INDUCING CREATIVITY AND INNOVATION IN LARGE BUREAUCRACIES: LESSONS FROM MARKETING

Jerry Wind
Lauder Professor and Professor of Marketing
Director, SEI Center for Advanced Studies In Management
The Wharton School of the University of Pennsylvania

To Appear in the Proceedings of the
The RGK Foundation 4th International Conference on Creative and Innovative Management
Los Angeles, California -- August 8-10, 1990
INTRODUCTION

Traditionally, marketing concepts and methods have been directed at customers and prospects. With the growing importance of other stakeholders, such as suppliers, distributors, employees, various consumer groups and government, marketing perspectives have been increasingly employed in the design of strategies and programs aimed at all stakeholders. (Wind, 1988). It is quite surprising, therefore, that the internal management of an organization, and especially those activities aimed at increasing its creativity and innovativeness, have not taken advantage of marketing concepts and methods.

The basic premise of this chapter is that marketing perspective and the same marketing concepts and methods that help develop and introduce successful new products and services can greatly enhance the organization's success in becoming more creative and innovative.

The objective of the chapter is to propose a set of key marketing concepts and approaches that if employed could enhance creativity and innovation in large organizations.

More specifically, the chapter identifies key marketing concepts and approaches that if employed could:

- Help assess the specific creativity and innovation needs of the organization.
- Help generate creative approaches to identify ways in which the organization can become more creative and innovative.
- Help evaluate the various ideas and select a strategy.
- Help design and plan the implementation of the selected strategy.
- Help assure continuous and effective creativity and innovation.
ASSESSING THE SPECIFIC CREATIVITY AND INNOVATION NEEDS OF THE ORGANIZATION

One of the major criticism of the modern corporation is its lack of creativity and innovation. Even organizations that excel in their new product development activities and are able to introduce successfully major innovations, are often conservative and non-innovative when it comes to other aspects of their business. It is quite disheartening to see innovative products and businesses that fail due to lack of creative marketing, operations, financial, or human resource decisions. In fact, as the uncertainty and complexity of the competitive business environment increases, innovative strategies in all facets of the business are a must.

With the few exceptions of firms whose corporate culture and reward systems center on innovation and risk taking, most U.S. firms tend to be risk averse. Under such a climate, a first step toward becoming more innovative is to establish mechanisms for assessing the creativity and innovation needs of the organization.

Assessing the creativity and innovation needs of an organization can greatly benefit from specific marketing concepts and approaches, including the concept of market segmentation and the methods for internal marketing audit, and external competitive benchmarking and market analysis.

**Market Segmentation** recognizes the fact that all markets are heterogenous and that effective marketing strategy requires the identification of target market segments, assessing their needs and characteristics and using these as guidelines for the design of products and services and associated marketing programs.

In the context of turning organizations to more creative and innovative, it is important to assess the areas in which the organization can benefit the most from greater emphasis on creativity and innovation. Furthermore, since all organizations are heterogenous, one can not
assume that knowing the creativity and innovation needs of one organization would automatically apply to others.

**Marketing Audit** is "a comprehensive, systematic, independent, and periodic examination of a company’s -- or business units -- marketing environment, objectives, strategies and activities. With a view of determining problem areas and opportunities and recommending a plan of action to improve the company marketing performance." (Kotler, Greyser & Rogers 1977). Marketing audits, even though not as common as financial audits, can provide invaluable input to marketing strategy by identifying problem areas and opportunities. The process and discipline of a marketing audit can be applied to the assessment of those areas of the firm that can gain the most from enhanced creativity and innovation. Furthermore, an audit can also identify the major obstacles to the introduction of more creative and innovative processes and suggest ways of overcoming these obstacles.

**Competitive Benchmarking** can serve both as a way of identifying what creative and innovative things the competitors are doing as well as finding out for each of the areas requiring creativity and innovation who is the best. Once such a "benchmark" is identified, whether in the firm’s industry or in any other industry, it is useful to study the case thoroughly to see what can be learned from the experience.

**Market Analysis.** An analysis of the current and expected needs, behavior, perceptions and preferences of consumers and intermediate marketing organizations (retailers, wholesalers and others) is critical to the firm’s ability to identify areas requiring creative solutions and innovative products and services. There is no substitute to a thorough market analysis as a guide to the understanding of the firm’s customers and prospects and their distributors, and identifying areas that can benefit from creative solutions and innovative products and services.
IDENTIFYING APPROACHES FOR THE GENERATION OF CREATIVE AND INNOVATIVE SOLUTIONS

Once the areas that can benefit from creative and innovative approaches have been identified, a key question is how can we generate the needed creative and innovative solutions. To address this question, marketing (based on the experience with approaches to the generation of new product ideas) can offer both a number of key concepts and a set of methods.

The Concepts/Findings That Marketing Can Offer Are:

- Generation of new ideas require use of both structured and unstructured approaches.
- Idea generation should rely on both internal (the decision makers) and external (consumer, competition, suppliers, etc.) sources.
- Idea generation should be conducted on an ongoing basis.
- The more diverse the approaches used for generating new ideas the higher the likelihood of success.

The Methods. A basic premise of this chapter is that the approaches used for the generation of new product ideas can be utilized to generate creative and innovative solutions. These approaches are illustrated in Exhibit 1 and discussed in Wind 1982.

Consumer-Based Approaches to Generation of New Product Ideas

The consumer-based approaches to the generation of new product ideas can, of course, be used as part of any consumer studies aimed at identifying areas requiring creative solutions and innovative products and services. In addition, these approaches can be used on the "internal consumers," i.e., all the organizational members who use/organizational products and services. For
### EXHIBIT 1
Approaches to the Generation of New Product Ideas

<table>
<thead>
<tr>
<th>Source</th>
<th>Research Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstructured</td>
</tr>
<tr>
<td>Consumers</td>
<td>Motivation research</td>
</tr>
<tr>
<td></td>
<td>Focused group interviews</td>
</tr>
<tr>
<td></td>
<td>Consumption system analysis</td>
</tr>
<tr>
<td></td>
<td>Consumer complaints</td>
</tr>
<tr>
<td>&quot;Experts&quot;</td>
<td>Brainstorming</td>
</tr>
<tr>
<td></td>
<td>&quot;Synectics&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;Suggestion box&quot;</td>
</tr>
<tr>
<td></td>
<td>Independent inventors</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**The R & D Process**

**SOURCE:** Wind, *Product Policy*
example, the data processing department can use any of the approaches to generate new products and services ideas for its own internal corporate clients.

Since every organizational unit has its own internal clients, explicit efforts to identify their needs and problems using any of the structured and unstructured approaches listed in Exhibit 1 can be of great value. In selecting the specific approaches from the exhibit, it is desirable to include at least one of the unstructured approaches of motivation research, FGI and consumption system analysis. At least one of the four structured approaches, and to undertake an analysis of consumer complaints based on the firm's own data as well as the public complaint files of the Better Business Bureau, consumer protection agencies and newspaper action columns.

**Expert Based Approaches to Generation of New Product Ideas.** As with the consumer-based approaches, the "expert" based approaches are both structured and unstructured, involving both experts as individuals and as members of a group. These approaches are to a large extent, but not exclusively, marketing research oriented.

As with the consumer based approaches, it is suggested that the firm uses at least one of the unstructured approaches of braintstorming, synectics and independent inventors at least one of the structured approaches and, in addition, the "suggestion box" to get broader involvement of all employees.

Among the most useful approaches to generation of new ideas are morphological analyses. These approaches question things as they are and ask why they cannot be combined, used in new ways, modified, magnified, minified, rearranged, reversed, etc.

An example of morphological approach to the generation of new product ideas and strategic options is included in Exhibit 2.
The major advantages of such approaches are that they are:

- Systematic
- Capable of encompassing a very large number of alternative new ideas
- Flexible with respect to the selection of relevant attributes
- Simple and relatively inexpensive to use

The experiences with morphological approaches when compared with the traditional brainstorming is that it can lead to the generation of a larger number of ideas and more creative/novel ideas.

In searching for new ideas for creative and innovative business solutions, it is important to focus on both short and long term opportunities. The latter are the more difficult to assess and often require as a starting point the identification of the expected scenario 5, 10 or 20 years ahead and focusing the new idea generation process on those approaches capable of identifying ideas under the conditions of the specific scenarios.
Exhibit 2

MORPHOLOGICAL APPROACHES FOR
GENERATION STRATEGIC OPTIONS

The Traditional Use of Morphological Approaches for Generating New Product Ideas

Morphological Forced Connection

Example: Improved ball point pen

Attributes:

<table>
<thead>
<tr>
<th>Cylindrical</th>
<th>Plastic</th>
<th>Separate Cap</th>
<th>Steel Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faceted</td>
<td>Metal</td>
<td>Attached Cap</td>
<td>No Cartridge</td>
</tr>
<tr>
<td>Square</td>
<td>Glass</td>
<td>No Cap</td>
<td>Permanent</td>
</tr>
<tr>
<td>Bladed</td>
<td>Wood</td>
<td>Retracts</td>
<td>Paper Cartridge</td>
</tr>
<tr>
<td>Sculptured</td>
<td>Paper</td>
<td>Cleaning Cap</td>
<td>Cartridge made of ink</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Adams, 1972, p. 83)

Illustrative Approach for Generating Strategic Options

<table>
<thead>
<tr>
<th>Market Segment</th>
<th>Product Positioning</th>
<th>Product Design</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Top 20%</td>
<td>Price</td>
<td>A</td>
<td>Outlet 1</td>
</tr>
<tr>
<td>• Customer with potential for top 20%</td>
<td>Performance</td>
<td>B</td>
<td>Outlet 2</td>
</tr>
<tr>
<td>• Prospects with potential for top 20%</td>
<td>Prestige</td>
<td>C</td>
<td>Outlet 3</td>
</tr>
<tr>
<td>• Previous customers</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>• Candidates for deletion</td>
<td>Service</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>• Other customers</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

(7)
EMPLOYING THE APPROACHES OUTLINED IN EXHIBIT 1 WOULD LEAD TO THE GENERATION OF A LARGE NUMBER OF NEW IDEAS. THESE IDEAS HAVE TO BE PRIORITIZED.

AS WITH GENERATION OF IDEAS, MARKETING CONCEPTS AND METHODS CAN HELP EVALUATE THE VARIOUS IDEAS.

THE MAJOR CONCEPTS FOR EVALUATING IDEAS AND SELECTING A STRATEGY ARE:

- Evaluation of the various options should be done explicitly against all relevant criteria.
- The selection of a strategy should reflect current and expected conditions.
- Evaluation of the various options should include "consumer" reactions to the options.

THE METHODS ONE CAN USE TO HELP EVALUATE THE IDEAS ARE:

- The Analytic Hierarchy Process (AHP).
- Conjoint analysis based concept testing procedure.

THE AHP The analytic hierarchy modeling and measurement process (Saaty 1977, 1990; Wind & Saaty 1980) is one of the most powerful approaches to determine the relative importance of a set of criteria. The novel aspect of this approach is that it structures any complex, multiperson and multiperiod problem hierarchically and assists in determining the relative priority of the identifiable courses of action (typically presented as entities at the lowest level of the hierarchy. Consider, for example, the simple three-level hierarchy of environmental scenarios, objectives, and innovative new courses of action presented in Exhibit 3. Such a hierarchy can aid
EXHIBIT 3
An Illustrative Basic Decision Hierarchy

Overall purpose and mission

Environmental scenario

Scenario 1
(status quo)

Scenario 2
(optimistic environment)

Scenario 3
(pessimistic environment)

Objectives

Market share
Profitability
Sales growth
Vulnerability

Courses of action

Innovative promotional approaches
Innovative distribution
Use of information technology to capture client
Enter new market
management in identifying their relevant objectives, forces them to explicate the environmental scenarios most likely to affect their business decisions, stimulates their creativity in generating specific new courses of action, and facilitates the evaluation of the generated courses of action on the various criteria by taking into consideration the effect of the environmental scenarios.

The objectives of the AHP are:

1. To decompose a complex problem into a hierarchy; each level consists of a few manageable elements and each element is, in turn, decomposed into another set of elements. The process continues down to the most specific elements of the problem, typically the specific courses of action considered, which are represented at the lowest level of the hierarchy.

2. To establish priorities among the elements within each stratum of the hierarchy with respect to the elements (e.g., criteria) of the next higher level.

3. To establish a single composite vector of priorities for the entire hierarchy by yielding the relative priority of all entities at the lowest level that enables the accomplishment of the highest objective of the hierarchy.

These objectives are achieved while allowing for a group interaction among the relevant managers and the incorporation of any available data with the participants' subjective judgments. The AHP offers a procedure for conflict resolution among the participants and offers total flexibility for the participants, both in defining the hierarchy and judging its components. The AHP measurement problem is formulated into a largest eigenvalue problem, and the principal eigenvector with appropriate hierarchical weighing and composition leads to a unidimensional scale of the priorities of the elements in any level of the hierarchy.

The AHP is the most appropriate approach for prioritizing the various strategies for increased creativity and innovation; especially, if the group that is conducting the analysis includes all the key decision makers.
**Conjoint Analysis.** Conjoint analysis (Green and Wind, 1975, Green and Srinavasan, 1990) is concerned with the measurement of preferences. It is based on a "trade-off" type (decompositional) choice model and involves the determination of weights or part-worths of a set of independent variables. Typically, the independent variables or the choice attributes are presented as "full profile" descriptors of hypothetical product offerings, each described as having different "levels" on the preselected set of factors. The specific combinations are selected by following an experimental design (typically, an orthogonal array), and the stimuli are presented as verbal, pictorial, or actual product representations. A simple additive main-effects model is commonly used to establish the relationship between ordinal dependent variables and the independent variables. This model can be extended to include nonlinear and interaction terms.

The objectives of conjoint analysis are:

1. To establish a function which relates the independent variables to the dependent variable.

2. To examine the strength of the relationship between the dependent and independent variables (e.g., prediction of choice alternatives reflecting the respondent’s trade-off among the various alternatives).

3. To determine the part-worths or utility scores associated with each attribute level.

4. To determine the relative importance of each of the independent variables (factors).

The typical output of conjoint analysis programs (such as MONANOVA and LINMAP) includes:

- Part-worths (utilities) for the various attribute levels.
- Relative importance weights for the attributes (factors).
- A measure of badness of fit that reflects how well the predicted rankings of choice alternatives match the rankings provided by the respondent.
The results of conjoint analysis studies often are incorporated in a computer simulation or an optimization program aimed at finding the optimal solution among the attributes studied in the conjoint analysis study.

In the context of evaluating new strategies for increased creativity and innovation, conjoint analysis can be used to assess the importance potential users assign to various options. These methods can obviously be used with consumers to assess their likely reaction to the innovation the firm may offer.

**DESIGNING THE IMPLEMENTATION PLAN**

Having selected a strategy for enhancing the creativity and innovation of an organization, the critical question is how can one assure successful implementation of the strategy.

If one uses the AHP as a process and methodology for prioritizing the options, the chances of implementation are increased significantly since the executives who participate in the process are more likely to "buy in" the process and its recommendations. Yet, even this "buy in" is not enough.

Marketing again can provide concepts and methods that can help design a plan for the implementation of the selected strategy for increasing the organizational innovation and creativity.

**The Concepts** include:

- Successful implementation requires the development of an implementation plan
- Keys to any successful implementation plan are:
  - Identify those most likely to resist implementation
  - Identify the reasons for resisting
- Establish a positioning strategy for the selected strategy -- i.e. offer the target internal segments a reason for "buying" the new strategy. A reason
which is consistent with the benefits they seek and their perception of the ability of the strategy to help them achieve their objectives.

- Develop a marketing program to implement the plan -- who to approach, how, with what message, etc.

The major methods one can use in planning the implementation are those used in positioning analysis. Exhibit 4 lists some of the approaches that can be used for positioning analysis.

ASSURING CONTINUOUS AND EFFECTIVE EMPLOYMENT OF THE APPROACHES TO ENHANCED CREATIVITY AND INNOVATION

Even if one follows all the concepts and approaches suggested in the preceding four sections, it is not enough to assure that the organization will continue to be creative and innovative. Since management objective should always include the long term perspective as well, it is critically important to follow the concept of continuous monitoring and continuous improvements and innovation. The two critical concepts and their associated methods are:

  - the Japanese concept of continuous improvement and innovation; and
  - the concept and methodology of adaptive experimentation.

Given the attention given in recent years you to the Japanese concept of continuous innovation and improvement, we will focus in this section on adaptive experimentation.

Adaptive experimentation is based on the concept that one can not learn from a single strategy option. (i.e., specific level of advertising, a specific new distribution outlet, etc.) and that the only way of learning is by experimenting with a number of options (i.e., three levels of advertising, two different distribution outlets, etc.). By evaluating the results of the various levels of effort, management can decide what is the best strategy options to experiment with next.
EXHIBIT 4
The Range of Approaches for Positioning Analysis

- **Purpose of Analysis**
  - Generating Positioning Options
    - Same approaches used for generating new project ideas
    - Conjoint Analysis
    - Implications of the analysis of current positioning
    - Normative models such as Defender
  - Assessing Current Positioning
    - Indirect approaches
      - Market share
      - Brand switching
    - Direct approaches
      - Conventional approaches
        - Disc. analysis
        - MDS, clustering, and corresponding analysis
      - Advanced approaches
        - Overlapping, clustering
  - Forecasting the Likely Impact of a Positioning Strategy
    - MDS
    - Econometric forecasting methods
    - Experimentation
    - Conjoint Analysis based on simulation and optimization methods
  - Determining the Desired Positioning
    - MDS
    - Conjoint Analysis optimization
    - Reach optimization methods
    - AHP

This concept can and has been applied to all the strategic variables of the firm, and it is not limited to the level of effort of a single strategy option. It can be applied to any combination of variables such as advertising, salesforce and promotion each at various levels. This would require, of course, the use of appropriate experimental designs (such as the Latin Square design).

Following an adaptive experimentation strategy offers a better long-term performance due to the firm's ability to establish the market response function facing it and thus develop a long-term optimal strategy. This is best illustrated by the success of Anheuser-Busch in following an advertising-based adaptive experimentation strategy (Emshoff and Ackoff, 1975). A second and equally important advantage of following an adaptive experimental approach is the difficulty it presents to competitors who try to monitor the firm's strategy and its impact.
CONCLUSIONS

Marketing as the boundary function of the organization can help create innovative products and services to meet the needs of the key target segments. Organizational creativity and innovation in designing products and services as well as in making any business decision can greatly benefit from marketing concepts and methods. In this context, marketing is not only a function, but also a management perspective and philosophy that offers a set of concepts and tools that can greatly enhance the organization's ability to enhance its creativity and innovation.

By utilizing marketing concepts and methods to increase the organizational creativity and innovation, management has a better chance at preparing the organization for the 21st century. Exhibit 5 lists some of the expected characteristics of the 21st century organization as identified in a recent study of 300 CEOs.

In particular, the concepts and approaches discussed in this chapter have focused on the establishment of an innovative learning organization.

These concepts and approaches help meet the research challenges outlined by Professor Kozmetsky in his opening remarks. The need to offer new methods and provide stimulant for "rethinking, realigning and restructuring large bureaucracies."

This rethinking along the lines of a marketing perspective is consistent with the current focus on quality, as exemplified, for example, by the increasing number of applicants to the Malcolm Baldrige Award. Quality focus stresses customer satisfaction and the establishment of extremely high quality performance targets -- Motorola's 6 sigma or HP's 10X improvement. This extremely high targets can not be achieved with minor changes in current practice and require innovation thinking and approaches. The use of marketing concepts and methods to the generation, evaluation and implementation of approaches to enhance the creativity and innovation organizations can help achieve the quality goals of the organization and enhance the organization's ability to compete effectively in the turbulent business environment.
Exhibit 5

THE 21ST CENTURY ENTERPRISE

- Flatter, less hierarchial organization
- Cross functional
- Global in perspective and scope of operations
- Networked
- Information technology based
- Customer driven
- Stakeholder focused
- Centers on value added, quality and time-based competition
- Individually and group empowered
- Innovative, entrepreneurial
- Flexible, learning


