) S=0.219	-0.3429 (16) S=0.097	-0.0290 (16) S=0.458	1.0000 (0) S=0.001	-0.0059 (16) S=0.491	0.3536 (16) S=0.090	0.0635 (16) S=0.408
VAR102	0.2478 (16) S=0.177	0.4309 (16) S=0.048	-0.0996 (16) S=0.357	-0.0330 (16) S=0.452	0.1204 (16) S=0.328	-0.5240 (16) S=0.019	-0.0059 (16) S=0.491	1.0000 (0) S=0.001	0.0813 (16) S=0.382	0.0594 (16) S=0.414
VAR103	-0.3191 (16) S=0.114	-0.3538 (16) S=0.089	-0.1652 (16) S=0.270	0.0622 (16) S=0.409	0.2551 (16) S=0.170	-0.1359 (16) S=0.308	0.3536 (16) S=0.090	0.0813 (16) S=0.382	1.0000 (0) S=0.001	0.3893 (16) S=0.068
VAR104	-0.2316 (16) S=0.194	-0.2844 (16) S=0.143	-0.1407 (16) S=0.302	-0.1445 (16) S=0.297	0.4658 (16) S=0.035	-0.1229 (16) S=0.325	0.0635 (16) S=0.408	0.0594 (16) S=0.414	0.3893 (16) S=0.068	1.0000 (0) S=0.001
VAR105	-0.1205 (16) S=0.328	0.2195 (16) S=0.207	0.0596 (16) S=0.413	0.1226 (16) S=0.325	0.2899 (16) S=0.138	-0.1862 (16) S=0.245	-0.4154 (16) S=0.055	0.4206 (16) S=0.052	0.3299 (16) S=0.106	0.1405 (16) S=0.302

(COEFFICIENT / (CASES) / SIGNIFICANCE)

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FILE Ncname (CREATION DATE = 04/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	IP1	IP2	IP3	IP4	IP5	IP6	VAR101	VAR102	VAR103	VAR104
VAR106	0.2072 (16) S=0.221	-0.4777 (16) S=0.031	-0.3433 (16) S=0.097	-0.4801 (16) S=0.030	0.3302 (16) S=0.106	0.1158 (16) S=0.335	0.0477 (16) S=0.430	-0.0725 (16) S=0.395	0.1831 (16) S=0.249	0.5526 (16) S=0.013
VAR107	-0.4255 (16) S=0.050	0.0213 (16) S=0.469	-0.1845 (16) S=0.247	-0.3394 (16) S=0.099	-0.2112 (16) S=0.216	0.3493 (16) S=0.092	0.2329 (16) S=0.193	-0.2696 (16) S=0.156	0.1513 (16) S=0.288	0.0887 (16) S=0.372
VAR108	-0.5010 (16) S=0.024	0.3831 (16) S=0.072	0.0884 (16) S=0.372	0.0501 (16) S=0.427	-0.3044 (16) S=0.126	0.0471 (16) S=0.431	0.1645 (16) S=0.271	0.0178 (16) S=0.474	-0.1511 (16) S=0.288	0.2064 (16) S=0.222
VAR109	0.2200 (16) S=0.206	0.0163 (16) S=0.476	0.1668 (16) S=0.269	0.5568 (16) S=0.013	0.0875 (16) S=0.374	-0.4836 (16) S=0.029	0.5467 (16) S=0.014	0.2035 (16) S=0.225	0.4010 (16) S=0.062	0.2665 (16) S=0.159
VAR110	-0.1189 (16) S=0.330	-0.2243 (16) S=0.202	0.3311 (16) S=0.105	0.0593 (16) S=0.414	0.0163 (16) S=0.476	0.2092 (16) S=0.218	-0.4476 (16) S=0.041	-0.2054 (16) S=0.223	-0.2782 (16) S=0.148	-0.1595 (16) S=0.278
VAR111	0.0646 (16) S=0.406	-0.0325 (16) S=0.452	-0.5459 (16) S=0.014	-0.7111 (16) S=0.001	0.2896 (16) S=0.138	0.2546 (16) S=0.171	-0.3050 (16) S=0.125	-0.0186 (16) S=0.473	-0.1248 (16) S=0.323	0.2771 (16) S=0.149
VAR201	-0.5925 (16) S=0.008	-0.0251 (16) S=0.463	0.3971 (16) S=0.064	-0.0881 (16) S=0.373	-0.3326 (16) S=0.104	0.4998 (16) S=0.024	-0.0466 (16) S=0.432	-0.2742 (16) S=0.152	-0.1089 (16) S=0.344	0.0826 (16) S=0.381
VAR202	-0.6082 (16) S=0.006	-0.0390 (16) S=0.443	0.4265 (16) S=0.050	-0.0486 (16) S=0.429	-0.3127 (16) S=0.119	0.4949 (16) S=0.026	-0.0304 (16) S=0.456	-0.2697 (16) S=0.156	-0.0540 (16) S=0.421	0.1824 (16) S=0.249
VAR203	0.3566 (16) S=0.088	-0.1687 (16) S=0.266	-0.6010 (16) S=0.007	-0.3149 (16) S=0.117	0.1835 (16) S=0.248	-0.1781 (16) S=0.255	0.1738 (16) S=0.260	0.1035 (16) S=0.351	0.0689 (16) S=0.400	-0.0839 (16) S=0.379
VAR204	0.3923 (16) S=0.066	0.1285 (16) S=0.318	0.0214 (16) S=0.469	-0.1762 (16) S=0.257	0.2319 (16) S=0.194	-0.0517 (16) S=0.425	-0.3492 (16) S=0.092	0.0497 (16) S=0.427	-0.2428 (16) S=0.182	-0.1604 (16) S=0.277
VAR205	-0.2383 (16) S=0.187	-0.1189 (16) S=0.330	0.2144 (16) S=0.213	0.0548 (16) S=0.420	-0.5065 (16) S=0.023	0.5048 (16) S=0.023	0.0974 (16) S=0.360	-0.4831 (16) S=0.029	-0.0876 (16) S=0.374	0.0829 (16) S=0.380

(COEFFICIENT / (CASES) / SIGNIFICANCE)

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FILE NCNAME (CREATION DATE = 04/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	IP1	IP2	IP3	IP4	IP5	IP6	VAR101	VAR102	VAR103	VAR104
VAR206	0.3861 (16) S=0.07C	C.1661 (16) S=0.269	-0.3427 (16) S=0.097	-0.1488 (16) S=0.291	0.3132 (16) S=0.119	-0.3715 (16) S=0.078	0.1057 (16) S=0.348	0.1940 (16) S=0.236	-0.1088 (16) S=0.344	0.0805 (16) S=0.383
VAR207	-0.4609 (16) S=0.036	-0.1560 (16) S=0.282	0.1476 (16) S=C.293	0.2270 (16) S=0.199	-0.0448 (16) S=0.435	-0.0209 (16) S=0.469	0.0542 (16) S=0.421	0.1833 (16) S=0.248	0.3553 (16) S=0.088	-0.0402 (16) S=0.441
VAR208	-0.2358 (16) S=0.190	-0.1504 (16) S=0.289	0.0827 (16) S=C.380	-0.0660 (16) S=0.404	-0.1370 (16) S=0.306	0.1859 (16) S=0.245	-0.1976 (16) S=0.232	0.0034 (16) S=0.495	-0.0885 (16) S=0.372	-0.0978 (16) S=0.359
VAR209	0.2890 (16) S=0.139	-0.1139 (16) S=0.337	0.0119 (16) S=C.483	0.3291 (16) S=0.107	0.0278 (16) S=0.459	-0.2184 (16) S=0.208	0.4827 (16) S=0.029	0.1226 (16) S=0.325	C.5025 (16) S=0.024	-0.1286 (16) S=0.318
VAR210	0.1134 (16) S=0.338	-C.4620 (16) S=0.036	-0.1900 (16) S=0.241	0.0152 (16) S=0.478	0.1244 (16) S=0.323	0.0611 (16) S=0.411	-0.2458 (16) S=0.179	-0.6933 (16) S=0.001	0.1829 (16) S=0.249	0.1509 (16) S=0.288
VAR211	-0.1983 (16) S=0.231	-C.3583 (16) S=0.086	0.4346 (16) S=0.046	0.3454 (16) S=0.095	-0.0600 (16) S=0.413	0.0832 (16) S=0.380	0.3915 (16) S=0.067	-0.1663 (16) S=0.269	0.4689 (16) S=0.033	0.4132 (16) S=0.056
VAR212	-0.1283 (16) S=0.318	C.4036 (16) S=0.061	0.0117 (16) S=0.483	-0.2315 (16) S=0.194	-0.1657 (16) S=0.270	0.2149 (16) S=0.212	-0.1519 (16) S=0.287	-0.2980 (16) S=0.131	-0.5774 (16) S=0.010	-0.2528 (16) S=0.172
VAR213	-0.0687 (16) S=0.400	0.1034 (16) S=0.352	0.1527 (16) S=C.286	-0.1834 (16) S=0.248	-0.2655 (16) S=0.160	0.5576 (16) S=0.012	-0.4796 (16) S=0.030	-0.3430 (16) S=0.097	-0.4766 (16) S=0.031	-0.1795 (16) S=0.253
VAR214	0.1392 (16) S=0.304	-0.2512 (16) S=0.174	0.6455 (16) S=0.003	0.4189 (16) S=0.053	0.1411 (16) S=0.301	-0.1306 (16) S=0.315	0.1137 (16) S=0.338	-0.0160 (16) S=0.477	-0.0786 (16) S=0.386	0.4743 (16) S=0.032

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FILE NCNAME (CREATION DATE = C4/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR105	VAR106	VAR107	VAR108	VAR109	VAR110	VAR111	VAR201	VAR202	VAR203
IP1	-0.1205 (16) S=C.328	C.2072 (16) S=0.221	-0.4255 (16) S=C.050	-0.5010 (16) S=0.024	0.2200 (16) S=0.206	-C.1189 (16) S=0.330	0.0646 (16) S=0.406	-0.5925 (16) S=0.008	-0.6082 (16) S=0.006	0.3566 (16) S=0.088
IP2	0.2195 (16) S=0.207	-C.4777 (16) S=0.031	0.0213 (16) S=0.469	0.3831 (16) S=0.072	C.0163 (16) S=0.476	-0.2243 (16) S=0.202	-0.0325 (16) S=0.452	-0.0251 (16) S=0.463	-0.0390 (16) S=0.443	-0.1687 (16) S=0.266
IP3	0.0596 (16) S=0.413	-0.3433 (16) S=0.097	-0.1845 (16) S=0.247	0.C884 (16) S=0.372	0.1668 (16) S=0.269	0.3311 (16) S=0.105	-0.5459 (16) S=0.014	0.3971 (16) S=0.064	0.4265 (16) S=0.050	-0.6010 (16) S=0.007
IP4	0.1226 (16) S=0.325	-C.4801 (16) S=0.030	-0.3394 (16) S=0.099	0.0501 (16) S=C.427	0.5568 (16) S=0.013	0.0593 (16) S=0.414	-0.7111 (16) S=0.001	-0.0881 (16) S=0.373	-0.0486 (16) S=0.429	-0.3149 (16) S=0.117
IP5	0.2899 (16) S=0.138	C.3302 (16) S=0.106	-0.2112 (16) S=0.216	-0.3044 (16) S=0.126	0.0875 (16) S=0.374	0.0163 (16) S=0.476	0.2896 (16) S=0.138	-0.3326 (16) S=0.104	-0.3127 (16) S=0.119	0.1835 (16) S=0.248
IP6	-0.1862 (16) S=0.245	C.1158 (16) S=0.335	0.3493 (16) S=0.092	0.C471 (16) S=0.431	-0.4836 (16) S=0.029	0.2092 (16) S=0.218	0.2546 (16) S=0.171	0.4998 (16) S=0.024	0.4949 (16) S=0.026	-0.1781 (16) S=0.255
VAR101	-0.4154 (16) S=0.055	0.0477 (16) S=0.430	0.2329 (16) S=0.193	0.1645 (16) S=0.271	0.5467 (16) S=0.014	-0.4476 (16) S=0.041	-0.3050 (16) S=0.125	-0.0466 (16) S=0.432	-0.0304 (16) S=0.456	0.1738 (16) S=0.260
VAR102	0.4206 (16) S=0.052	-0.0725 (16) S=0.395	-0.2696 (16) S=C.156	0.C178 (16) S=0.474	0.2035 (16) S=0.225	-C.2054 (16) S=0.223	-0.0186 (16) S=0.473	-0.2742 (16) S=0.152	-0.2697 (16) S=0.156	0.1035 (16) S=0.351
VAR103	0.3299 (16) S=0.106	0.1831 (16) S=0.249	0.1513 (16) S=0.288	-0.1511 (16) S=0.288	0.4010 (16) S=0.062	-0.2782 (16) S=0.148	-0.1248 (16) S=0.323	-0.1089 (16) S=0.344	-0.0540 (16) S=0.421	0.0689 (16) S=0.400
VAR104	0.1405 (16) S=0.302	0.5526 (16) S=0.013	0.0887 (16) S=0.372	0.2064 (16) S=0.222	0.2665 (16) S=0.159	-0.1595 (16) S=0.278	0.2771 (16) S=0.149	0.0826 (16) S=0.381	0.1824 (16) S=0.249	-0.0839 (16) S=0.379
VAR105	1.C000 (0) S=0.001	-C.1716 (16) S=0.263	-0.2177 (16) S=0.209	0.1710 (16) S=0.263	0.0492 (16) S=0.428	0.0633 (16) S=0.408	0.0627 (16) S=0.409	-0.0880 (16) S=0.373	-0.0643 (16) S=0.406	-0.2390 (16) S=0.186

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FILE NCNAME (CREATION DATE = C4/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR105	VAR106	VAR107	VAR108	VAR109	VAR110	VAR111	VAR201	VAR202	VAR203
VAR106	-0.1716 (16) S=0.263	1.0000 (0) S=0.001	0.0858 (16) S=0.376	0.0241 (16) S=C.465	-0.0462 (16) S=0.433	-0.0058 (16) S=0.492	0.4545 (16) S=0.038	-0.1430 (16) S=0.299	-0.1197 (16) S=0.329	0.4586 (16) S=0.037
VAR107	-0.2177 (16) S=0.209	0.0858 (16) S=0.376	1.0000 (0) S=0.001	0.0929 (16) S=0.366	-0.4050 (16) S=0.060	-0.4194 (16) S=0.053	0.4573 (16) S=0.037	0.1391 (16) S=0.304	0.1457 (16) S=0.295	-0.3299 (16) S=0.106
VAR108	0.1710 (16) S=0.263	0.0241 (16) S=0.465	0.0929 (16) S=0.366	1.0000 (0) S=0.001	-0.0824 (16) S=0.381	0.0650 (16) S=0.405	-0.0575 (16) S=0.416	0.2951 (16) S=0.134	0.2970 (16) S=0.132	-0.0710 (16) S=0.397
VAR109	0.0492 (16) S=C.428	-0.0462 (16) S=0.433	-0.4050 (16) S=0.060	-0.0824 (16) S=0.381	1.0000 (0) S=0.001	-0.3372 (16) S=0.101	-0.3517 (16) S=0.091	-0.3867 (16) S=0.069	-0.3332 (16) S=0.104	0.1540 (16) S=0.285
VAR110	0.0633 (16) S=C.408	-0.0058 (16) S=0.492	-0.4194 (16) S=0.053	0.0650 (16) S=0.405	-0.3372 (16) S=0.101	1.0000 (0) S=0.001	-0.2782 (16) S=0.148	0.5909 (16) S=0.008	0.5233 (16) S=0.019	0.0075 (16) S=0.489
VAR111	0.0627 (16) S=0.409	0.4545 (16) S=0.038	0.4573 (16) S=0.037	-0.0575 (16) S=0.416	-0.3517 (16) S=0.091	-0.2782 (16) S=0.148	1.0000 (0) S=0.001	-0.2634 (16) S=0.162	-0.2824 (16) S=0.145	0.1136 (16) S=0.338
VAR201	-0.0880 (16) S=0.373	-0.1430 (16) S=0.299	0.1391 (16) S=0.304	0.2951 (16) S=0.134	-0.3867 (16) S=0.069	0.5909 (16) S=0.008	-0.2634 (16) S=0.162	1.0000 (0) S=0.001	0.9858 (16) S=0.001	-0.4688 (16) S=0.033
VAR202	-0.0643 (16) S=0.406	-0.1197 (16) S=0.329	0.1457 (16) S=0.295	0.2970 (16) S=0.132	-0.3332 (16) S=0.104	0.5233 (16) S=0.019	-0.2824 (16) S=0.145	0.9858 (16) S=0.001	1.0000 (0) S=0.001	-0.5366 (16) S=0.016
VAR203	-0.2390 (16) S=0.186	0.4586 (16) S=0.037	-0.3299 (16) S=0.106	-0.0710 (16) S=0.397	0.1540 (16) S=0.285	0.0075 (16) S=0.489	0.1136 (16) S=0.338	-0.4688 (16) S=0.033	-0.5366 (16) S=0.016	1.0000 (0) S=0.001
VAR204	0.1198 (16) S=0.329	-0.1602 (16) S=0.277	0.0765 (16) S=0.389	-0.4070 (16) S=0.059	-0.1926 (16) S=0.237	-0.2456 (16) S=0.180	0.2768 (16) S=0.150	-0.1019 (16) S=0.354	-0.1067 (16) S=0.347	-0.3580 (16) S=0.087
VAR205	-0.4412 (16) S=C.044	-0.0263 (16) S=0.462	0.3719 (16) S=0.078	-0.1413 (16) S=0.301	-0.1594 (16) S=0.278	0.1460 (16) S=0.295	-0.1130 (16) S=0.338	0.5465 (16) S=0.014	0.5873 (16) S=0.008	-0.4262 (16) S=0.050

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FILE NCNAME (CREATION DATE = 04/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR105	VAR106	VAR107	VAR108	VAR109	VAR110	VAR111	VAR201	VAR202	VAR203
VAR206	-0.0937 (16) S=0.365	0.4737 (16) S=0.032	-0.2431 (16) S=0.182	0.1008 (16) S=0.355	0.2722 (16) S=0.154	-0.0946 (16) S=0.364	0.2397 (16) S=0.186	-0.5654 (16) S=0.011	-0.5911 (16) S=0.008	0.6428 (16) S=0.004
VAR207	0.3892 (16) S=0.068	-0.3443 (16) S=0.096	-0.1267 (16) S=0.320	0.3044 (16) S=0.126	-0.0036 (16) S=0.495	0.1426 (16) S=0.299	-0.3393 (16) S=0.099	0.1746 (16) S=0.259	0.1688 (16) S=0.266	-0.0337 (16) S=0.451
VAR208	-0.0181 (16) S=0.473	0.1540 (16) S=0.285	0.3334 (16) S=0.103	0.1758 (16) S=0.257	-0.5706 (16) S=0.010	0.3790 (16) S=0.074	0.0552 (16) S=0.420	0.2143 (16) S=0.213	0.1938 (16) S=0.236	-0.0523 (16) S=0.424
VAR209	0.0756 (16) S=0.390	0.1677 (16) S=0.267	-0.2217 (16) S=0.205	-0.1504 (16) S=0.289	0.5563 (16) S=0.013	-0.2865 (16) S=0.141	-0.3068 (16) S=0.124	-0.5860 (16) S=0.009	-0.5541 (16) S=0.013	0.4501 (16) S=0.040
VAR210	-0.4317 (16) S=0.048	0.4556 (16) S=0.038	0.0491 (16) S=0.428	-0.0707 (16) S=0.397	0.1785 (16) S=0.254	-0.1112 (16) S=0.341	-0.0346 (16) S=0.449	-0.1572 (16) S=0.281	-0.1397 (16) S=0.303	0.3304 (16) S=0.106
VAR211	0.1649 (16) S=0.271	0.1767 (16) S=0.256	-0.1123 (16) S=0.339	0.1944 (16) S=0.235	0.5205 (16) S=0.019	0.1046 (16) S=0.350	-0.2412 (16) S=0.184	0.3083 (16) S=0.123	0.3391 (16) S=0.099	-0.1826 (16) S=0.249
VAR212	-0.4366 (16) S=0.045	-0.2569 (16) S=0.168	0.2925 (16) S=0.136	-0.0154 (16) S=0.477	-0.4412 (16) S=0.044	0.0900 (16) S=0.370	0.0755 (16) S=0.391	0.3209 (16) S=0.113	0.2995 (16) S=0.130	-0.2943 (16) S=0.134
VAR213	-0.0945 (16) S=0.364	-0.0900 (16) S=0.370	-0.2211 (16) S=0.205	-0.0237 (16) S=0.465	-0.4819 (16) S=0.029	0.5781 (16) S=0.009	-0.1392 (16) S=0.304	0.5637 (16) S=0.011	0.5686 (16) S=0.011	-0.2087 (16) S=0.219
VAR214	-0.0386 (16) S=0.444	0.0968 (16) S=0.361	-0.2948 (16) S=0.134	0.1067 (16) S=0.347	0.3178 (16) S=0.115	0.1902 (16) S=0.240	-0.3382 (16) S=0.100	0.3704 (16) S=0.079	0.4379 (16) S=0.045	-0.3954 (16) S=0.065

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FILE Ncname (CREATION DATE = C4/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR204	VAR205	VAR206	VAR207	VAR208	VAR209	VAR210	VAR211	VAR212	VAR213
IP1	0.3923 (16) S=0.066	-0.2383 (16) S=0.187	0.3861 (16) S=0.070	-0.4609 (16) S=0.036	-0.2358 (16) S=0.190	0.2890 (16) S=0.139	0.1134 (16) S=0.338	-0.1983 (16) S=0.231	-0.1283 (16) S=0.318	-0.0687 (16) S=0.400
IP2	0.1285 (16) S=C.318	-0.1185 (16) S=0.330	0.1661 (16) S=0.269	-0.1560 (16) S=0.282	-0.1504 (16) S=0.289	-0.1139 (16) S=0.337	-0.4620 (16) S=0.036	-0.3583 (16) S=0.086	0.4036 (16) S=0.061	0.1034 (16) S=0.352
IP3	0.0214 (16) S=C.469	0.2144 (16) S=0.213	-0.3427 (16) S=C.097	0.1476 (16) S=0.293	0.0827 (16) S=0.380	0.0119 (16) S=0.483	-0.1900 (16) S=0.241	0.4346 (16) S=0.046	0.0117 (16) S=0.483	0.1527 (16) S=0.286
IP4	-0.1762 (16) S=0.257	0.0548 (16) S=0.420	-0.1488 (16) S=C.291	0.2270 (16) S=0.199	-0.0660 (16) S=0.404	0.3291 (16) S=0.107	0.0152 (16) S=0.478	0.3454 (16) S=0.095	-0.2315 (16) S=0.194	-0.1834 (16) S=0.248
IP5	0.2319 (16) S=0.194	-0.5065 (16) S=0.023	0.3132 (16) S=C.119	-0.0448 (16) S=0.435	-0.1370 (16) S=0.306	0.0278 (16) S=0.459	0.1244 (16) S=0.323	-0.0600 (16) S=0.413	-0.1657 (16) S=0.270	-0.2655 (16) S=0.160
IP6	-0.0517 (16) S=0.425	0.5048 (16) S=0.023	-0.3715 (16) S=0.078	-0.0209 (16) S=0.469	0.1859 (16) S=0.245	-0.2184 (16) S=0.208	0.0611 (16) S=0.411	0.0832 (16) S=0.380	0.2149 (16) S=0.212	0.5576 (16) S=0.012
VAR101	-0.3492 (16) S=0.092	0.0974 (16) S=0.360	0.1057 (16) S=0.348	0.0542 (16) S=0.421	-0.1976 (16) S=0.232	0.4827 (16) S=0.029	0.2458 (16) S=0.179	0.3915 (16) S=0.067	-0.1519 (16) S=0.287	-0.4796 (16) S=0.030
VAR102	0.0497 (16) S=0.427	-0.4831 (16) S=0.029	0.1940 (16) S=0.236	0.1833 (16) S=0.248	0.0034 (16) S=0.495	0.1226 (16) S=0.325	-0.6933 (16) S=0.001	-0.1663 (16) S=0.269	-0.2980 (16) S=0.131	-0.3430 (16) S=0.097
VAR103	-0.2428 (16) S=0.182	-0.0876 (16) S=0.374	-0.1088 (16) S=0.344	0.3553 (16) S=0.088	-0.0885 (16) S=0.372	0.5025 (16) S=0.024	0.1829 (16) S=0.249	0.4689 (16) S=0.033	-0.5774 (16) S=0.010	-0.4766 (16) S=0.031
VAR104	-0.1604 (16) S=0.277	0.0829 (16) S=0.380	0.0805 (16) S=0.383	-0.0402 (16) S=0.441	-0.0978 (16) S=0.359	-0.1286 (16) S=0.318	0.1509 (16) S=0.288	0.4132 (16) S=0.056	-0.2528 (16) S=0.172	-0.1795 (16) S=0.253
VAR105	0.1198 (16) S=C.329	-0.4412 (16) S=0.044	-0.0937 (16) S=C.365	0.3892 (16) S=0.068	-0.0181 (16) S=0.473	0.0756 (16) S=0.390	-0.4317 (16) S=0.048	0.1649 (16) S=0.271	-0.4366 (16) S=0.045	-0.0945 (16) S=0.364

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FILE Ncname (CREATION DATE = 04/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR204	VAR205	VAR206	VAR207	VAR208	VAR209	VAR210	VAR211	VAR212	VAR213
VAR106	-0.1602 (16) S=0.277	-0.0263 (16) S=0.462	0.4737 (16) S=0.032	-0.3443 (16) S=0.096	0.1540 (16) S=0.285	0.1677 (16) S=0.267	0.4556 (16) S=0.038	0.1767 (16) S=0.256	-0.2569 (16) S=0.168	-0.0900 (16) S=0.370
VAR107	0.0765 (16) S=0.389	0.3719 (16) S=0.078	-0.2431 (16) S=0.182	-0.1267 (16) S=0.320	0.3334 (16) S=0.103	-0.2217 (16) S=0.205	0.0491 (16) S=0.428	-0.1123 (16) S=0.339	0.2925 (16) S=0.136	-0.2211 (16) S=0.205
VAR108	-0.4070 (16) S=0.059	-0.1413 (16) S=0.301	0.1008 (16) S=0.355	0.3044 (16) S=0.126	0.1758 (16) S=0.257	-0.1504 (16) S=0.289	-0.0707 (16) S=0.397	0.1944 (16) S=0.235	-0.0154 (16) S=0.477	-0.0237 (16) S=0.465
VAR109	-0.1926 (16) S=0.237	-0.1594 (16) S=0.278	0.2722 (16) S=0.154	-0.0036 (16) S=0.495	-0.5706 (16) S=0.010	0.5563 (16) S=0.013	0.1785 (16) S=0.254	0.5205 (16) S=0.019	-0.4412 (16) S=0.044	-0.4819 (16) S=0.029
VAR110	-0.2456 (16) S=0.180	0.1460 (16) S=0.295	-0.0946 (16) S=0.364	0.1426 (16) S=0.299	0.3790 (16) S=0.074	-0.2865 (16) S=0.141	-0.1112 (16) S=0.341	0.1046 (16) S=0.350	0.0900 (16) S=0.370	0.5781 (16) S=0.009
VAR111	0.2768 (16) S=0.150	-0.1130 (16) S=0.338	0.2397 (16) S=0.186	-0.3393 (16) S=0.099	0.0552 (16) S=0.420	-0.3068 (16) S=0.124	-0.0346 (16) S=0.449	-0.2412 (16) S=0.184	0.0755 (16) S=0.391	-0.1392 (16) S=0.304
VAR201	-0.1019 (16) S=0.354	0.5465 (16) S=0.014	-0.5654 (16) S=0.011	0.1746 (16) S=0.259	0.2143 (16) S=0.213	-0.5860 (16) S=0.009	-0.1572 (16) S=0.281	0.3083 (16) S=0.123	0.3209 (16) S=0.113	0.5637 (16) S=0.011
VAR202	-0.1067 (16) S=0.347	0.5873 (16) S=0.008	-0.5911 (16) S=0.008	0.1688 (16) S=0.266	0.1938 (16) S=0.236	-0.5541 (16) S=0.013	-0.1397 (16) S=0.303	0.3391 (16) S=0.099	0.2995 (16) S=0.130	0.5686 (16) S=0.011
VAR203	-0.3580 (16) S=0.087	-0.4262 (16) S=0.050	0.6428 (16) S=0.004	-0.0337 (16) S=0.451	-0.0523 (16) S=0.424	0.4501 (16) S=0.040	0.3304 (16) S=0.106	-0.1826 (16) S=0.249	-0.2943 (16) S=0.134	-0.2087 (16) S=0.219
VAR204	1.0000 (0) S=0.001	-0.0912 (16) S=0.368	-0.1732 (16) S=0.261	-0.4472 (16) S=0.041	-0.4841 (16) S=0.029	-0.3715 (16) S=0.078	-0.0080 (16) S=0.488	-0.1821 (16) S=0.250	0.3411 (16) S=0.098	0.1124 (16) S=0.339
VAR205	-0.0912 (16) S=0.368	1.0000 (0) S=0.001	-0.5155 (16) S=0.020	-0.2725 (16) S=0.154	0.1925 (16) S=0.238	-0.3251 (16) S=0.110	0.1481 (16) S=0.292	0.1570 (16) S=0.281	0.3284 (16) S=0.107	0.4885 (16) S=0.027

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FILE NNAME (CREATION DATE = C4/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR204	VAR205	VAR206	VAR207	VAR208	VAR209	VAR210	VAR211	VAR212	VAR213
VAR206	-0.1732 (16) S=0.261	-0.5155 (16) S=0.020	1.0000 (0) S=0.001	-0.4479 (16) S=0.041	-0.0721 (16) S=0.395	0.4350 (16) S=0.046	0.2581 (16) S=0.167	-0.2312 (16) S=0.194	0.0277 (16) S=0.459	-0.2678 (16) S=0.158
VAR207	-0.4472 (16) S=0.041	-0.2725 (16) S=0.154	-0.4479 (16) S=0.041	1.0000 (0) S=0.001	0.2469 (16) S=0.178	0.0991 (16) S=0.357	-0.3825 (16) S=0.072	0.2268 (16) S=0.199	-0.5487 (16) S=0.014	-0.2268 (16) S=0.199
VAR208	-0.4841 (16) S=0.029	0.1925 (16) S=0.238	-0.0721 (16) S=0.395	0.2469 (16) S=0.178	1.0000 (0) S=0.001	-0.0424 (16) S=0.438	-0.2958 (16) S=0.133	-0.2745 (16) S=0.152	-0.0028 (16) S=0.496	0.0833 (16) S=0.380
VAR209	-0.3715 (16) S=0.078	-0.3251 (16) S=0.110	0.4350 (16) S=0.046	0.0991 (16) S=0.357	-0.0424 (16) S=0.438	1.0000 (0) S=0.001	0.2783 (16) S=0.148	0.1345 (16) S=0.310	-0.4978 (16) S=0.025	-0.4182 (16) S=0.053
VAR210	-0.0080 (16) S=0.488	0.1481 (16) S=0.292	0.2581 (16) S=0.167	-0.3825 (16) S=0.072	-0.2958 (16) S=0.133	0.2783 (16) S=0.148	1.0000 (0) S=0.001	0.2273 (16) S=0.199	0.0287 (16) S=0.458	0.0060 (16) S=0.491
VAR211	-0.1821 (16) S=0.250	0.1570 (16) S=0.281	-0.2312 (16) S=0.194	0.2268 (16) S=0.199	-0.2745 (16) S=0.152	0.1345 (16) S=0.310	0.2273 (16) S=0.199	1.0000 (0) S=0.001	-0.5427 (16) S=0.015	-0.2137 (16) S=0.213
VAR212	0.3411 (16) S=0.098	0.3284 (16) S=0.107	0.0277 (16) S=0.459	-0.5487 (16) S=0.014	-0.0028 (16) S=0.496	-0.4978 (16) S=0.025	0.0287 (16) S=0.458	-0.5427 (16) S=0.015	1.0000 (0) S=0.001	0.5025 (16) S=0.024
VAR213	0.1124 (16) S=0.339	0.4885 (16) S=0.027	-0.2678 (16) S=0.158	-0.2268 (16) S=0.199	0.0833 (16) S=0.380	-0.4182 (16) S=0.053	0.0060 (16) S=0.491	-0.2137 (16) S=0.213	0.5025 (16) S=0.024	1.0000 (0) S=0.001
VAR214	0.1209 (16) S=0.328	0.2349 (16) S=0.191	-0.2546 (16) S=0.171	-0.0287 (16) S=0.458	-0.2257 (16) S=0.200	-0.2270 (16) S=0.199	0.0628 (16) S=0.409	0.5858 (16) S=0.009	-0.1136 (16) S=0.338	0.1089 (16) S=0.344

(COEFFICIENT / (CASES) / SIGNIFICANCE)

(A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

50 WEIGHTS OF SEMANTIC SCALES

CODE	1W	2W	3W	4W	5W	6W	7W	8W	9W	10W	11W	12W	13W	14W	15W	16W	17W	18W	19W	20W	21W	22W	23W	24W	25W
5A	6	5	5	6	7	5	4	4	6	5	6	6	7	7	5	6	4	7	5	4	2	3	5	7	3
5B	6	3	5	6	7	6	6	7	6	7	5	5	4	1	6	6	3	2	6	4	3	5	1	3	3
5C	7	3	4	6	7	6	7	7	4	5	6	5	7	5	6	4	6	5	6	7	4	4	5	6	5
5D	7	5	1	3	4	3	5	7	4	7	7	6	7	1	3	4	2	3	3	5	4	5	2	5	2
5E	7	5	7	7	7	7	7	7	7	7	7	7	7	4	7	7	4	1	7	7	7	7	7	7	7
5F	7	4	5	5	7	6	5	5	5	6	7	6	7	2	5	5	2	3	4	5	2	3	2	4	2
5G	6	4	5	6	6	6	6	6	6	6	6	6	6	4	6	6	6	5	5	6	6	5	4	6	5
5H	7	2	5	7	6	7	7	6	6	5	7	7	7	2	5	6	3	2	4	7	3	4	3	5	4
5J	7	4	5	7	7	7	7	7	7	7	7	7	7	5	6	7	7	5	7	5	5	6	6	7	5
5K	7	2	1	7	7	7	5	7	3	7	5	4	5	1	7	6	1	3	7	7	1	1	1	5	2
5L	7	6	6	5	7	7	5	6	5	5	7	7	7	6	5	7	7	5	6	7	5	5	5	5	5
5M	7	2	1	1	7	5	7	7	4	6	7	6	7	5	6	7	7	1	3	7	5	6	2	7	3
5O	6	7	6	3	5	3	7	4	4	6	6	6	6	6	3	7	7	3	5	3	3	5	3	6	6
5P	7	4	5	4	6	2	6	5	5	3	6	4	5	3	3	3	4	3	3	5	4	5	3	4	3
5Q	7	2	6	6	6	2	4	6	7	6	6	4	6	4	5	4	2	4	6	5	2	3	3	5	2
5R	6	3	5	6	6	4	6	6	7	7	5	4	5	6	3	5	6	3	4	5	5	5	3	6	6
5S	7	1	4	6	7	6	5	7	6	5	7	6	6	3	5	5	1	3	7	6	2	6	1	7	2
5T	7	5	7	7	7	7	7	7	7	7	7	7	7	5	4	7	4	3	2	2	6	4	2	6	4
5U	7	3	5	5	7	7	3	5	7	3	7	5	7	5	4	6	5	6	5	5	4	5	4	6	3
5V	7	7	5	7	7	6	7	7	7	7	7	6	7	6	5	7	5	3	6	7	4	5	7	7	6
5W	7	3	5	5	7	6	6	7	6	7	7	5	7	5	4	6	3	5	7	5	6	5	3	6	4
5X	7	1	7	7	7	7	2	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
5Y	7	5	3	5	6	6	6	6	5	7	7	6	6	5	2	5	2	2	6	6	2	2	2	6	3
5Z	6	3	7	6	5	4	5	4	5	6	6	6	6	3	3	2	5	2	4	5	3	2	2	4	1

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

60 IDEAL INFORMATION SOURCE

CODE	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	25
6A	1	4	4	2	1	2	3	1	2	3	1	2	2	5	4	3	4	2	4	2	4	4	4	2	4
6B	1	4	6	1	1	2	2	1	3	1	2	2	2	4	2	2	4	4	6	2	4	2	4	4	4
6C	2	4	5	2	1	3	2	1	4	4	1	3	2	6	2	4	4	5	5	1	4	3	4	2	5
6D	1	4	4	2	1	3	3	1	2	1	1	2	1	4	3	1	5	6	5	1	1	2	4	2	4
6E	1	4	4	1	1	1	1	1	1	1	1	1	1	4	1	1	4	6	6	1	2	3	3	1	6
6F	1	5	4	2	2	3	4	2	4	1	1	3	2	5	2	2	4	4	4	3	4	4	4	2	4
6G	1	3	2	1	2	2	1	1	2	1	1	2	2	3	2	2	3	4	3	2	2	2	2	3	4
6H	1	4	4	2	1	2	2	1	1	2	1	1	1	7	2	1	4	4	7	1	4	2	4	1	4
6J	1	3	3	3	1	1	1	1	1	1	1	1	1	3	2	1	2	2	5	1	2	2	2	1	2
6K	1	4	4	1	1	1	4	2	4	1	2	1	1	6	1	1	2	4	7	1	5	4	2	1	4
6L	1	4	6	1	1	1	1	1	1	1	1	1	1	7	1	1	7	4	7	1	1	1	4	1	4
6N	1	5	3	2	2	2	1	3	3	3	1	2	1	5	3	3	4	4	4	1	4	3	4	1	5
6O	2	5	4	3	2	3	1	1	3	2	1	1	1	3	2	1	3	5	5	2	2	2	3	1	5
6P	3	4	4	3	2	4	2	2	2	3	3	3	2	4	4	3	4	4	3	2	3	3	4	3	4
6Q	1	4	6	2	2	1	2	2	2	2	1	1	2	6	2	2	4	4	6	4	4	4	2	2	4
6R	2	4	3	2	1	3	2	2	1	2	2	2	2	4	3	4	6	2	6	2	5	2	3	2	6
6S	1	4	6	2	1	2	2	1	2	1	1	1	1	4	1	1	4	4	7	1	4	1	4	1	4
6T	1	6	2	1	1	1	2	1	2	1	1	1	1	3	4	1	4	2	6	2	2	4	4	2	5
6U	1	5	4	3	1	3	3	1	1	3	1	3	3	6	3	4	5	6	7	2	5	2	4	2	4
6V	1	7	5	1	1	1	2	1	1	2	1	1	2	6	1	1	7	6	7	1	7	1	2	1	7
6W	1	5	5	2	1	3	3	2	2	1	1	3	1	5	3	2	5	3	6	2	3	2	5	3	4
6X	1	7	7	1	1	1	1	1	1	1	1	1	1	7	1	1	1	1	7	1	1	1	1	1	7
6Y	1	6	2	2	1	3	4	1	3	1	2	3	2	6	2	2	4	4	6	2	5	2	4	2	4
6Z	1	7	6	2	3	2	2	3	2	2	1	3	2	4	3	4	4	5	4	5	4	5	4	3	6

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

70 SOURCE1 MRD INT.

CODE	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	
7A	1	3	4	6	6	3	3	2	4	4	3	2	2	2	4	6	5	7	4	4	4	5	3	3	4	2
7B	1	1	4	6	1	1	1	1	1	3	1	1	1	3	1	2	4	4	6	2	3	2	2	2	2	4
7C	1	1	3	4	1	1	4	1	1	3	2	2	3	1	4	1	2	6	5	4	1	2	2	4	2	3
7D	1	2	2	5	2	2	3	3	2	1	2	2	2	3	5	1	2	6	4	6	2	4	2	4	2	3
7E	1	3	4	6	3	3	4	3	3	2	1	2	2	2	3	2	3	6	4	4	2	3	2	6	2	6
7F	1	1	4	4	2	1	4	3	2	2	2	2	3	2	4	3	3	6	3	6	2	3	2	3	3	2
7G	1	3	2	6	3	3	3	4	3	2	2	2	2	2	6	2	2	5	3	3	2	3	3	2	2	2
7H	1	1	4	6	1	1	1	1	1	1	1	1	1	7	1	1	7	1	1	1	4	1	7	1	7	2
7J	1	2	3	3	3	2	3	2	2	2	2	2	2	3	3	2	2	2	2	3	2	2	2	2	2	2
7K	1	4	2	7	6	2	6	6	3	4	4	1	7	3	7	7	6	7	7	1	6	6	1	1	2	1
7L	1	3	5	5	3	3	3	3	3	3	3	3	3	5	3	3	7	4	5	3	3	2	4	3	3	3
7N	1	1	3	6	1	2	2	2	2	2	2	2	2	5	2	2	6	1	5	2	3	2	4	2	2	3
7O	1	5	2	5	4	3	3	3	3	3	3	3	3	5	3	2	6	6	2	3	2	1	7	2	3	
7P	1	3	2	5	5	5	3	5	3	5	3	2	2	2	3	3	3	6	5	3	2	2	2	5	2	3
7Q	1	NO DATA																								
7R	1	4	5	7	5	4	4	4	4	4	4	4	4	4	5	3	5	6	2	4	5	3	6	5	6	
7S	1	2	2	6	2	2	2	2	2	3	3	2	3	2	4	3	3	6	4	4	2	2	3	4	2	4
7T	1	2	4	4	2	2	2	2	2	2	2	2	2	3	2	2	3	2	3	2	2	2	2	4	2	2
7U	1	2	4	4	3	2	4	4	2	1	1	1	3	1	4	4	4	6	6	2	4	4	4	4	2	4
7V	1	2	6	7	3	3	2	6	3	5	2	2	3	2	6	2	1	3	6	6	2	3	2	1	3	3
7W	1	1	4	3	3	1	3	3	2	4	2	3	5	2	6	3	2	4	3	6	2	5	2	5	2	4
7X	1	2	4	6	3	3	3	3	3	3	2	3	3	3	2	2	3	3	2	4	2	3	3	6	3	3
7Y	1	1	6	4	2	1	1	1	2	2	2	2	2	6	2	2	4	1	1	2	2	2	4	2	6	1
7Z	1	1	4	6	2	1	2	3	2	1	1	1	2	1	6	1	2	6	3	5	2	1	2	6	1	1

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

RO	SOURCE?	SALES																									
CODE	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25		
RA	2	2	4	3	2	2	3	2	3	1	2	4	4	3	5	2	5	4	4	3	4	6	5	2	3	4	
RB	2	NO DATA																									
RC	2	4	4	3	3	3	4	2	3	3	4	4	5	3	6	3	5	4	5	5	2	5	4	4	3	6	
RD	2	5	1	7	4	4	6	5	3	2	5	5	6	6	5	3	5	1	7	1	6	6	7	2	5	2	
RE	2	2	4	6	2	3	4	3	3	3	3	3	3	3	6	2	3	5	4	4	3	4	2	4	4	4	
RF	2	2	3	2	3	3	4	3	4	3	3	4	6	4	3	3	6	3	5	3	6	7	6	2	4	4	
RG	2	2	4	5	4	4	4	3	3	2	3	3	4	3	6	3	4	2	3	3	4	4	6	2	3	2	
RH	2	1	4	4	2	1	2	1	1	1	1	1	2	1	4	2	2	4	4	6	2	2	2	4	1	4	
RI	2	1	1	3	1	1	1	1	1	1	1	1	1	1	3	1	1	3	1	2	2	3	1	2	1	3	
RJ	2	NO DATA																									
RK	2	3	5	4	3	4	4	4	3	4	3	3	3	3	6	4	4	4	4	4	3	3	4	4	3	3	
RL	2	NO DATA																									
RM	2	NO DATA																									
RN	2	2	6	2	2	6	2	1	1	2	6	5	6	5	3	5	4	2	5	5	5	5	2	3	4		
RO	2	1	5	4	3	2	3	1	2	1	3	3	2	4	2	3	2	2	4	1	4	2	2	2	2	2	
RP	2	3	5	3	6	2	6	4	4	5	3	5	5	6	6	7	5	1	4	2	6	7	6	1	5	2	
RQ	2	2	4	4	3	3	4	1	2	2	3	1	3	3	7	2	4	2	4	4	2	5	5	3	3	5	
RS	2	3	5	5	4	5	3	3	3	3	3	3	3	4	3	3	3	4	5	5	5	5	4	5	5		
RT	2	2	4	4	3	2	4	2	2	1	1	3	3	2	4	2	4	2	4	5	2	3	3	3	1	4	
RU	2	1	6	6	2	2	1	3	2	2	2	3	1	2	6	2	1	2	6	6	2	6	6	2	1	7	
RV	2	3	4	3	4	4	3	2	2	2	3	4	5	5	5	2	4	2	2	5	4	5	5	4	4	6	
RW	2	NO DATA																									
RX	2	NO DATA																									
RY	2	1	4	2	1	1	1	1	2	1	1	2	3	1	7	1	2	3	6	3	1	1	2	2	2	7	
RZ	2	NO DATA																									

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

90 SOURCE3 SUPERIORS

CODE	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25
9A	3	4	6	6	5	4	5	3	4	2	3	3	4	4	3	4	5	4	4	3	3	4	5	3	5
9R	3	3	5	2	1	3	2	1	1	2	1	3	3	1	3	1	2	4	4	6	2	2	4	2	4
9C	3	3	7	7	2	3	3	3	3	5	3	4	6	3	5	3	5	3	1	1	3	5	3	3	4
9D	3	2	7	5	2	2	5	1	1	1	1	3	3	2	7	2	2	2	1	2	1	2	2	6	3
9F	3	3	5	4	4	3	3	2	3	4	5	5	4	4	4	4	4	3	4	2	4	4	5	4	4
9F	3	2	6	4	2	2	3	1	2	2	2	2	3	2	4	2	2	4	2	4	1	2	3	4	2
9G	3	3	6	5	3	3	3	3	3	2	2	3	4	3	5	3	3	2	2	5	3	3	3	2	2
9H	3	1	7	2	1	1	1	1	1	1	1	1	1	7	1	1	7	4	7	1	1	4	4	1	7
9J	3	2	2	3	2	2	2	2	2	2	2	2	2	3	1	2	2	3	3	2	2	2	2	2	2
9K	3	6	5	1	5	6	3	5	6	3	2	6	6	3	2	1	3	1	7	1	6	6	4	3	5
9L	3	2	7	6	2	2	2	2	2	2	2	2	2	5	2	2	5	2	5	2	2	2	3	2	5
9N	3	3	7	7	5	3	6	3	3	3	3	3	5	4	5	4	4	3	4	1	5	5	5	3	5
9O	3	2	7	4	3	2	3	1	2	3	1	3	3	2	6	2	2	2	2	2	2	1	6	2	5
9P	3	2	3	4	3	4	4	2	2	2	4	3	3	2	6	3	4	3	4	3	3	3	4	4	6
9Q	3	1	2	5	2	2	3	1	2	2	3	2	2	5	1	2	1	1	3	2	3	2	2	2	3
9R	3	2	6	5	2	2	4	3	3	2	3	3	4	3	2	2	4	1	1	6	2	2	4	2	6
9S	3	1	7	6	2	2	4	1	2	2	2	4	4	1	6	1	2	3	3	4	1	3	4	4	6
9T	3	4	4	4	3	4	3	3	3	4	4	4	3	4	4	4	4	3	3	4	4	4	5	4	6
9U	3	2	4	4	2	2	2	1	1	1	2	3	3	2	5	4	4	4	4	4	1	4	2	4	4
9V	3	2	6	2	2	3	5	1	4	2	1	5	4	4	6	2	5	7	2	3	4	2	5	6	6
9W	3	6	6	6	7	4	7	3	3	3	6	6	7	5	4	7	2	6	1	1	4	4	6	5	6
9X	3	3	4	5	4	3	5	2	4	4	3	4	3	4	3	4	4	2	3	4	5	3	5	5	6
9Y	3	2	6	3	1	2	2	1	1	2	3	2	2	6	1	3	3	1	5	2	2	2	3	2	6
9Z	3	3	1	1	2	1	2	1	3	2	1	1	3	1	7	2	1	2	4	4	2	1	6	1	7

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

100 SOURCE4 COLLEAGUES

CODE	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	
10A	4	3	4	4	3	2	3	3	2	2	3	4	5	4	5	3	4	4	4	4	3	5	4	3	3	4
10B	4	2	4	2	1	1	1	1	1	2	1	4	4	1	4	1	4	4	4	1	1	4	2	2	2	7
10C	4	1	4	3	2	2	2	3	1	2	2	3	5	4	4	1	5	3	7	5	2	3	4	5	2	7
10D	4	2	1	5	2	4	4	5	3	1	2	3	4	4	5	1	3	3	4	3	3	4	4	6	3	6
10E	4	3	5	4	3	3	3	3	3	2	3	3	4	4	4	3	4	2	4	4	4	4	4	4	4	4
10F	4	1	4	3	3	2	3	3	2	2	3	3	2	3	4	3	3	4	6	4	3	2	3	4	3	7
10G	4	3	4	3	3	3	4	3	3	3	3	4	4	3	6	2	3	2	5	4	3	3	6	3	2	6
10H	4	1	4	4	4	1	4	1	1	1	1	1	1	1	7	1	1	4	4	7	1	1	4	4	1	4
10J	4	2	6	2	1	2	2	2	2	1	1	2	2	2	3	2	3	3	3	3	2	3	1	2	2	2
10K	4	2	4	5	2	2	4	4	2	2	3	3	4	3	6	1	5	3	7	6	4	4	3	2	2	6
10L	4	2	6	5	3	3	3	3	3	3	2	2	2	2	6	3	3	5	3	6	3	3	4	3	5	5
10N	4	1	4	3	3	3	4	3	3	2	2	2	5	3	6	2	3	4	4	5	2	3	3	4	3	5
10O	4	3	4	3	3	3	3	2	3	3	2	3	3	2	5	3	3	5	6	3	3	3	3	5	3	5
10P	4	2	4	4	3	3	3	2	2	3	3	3	5	3	5	2	4	1	6	6	2	3	3	2	3	5
10Q	4	4	4	3	5	4	3	5	4	3	5	1	3	2	4	1	1	2	7	3	2	2	1	2	2	2
10R	4	5	5	3	5	3	6	6	5	5	6	5	7	5	4	4	4	1	7	2	6	6	6	2	4	2
10S	4	3	4	4	2	3	3	2	2	2	2	3	4	3	6	2	4	2	7	4	1	4	4	3	3	6
10T	4	4	4	4	4	4	4	4	4	4	3	3	4	4	3	4	4	4	4	4	3	3	3	4	3	4
10U	4	3	3	3	2	1	2	1	2	1	2	1	2	2	5	4	2	2	2	6	3	4	4	4	3	6
10V	4	1	6	6	2	3	2	2	1	3	2	2	1	2	2	3	3	6	6	3	3	5	5	2	2	6
10W	4	3	4	3	2	3	5	4	3	3	3	4	4	4	6	3	4	2	6	4	4	4	5	3	2	6
10X	4	3	4	4	3	3	3	3	3	2	3	2	2	2	4	2	3	2	2	4	3	2	4	4	3	5
10Y	4	2	7	4	1	1	3	3	2	2	2	2	2	2	6	1	2	2	1	5	2	2	3	2	2	6
10Z	4	2	6	2	1	2	2	3	1	3	2	1	3	1	4	2	3	6	4	2	2	4	6	1	3	3

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

110 SOURCE5 PACK.DESIGN

CODE	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25	
11A	5	2	3	5	3	2	2	2	3	2	2	2	3	5	2	1	6	2	4	4	5	2	4	2	5	
11B	5	2	4	4	2	3	1	1	1	1	4	4	2	3	6	2	2	4	4	7	4	2	4	3	4	6
11C	5	1	2	4	2	2	2	2	2	4	5	2	2	2	5	1	2	4	6	2	3	5	2	3	4	1
11D	5	1	2	5	2	1	3	1	1	1	1	3	3	3	6	2	3	1	1	2	2	3	2	3	3	4
11E	5	1	5	4	2	2	3	2	2	1	3	3	3	4	2	2	2	4	3	2	2	2	4	4	3	6
11F	5	2	1	3	2	2	3	1	2	2	2	3	1	2	2	2	2	1	2	3	2	2	6	4	2	7
11G	5	2	4	3	4	3	3	3	3	3	3	3	3	4	6	3	3	2	2	2	3	3	4	3	3	3
11H	5	1	4	6	1	1	1	1	1	1	3	1	1	1	6	1	1	4	4	1	1	2	4	4	1	4
11J	5	NO	DATA																							
11K	5	1	6	2	1	2	2	2	1	1	3	3	2	2	4	1	2	1	7	6	1	2	5	2	2	7
11L	5	3	4	4	4	3	4	3	3	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
11N	5	1	5	4	2	2	2	5	3	3	3	2	2	2	5	3	3	4	3	3	5	4	5	4	4	4
11O	5	2	2	1	3	2	5	1	2	2	3	3	3	3	1	3	4	1	1	2	2	3	2	5	5	6
11P	5	3	2	2	2	3	6	3	3	3	3	6	6	5	4	3	5	1	7	5	3	4	6	2	6	6
11Q	5	1	7	4	1	2	1	1	1	2	2	1	1	1	3	1	2	1	2	7	2	2	2	3	2	4
11R	5	1	6	1	3	2	3	1	2	1	2	2	1	2	1	2	3	1	1	1	2	2	3	7	6	6
11S	5	1	2	4	2	1	3	3	4	2	4	4	3	4	4	3	5	1	3	4	3	4	6	4	4	5
11T	5	2	6	2	2	2	2	2	1	1	3	2	2	2	4	3	2	2	4	4	3	3	3	2	2	2
11U	5	3	3	4	3	2	1	2	1	1	7	3	2	2	6	4	4	4	4	4	3	4	3	3	3	4
11V	5	3	4	3	6	6	6	6	3	6	4	5	5	5	2	2	1	3	3	2	6	2	6	6	6	6
11W	5	2	3	3	4	3	5	3	3	2	3	3	4	6	3	4	4	2	3	4	5	4	2	3	3	5
11X	5	2	4	5	2	2	4	2	2	2	2	2	2	4	2	2	3	2	1	3	3	2	3	4	3	5
11Y	5	1	6	4	2	1	1	1	2	2	2	2	2	6	2	2	4	1	1	2	2	2	4	2	2	6
11Z	5	2	4	3	1	2	3	1	2	1	3	3	3	6	2	1	1	3	6	3	2	2	6	2	2	7

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

120 SOURCE: AD.AGENCY

CODE S01S02S03S04S05S06S07S08S09S10S11S12S13S14S15S16S17S18S19S20S21S22S23S24S25

12A	6	6	2	2	3	4	5	4	4	5	4	6	6	5	2	4	5	3	4	2	4	5	3	4	5	4
12B	6	NO	DATA																							
12C	6	6	4	2	5	3	6	5	4	2	2	5	4	4	4	3	5	1	2	2	4	3	5	3	4	6
12D	6	5	1	4	5	3	6	6	4	3	6	4	6	6	2	5	6	1	7	4	6	6	7	4	5	2
12E	6	7	1	2	6	6	6	6	6	4	6	4	4	6	4	3	4	4	4	4	6	6	5	4	4	4
12F	6	1	1	3	2	1	2	2	2	2	2	2	2	2	4	2	2	1	1	4	2	2	2	6	2	7
12G	6	3	4	3	3	3	4	4	3	3	3	4	4	4	5	3	4	1	4	3	4	4	3	5	5	6
12H	6	NO	DATA																							
12J	6	2	3	3	2	2	2	2	2	2	2	2	2	3	2	2	3	2	3	2	2	2	3	2	3	3
12K	6	6	2	1	6	7	7	6	6	4	3	7	7	6	2	3	7	1	6	3	6	4	7	7	6	4
12L	6	2	5	5	2	2	2	2	2	2	2	2	2	5	2	3	4	4	5	3	3	4	3	4	3	4
12N	6	2	4	3	3	4	3	3	2	1	2	3	2	2	2	2	1	2	6	3	1	7	4	3	6	5
12O	6	5	4	3	3	3	4	2	3	3	3	4	4	5	2	3	5	1	6	3	2	4	5	4	5	5
12P	6	2	3	3	4	3	4	2	3	2	3	3	3	4	3	5	4	4	4	3	4	3	4	4	4	4
12Q	6	6	2	1	6	7	7	5	5	5	6	6	6	7	4	2	5	2	6	4	6	4	5	5	6	5
12R	6	1	6	4	1	1	2	1	1	1	1	2	2	2	7	1	3	1	4	5	2	4	2	3	6	4
12S	6	1	3	3	3	2	5	3	3	2	4	4	5	2	6	3	5	1	1	4	2	3	4	4	4	4
12T	6	2	5	5	3	3	3	3	2	2	2	2	2	4	3	3	4	3	4	4	2	2	4	4	2	3
12U	6	2	2	4	2	1	1	2	1	1	6	4	4	3	5	3	4	2	4	3	1	2	2	3	2	4
12V	6	2	5	3	3	2	2	1	2	3	2	2	2	1	7	1	2	2	3	7	2	4	2	5	2	6
12W	6	3	4	6	3	3	4	2	2	2	3	4	3	4	3	2	3	2	6	3	4	4	5	5	5	3
12X	6	3	4	5	4	3	5	2	4	4	3	4	3	3	4	3	4	4	2	3	4	5	3	5	5	6
12Y	6	5	4	5	6	2	5	5	4	4	4	5	6	6	4	3	5	1	6	2	5	5	5	4	4	6
12Z	6	1	2	4	1	1	1	1	2	2	1	1	1	1	3	2	2	3	6	5	2	2	2	6	2	5

RATINGS FOR INFORMATION SOURCES ALONG 25 SEMANTIC SCALES

130 SOURCE7 TO 12 RAD/MRD EXT/NPCW/TRADE/SUB/LEGAL

CODE	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21	S22	S23	S24	S25
13R	7	1	4	6	2	1	1	1	1	2	1	1	1	7	1	1	6	4	7	2	4	1	1	1	4
13E	7	3	4	7	3	3	5	3	4	4	3	4	4	7	2	3	6	4	4	4	4	2	4	4	4
13J	8	2	3	3	3	2	3	2	2	2	2	2	2	3	3	2	2	2	3	2	2	2	2	2	2
13K	7	2	3	5	4	3	3	2	2	3	5	4	5	5	6	2	5	6	2	2	5	5	4	3	2
13011	3	1	2	2	2	3	3	3	2	2	2	3	3	3	2	2	3	2	2	2	3	3	5	5	2
13R10	2	5	6	5	2	4	4	3	6	5	5	6	5	4	6	5	1	4	1	6	7	6	2	6	2
13T	7	4	4	4	4	4	4	3	3	3	3	4	4	4	4	4	4	4	3	4	4	4	3	3	4
13U10	3	5	3	3	2	4	2	2	1	1	3	2	2	7	4	4	4	4	3	2	4	2	4	2	4
13W	7	2	4	6	5	2	5	4	2	3	3	4	5	5	2	4	4	6	3	2	4	4	4	5	3
13Y	8	2	6	6	2	3	2	1	3	2	3	1	2	2	5	2	2	4	7	3	2	2	2	2	6
14E	9	3	5	4	3	3	3	3	2	2	2	3	3	3	6	2	3	3	4	4	3	3	3	3	6
14K12	2	2	7	7	2	2	2	2	1	2	2	1	3	2	6	1	2	4	6	6	1	2	6	6	7
14Y	9	2	6	4	2	2	2	2	2	2	2	3	2	3	7	1	3	1	2	2	3	6	4	3	6

30 INFORMATION FORMAT AND MEDIUM PREF. SCORES											
CODE	IFC	IFR	IFP	IFG	IFO	IFM	IMM	IMT	IMD	IMR	IMC
3A	31	34	21	16	36	27	27	24	30	05	24
3B	18	34	37	31	27	18	31	19	30	15	12
3C	27	37	25	23	29	24	21	27	26	15	21
3D	22	37	27	36	28	15	36	31	22	18	03
3E	19	40	38	20	22	26	28	18	25	22	17
3F	23	33	28	25	32	24	23	17	25	26	19
3G	19	33	42	32	25	14	33	23	25	29	00
3H	22	34	23	28	35	23	26	25	30	16	13
3J	30	28	26	29	36	16	25	25	30	23	07
3K	22	32	42	37	29	03	33	17	20	30	10
3L	19	37	30	21	28	30	18	18	29	21	24
3N	41	25	07	37	31	14	12	33	25	26	14
3O	27	33	20	28	32	25	27	24	24	18	17
3P	32	31	21	27	30	24	25	32	21	14	18
3Q	20	24	31	26	29	36	18	20	18	28	26
3R	23	25	32	33	29	23	27	29	23	10	21
3S	17	37	27	25	29	30	24	26	30	08	22
3T	25	25	31	27	39	18	29	21	21	27	12
3U	30	19	33	21	38	24	27	26	20	20	17
3V	13	37	35	28	28	14	16	26	28	15	25
3W	33	31	30	31	28	12	28	24	19	20	19
3X	22	27	30	32	33	21	24	20	22	22	22
3Y	26	39	35	20	30	15	25	31	32	17	5
3Z	16	39	36	13	34	27	24	26	28	19	13

INFORMATION FORMAT AND MEDIUM PREF.Scores

04/30/74

PAGE 2

FILE NCNAME (CREATION DATE = 04/30/74)

VARIABLE	CASES	MEAN	STD DEV
VAR301	24	24.0417	6.4504
VAR302	24	32.1250	5.6130
VAR303	24	29.4583	7.7962
VAR304	24	26.9167	6.3172
VAR305	24	30.7083	4.0806
VAR306	24	20.9583	7.2561
VAR307	24	25.2917	5.5363
VAR308	24	24.2500	4.8026
VAR309	24	25.1250	4.1631
VAR310	24	19.3333	6.5519
VAR311	24	15.8750	7.1403

FILE NDCNAME (CREATION DATE = 04/30/74)

----- PEARSON CORRELATION COEFFICIENTS -----

	VAR301	VAR302	VAR303	VAR304	VAR305	VAR306	VAR307	VAR308	VAR309	VAR310
VAR301	1.0000 (0) S=0.001	-0.4721 (24) S=0.010	-0.6895 (24) S=0.001	0.1740 (24) S=0.208	0.3622 (24) S=0.041	-0.1969 (24) S=0.178	-0.1489 (24) S=0.244	0.4516 (24) S=0.013	-0.2285 (24) S=0.141	0.0254 (24) S=0.453
VAR302	-0.4721 (24) S=0.010	1.0000 (0) S=0.001	0.2113 (24) S=0.161	-0.3479 (24) S=0.048	-0.4919 (24) S=0.007	0.0140 (24) S=0.474	0.1023 (24) S=0.317	-0.0399 (24) S=0.427	0.5891 (24) S=0.001	-0.3086 (24) S=0.071
VAR303	-0.6895 (24) S=0.001	0.2113 (24) S=0.161	1.0000 (0) S=0.001	-0.1087 (24) S=0.307	-0.3414 (24) S=0.051	-0.2072 (24) S=0.166	0.4692 (24) S=0.010	-0.4967 (24) S=0.007	-0.0675 (24) S=0.377	0.2480 (24) S=0.121
VAR304	0.1740 (24) S=0.208	-0.3479 (24) S=0.048	-0.1087 (24) S=0.307	1.0000 (0) S=0.001	-0.2270 (24) S=0.143	-0.6185 (24) S=0.001	0.1947 (24) S=0.181	0.0924 (24) S=0.334	-0.3931 (24) S=0.029	0.3306 (24) S=0.057
VAR305	0.3622 (24) S=0.041	-0.4919 (24) S=0.007	-0.3414 (24) S=0.051	-0.2270 (24) S=0.143	1.0000 (0) S=0.001	0.0936 (24) S=0.332	-0.0615 (24) S=0.388	0.1104 (24) S=0.304	0.0125 (24) S=0.477	-0.0434 (24) S=0.420
VAR306	-0.1969 (24) S=0.178	0.0140 (24) S=0.474	-0.2072 (24) S=0.166	-0.6185 (24) S=0.001	0.0936 (24) S=0.332	1.0000 (0) S=0.001	-0.3493 (24) S=0.047	-0.1157 (24) S=0.295	0.1052 (24) S=0.312	-0.3271 (24) S=0.059
VAR307	-0.1489 (24) S=0.244	0.1023 (24) S=0.317	0.4692 (24) S=0.010	0.1947 (24) S=0.181	-0.0615 (24) S=0.388	-0.3493 (24) S=0.047	1.0000 (0) S=0.001	-0.1582 (24) S=0.230	-0.1771 (24) S=0.204	0.0044 (24) S=0.492
VAR308	0.4516 (24) S=0.013	-0.0399 (24) S=0.427	-0.4967 (24) S=0.007	0.0924 (24) S=0.334	0.1104 (24) S=0.304	-0.1157 (24) S=0.295	-0.1582 (24) S=0.230	1.0000 (0) S=0.001	0.1049 (24) S=0.313	-0.4173 (24) S=0.021
VAR309	-0.2285 (24) S=0.141	0.5891 (24) S=0.001	-0.0675 (24) S=0.377	-0.3931 (24) S=0.029	0.0125 (24) S=0.477	0.1052 (24) S=0.312	-0.1771 (24) S=0.204	0.1049 (24) S=0.313	1.0000 (0) S=0.001	-0.4639 (24) S=0.011
VAR310	0.0254 (24) S=0.453	-0.3086 (24) S=0.071	0.2480 (24) S=0.121	0.3306 (24) S=0.057	-0.0434 (24) S=0.420	-0.3271 (24) S=0.059	0.0044 (24) S=0.492	-0.4173 (24) S=0.021	-0.4639 (24) S=0.011	1.0000 (0) S=0.001
VAR311	-0.0612 (24) S=0.388	-0.1189 (24) S=0.290	-0.2356 (24) S=0.134	-0.2991 (24) S=0.078	0.0226 (24) S=0.458	0.5949 (24) S=0.001	-0.5886 (24) S=0.001	-0.2082 (24) S=0.164	-0.1121 (24) S=0.301	-0.3578 (24) S=0.043

(COEFFICIENT / (CASES) / SIGNIFICANCE)

(A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)