THE ESTABLISHMENT

OF A NEW PRODUCT PLANNING DEPARTMENT

by

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ABSTRACT

The major objective of this study was to establish a department in an organization, which would co-ordinate all new product planning activities.

To attain this objective it was necessary to study the characteristics of a firm and then using these, develop a department which would utilize the firm's strengths and avoid its weaknesses. Initially the components required in a product policy were presented to act as a guide for management in establishing its new product planning department.

The first step of the organizing process was the complete analysis of the basic stages that new product ideas pass through. This analysis included collection and screening of product ideas, the development of specifications for the product, and the testing of the product prior to commercialization. The decisions required, and the personnel involved at each stage were clearly indicated as the product idea evolved.

Throughout the thesis, the need for an organized marketing research operation is emphasized. It is claimed that to have effective new product development there must be thorough and complete market knowledge available. Marketing research is an integral part of the activities proposed in this thesis.
The department that is proposed consists of a committee with representatives from each of the major line functions in the firm. It is a staff department with functional authority. The new product development activities in the firm are guided and controlled by this coordinating body. The members of the new product planning department work in close co-operation with the line department managers and the executive committee.

Management of a firm adopting the proposed system must be devoted to progress through new product development. For the new product planning department to be successful more than an organizational structure is required. The company as a whole must accept the premise that an organized approach to innovation is essential. This frame of mind must be prevalent before the proposed department will be able to work co-operatively with the various line functions in the firm. An integrated approach to new product development is therefore being proposed.

To test the validity of the suggested system it was compared to the new product development operations in a leading Canadian chemical company. The operations of the firm are discussed in detail prior to analyzing them relative to the proposed system.

Successful new product development is the key to the future for most industrial companies. Careful planning based on thorough and methodical analysis will result
in new products being introduced with consistent success. To enable the planning process to take place a department must be established which will co-ordinate all new product activities and produce optimum results. The system proposed in this thesis, if properly implemented, will meet these requirements.
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CHAPTER I

INTRODUCTION

A. Background of the problem

Approximately four out of five new products fail.\(^1\)

In other words, only 20 per cent of the new products developed return a suitable profit for the company. Data presented by Booz, Allen, and Hamilton indicate that the success rate is somewhat higher for industrial companies, however, the fact remains that the resources wasted on poorly developed products are considerable.\(^2\)

The time and effort spent on new product development, in recent years, has increased considerably with the realization that the major problems facing the industrial producer are no longer technological production problems but rather those existing in his market.\(^3\) Producers have also realized that successful new products hold the key to future industrial growth. Society today is in an era where the consumer expects the producer to


\(^3\) McCarthy, op. cit.
continually develop new and improved products and to maintain its competitive position the firm must meet these demands. Does this demand for new products necessarily mean that anything appearing on the market will be a success? A study of the evidence indicates that this is definitely not the situation. 

Management must therefore take a different approach to new product development than that which it has traditionally taken. In the late nineteen forties and the fifties when there was rapid technological advancement, management was naturally production oriented. If a company could gain a competitive advantage in technology its chances of capturing the market were increased. This possibility still exists in a limited manner today but the over-all situation has changed considerably. Managers are beginning to realize that most producers are capable of producing comparable products, thus the emphasis has shifted towards a concern about the customer and the market as a whole. Today, to have a successful product, a firm must have more than the mere ability to produce a technically satisfactory product. It must also make a careful study of the market to ensure that the product will be accepted at a rate to justify the product investment.

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4 Booz, Allen, and Hamilton, op. cit.
In a study carried out for the American Marketing Association, Bund and Carroll indicate that the evolution of the concept of marketing orientation in a firm, is a slow process. Their conclusions state that nearly all successful changes have been gradual and slow rather than sudden and dramatic. They state: "Apparently three years represents the absolute minimum to achieve the first stage of an integrated marketing operation. Most companies required five to seven years to develop a working marketing organization. Greater speed seems to result in waste motion and the need to retrace."

Bund and Carroll illustrate how the emphasis on marketing orientation has resulted in the creation of new departments. One of these new units is a separate new product planning activity. They maintain that postwar growth compelled a realignment of management which, coupled with a mounting pressure for new products in many industries, resulted in the creation of product planning departments. These departments meant that companies were abandoning their haphazard methods of new product development and were becoming concerned with market


6 Ibid., p. 299.

7 Ibid., p. 318.
conditions prior to introducing a new product.

Booz, Allen, and Hamilton state that managers in industries where product innovation is essential to the maintenance of a competitive position, are beginning to realize that their growth in profits is linked to their product line and to the life cycle of these products. Normally, a product's life cycle consists of four phases: introduction, growth, maturity, and finally decline. As a product passes through each of these phases, the profitability per unit produced and sold changes according to the competitive pressures in the market. With these profitability factors in mind, management must plan its product introduction.

Stimulated by a high rate of product failures and by the realization of how important new products are to future growth, many companies have decided that innovation must be managed. Numerous firms today carry out their new product planning in an unstructured manner, as indicated in the body of the thesis. "Unstructured" means there is no single group handling the product development procedures but rather they are part of the responsibilities of the line departments.

In a study of new product planning activities there is one question that must be considered: Is there

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8 Booz, Allen, and Hamilton, "The Importance of New Products" in Berg and Shuchman, op. cit., p. 27.
any superior form or procedure that can be employed in new product planning? To design a pattern for a single department that would apply universally to all industrial organizations would indeed be an almost impossible task. Product planning is therefore more than the responsibility of one department. It is a frame of mind that the personnel of the company must adopt. For product innovation to be a successful operation more is required than a department in a company's organization. Management must truly accept the premise that product line change is necessary for continued growth of the firm. Without this over-all company approach, the activities will not be performed in their most effective manner. One of the most successful innovation minded companies in North America is Du Pont which claims that "its pattern of new products development is rooted in the over-all task it has charged itself with-- to come out with entirely new products."\(^9\)

B. **Major Objectives**

The primary objective of this study was to develop a new product planning department which would be responsible for the co-ordination of all new product developments in a company. The structure was to be designed so that it would be applicable to as wide a range of

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industries as possible. For this to be the case, its form had to be flexible. In other words, the basic structure, with a few modifications, should be applicable to most industrial companies.

The department must be capable of guiding all developmental activities with an eye to the over-all company objectives and policies. To enable this to happen the department must have at its disposal, communication systems that permit the rapid transmission and reception of information. It has to be linked to top management where investment decisions are made and it has to have access to the other functions of the business which control the company's activities.

The product planning department must be established to allow management to have definite and effective means of control. To be of maximum use to the firm, it would have definite limits within which to operate.

The techniques that the department adopt for handling new product ideas must stimulate an over-all interest in product development. As the product idea progresses towards the final commercialization stage, the department would have to ensure that each step was thoroughly analyzed and that each decision was based on fact as far as possible. All production and marketing details are studied completely for each idea the department accepts and develops as a final product.
The major objective of the thesis then is to establish a department which will co-ordinate all of the new product development activities with the ultimate goal of obtaining successful product introduction programs more consistently.

C. The Nature and Scope of the Study

The appearance of a separate department with the responsibilities of directing new product planning has been prevalent only in the past ten to fifteen years in the United States. There was little published information found about the same process in Canadian companies. Because the Canadian subsidiaries of American companies are much smaller than their parent firm, it is assumed that the development of this type of department is even more recent in Canada.

Prior to establishing a structure for handling new product ideas, an extensive search of the literature was carried out. This search included a study of several business journals as well as several texts written on the subject. An additional source, which was extremely helpful, was the collection of various American Management and American Marketing Association publications. The literature study was done to

10 See the publications listed in the bibliography.
11 Also see the bibliography.
determine what several leading industrial companies did in the area of new product planning and what organizational form they had adopted. A basic list of principles that could be adopted in establishing a product planning department was also collected.

Naturally, the various forms of the department developed by the companies that published the information were all different in some aspects. However, it was found that there was general agreement with respect to the stages that a new product idea normally passes through. This evolutionary process was clearly described by Jones and his sequence of steps was basically followed in the development of the product idea in this thesis.12 This framework enabled a detailed discussion of the various decisions and organizational aspects that had to be dealt with as the idea progressed to the final marketable product.

The literature search was oriented towards the industrial market but more specifically the chemical industry. This emphasis was adopted because of the author's interest in this industry. Even with this

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orientation, the basic principles proposed in the thesis will be applicable to a wide range of industrial companies.

Various features of the proposed structure are similar to those that are used in some of the companies reviewed in Chapter IV. However, an attempt was made to select the strengths of these operations and to avoid their weaknesses. Many of the firms had designed a department suited to their conditions but not applicable to any other company. Therefore, in establishing the department proposed in this thesis, an attempt was made to combine some of the strengths of these existing structures and to modify them to produce a department which would achieve the objectives outlined above.

The term "new product" has several interpretations in the literature. Depending upon the source of the product idea, the "newness" of it might vary considerably. In this study the new product planning activity is primarily concerned with products that satisfy the following stipulations. The product must have some alteration in its physical characteristics and must be offered to the same or new markets. These alterations could include package changes if they result in the chemical being sold in a different state or form. The simple alteration of a package containing the same product would not be considered a new product in the industrial market as it might be in the consumer market.
Offering an old product to a new market is not a new product development; it is merely market expansion based on an existing product. At the same time, a product which is modified technically and which is offered to the same market is a new product because theoretically the customer is now using a different set of product characteristics. Products which are technically new and unique and which are offered for the first time to any market are the ultimate in this definition of new products. The technique of defining new products used here is clearly illustrated in Chapter IV in a chart created by Jones and Johnson.13

As indicated above, this study is only concerned with industrial goods manufacturers. It is worthwhile to illustrate the difference between an industrial good and a consumer good to enable clearer understanding of the following material. The American Marketing Association defines products in terms of their uses even though many of them can be used in both spheres. Normally an industrial good is used in the production of another product for resale, whereas a consumer good is used by the householder in its final market form and not for resale.

The size of the department described in the following chapters may vary depending upon the size of the company. The flexibility of the proposed system enables it to be adapted to any size of operation. A large company with numerous product groups and several production units would probably employ a substantial staff. However, size itself is not an important determinant. A company may be large in terms of gross annual sales but because of the nature of its product line or its industry, new product planning may not be a primary concern. Many small firms could employ a substantial staff in a new product department if the characteristics of their product lines meant that new products were continually being introduced. Thus the new product planning activities, in firms where there is a structured department (as proposed in this thesis), or where the activities are carried out in an unstructured manner, are not significantly affected by the sales volume of the company.

This study deals first with the procedures that a new product idea passes through as it progresses from idea to product and second with the form that the new product planning department should adopt. However, there are other areas that must also be examined before the activities and their structure can be designed. One of these is the importance of the product policy in relation to new product planning. Once the company
objectives are established, a product policy should be adopted to facilitate the attainment of these goals. With these policies and objectives in mind, the new product planning director attempts to co-ordinate the developmental activities to reach the desired ends.

Another topic that was dealt with in some detail was the importance of a marketing research department in the development of new products. The product failures referred to at the beginning of this chapter were often largely attributed to insufficient market knowledge due to a lack of research.

To gain insight into the actual procedures followed by a company in the Canadian chemical industry, a set of interviews was arranged with a company representative to gather details about its product planning activities. The objective was to evaluate critically, the company's operations and to ascertain the validity of the proposed system.

D. Study Limitations

A thorough review of the literature to gather as many ideas as possible, prior to formulating the proposed department's structure, is one of the prerequisites of a study of this type. There is a limited amount of literature available which thoroughly discusses the procedures followed by a company. There were indeed many
articles presented in the literature but most were of little value in this study for a variety of reasons. Many of the views expressed in these articles were extremely narrow and designed for and applicable to a single firm.

In many of the articles the writers were extremely biased in their presentations. This resulted in a collection of articles, pertaining to industrial companies, with each claiming to have a superior system. However, most of the citations in the bibliography contained useful information which was presented in a relatively objective manner.

The literature was conspicuous by its absence of any material pertaining to Canadian industries or companies. However, in the area of new product planning, the principles acceptable in American companies will generally be applicable in Canada.

Theoretically, all industrial companies of the type defined earlier, have some new product planning operation but the percentage which have separate departments responsible for directing these activities, is not known. Initially, a survey of several leading companies in the chemical industry was to be made but because of the form and detail of the questionnaires required, this idea was discarded. The final design called for interviewing representatives within one company. The interviewing
The procedure used is discussed in detail in Chapter V.

The final limitation was the form in which the product planning process had to be presented. To enable a clear understanding of the procedures that were followed and the decisions that had to be made as the product progressed through the various stages, it was necessary to present the information in a rather rigid and methodical manner. Such a presentation creates the impression that the activities are part of a process which cannot be varied. This is, of course, not the situation because each new idea may be handled in a slightly different manner. The purpose of using this presentation was to show that these decisions had to be made and to illustrate who had to make them.

E. Chapter Outline of the Thesis

(i) Chapter II

Chapter II is divided into two major sections. The first deals with the firm's product policy and its relation to new product planning. The discussion explains the functions that the policy performs for the firm and the elements that comprise it.

The second section of the chapter deals with the developmental process of a new product idea. The discussion centres around four major headings, they are:

(1) the collection of product ideas, which covers the
basic sources that a company can use for new ideas; (2) the screening stage, which first discusses the importance of product policy in determining relevant ideas, and second, presents the details about the market and production studies required at this stage; (3) the product specification stage which describes the details required in the advanced market and production cost studies; and (4) the predevelopment and testing stage which discusses briefly, the role of product testing and the subsequent product modifications.

(ii) Chapter III

In this chapter there is a discussion of the role of marketing research in new product planning. Reference is made to several studies that have been carried out to determine the position that marketing research assumes in industry today. The major part of the chapter deals with the activities the marketing research department performs that are relevant to new product development. This latter discussion is presented under the following headings: research design; product uses; product users; determination of market characteristics; and analysis of competition.

(iii) Chapter IV

Chapter IV presents the organizational details of the proposed new product planning department. Initially, the new product planning activities of several industrial companies are outlined briefly. This is followed by an introductory discussion of the importance of creative management and the importance of co-ordination and organization in the proposed department. There is a brief analysis of the difference between an unstructured and a structured new product planning operation prior to the detailed presentation of the proposed department.

In the presentation of the department, the first topic discussed is the importance of a preliminary audit of company resources. With this audit completed, the company can establish a department to exploit the firm's strengths and to avoid its weaknesses. Initially, the organizational form and the scope of the department's activities are discussed. This is followed by an analysis of the authority relationships, the communications system, and the control measures of the department. Thus Chapter IV presents the details of the organizational elements of the new product planning department.

(iv) Chapter V

The results of a series of interviews that were held with a representative of a leading Canadian
chemical company are presented in Chapter V. The objective of these meetings was to gather the details of the new product development process of the company. To facilitate clearer understanding of the information, some background material about the firm is presented. This data is combined with a ranking of the competitive sales position of each of the firm's major product lines. The information pertaining to the firm's new product planning operation is presented under a format similar to that used in Chapters II and IV.

(v) Chapter VI

In this chapter the proposed system is compared to the system used by the firm studied in Chapter V. Initially, a brief review of the two operations is presented to prepare the reader for the ensuing comparison. The two systems are analyzed under the following headings: product policy; co-ordination; communication; and authority relationships. The purpose of Chapter VI is to illustrate the relative strengths and weaknesses of both of the operations.

(vi) Chapter VII

The concluding chapter presents the summary of the material covered in the thesis and the conclusions that have been drawn about the proposed system. This chapter is organized under the major topics that have been used throughout the entire thesis.
CHAPTER II

PRODUCT POLICY AND THE DEVELOPMENT OF A PRODUCT IDEA

A. Introduction

(i) Product Policy

Prior to developing the proposed new product planning department in Chapter IV, there are several topics that must be discussed to provide a framework around which the department can be constructed. In Chapter II, product policy will be studied with reference to its importance in new product planning. The discussion will include: the policy's relation to company objectives; and the major functions that the policy provides for the firm. There will also be an analysis made of the various factors that a product policy should include, these are: a product's capital investment and the expected return; a consideration of the market demand conditions; the competitive situation; and the new product's effect on existing products.

(ii) The Developmental Process of a New Product Idea

The second part of the chapter deals with the four stages that a product idea passes through prior to becoming a final product. The four phases are intended to represent the four major decision points in a product's development. The first section merely deals with the
methods that can be adopted in collecting product ideas. The importance of utilizing all sources is emphasized because potential products can come from many different idea sources. The second phase is termed the screening stage. The company's product policy and the approximate cost and revenue estimates are used as the basis for this preliminary analysis.

Thirdly, the product idea passes through the specification stage. This means that the decision has been made to carry out a detailed market and production analysis. The product specifications are determined after a complete analysis of all of the important market factors and engineering details. In this third stage all departments of the firm can take part in the data collection. The product's properties are specified at the completion of this stage and it is ready to be tested by the technical services people. The method of testing is often determined by the product itself. Normally, unique products are fully developed in the company's pilot plant operations while existing product modifications are often tested in the processes of major customers. After this stage is completed the decision is made whether to produce the product or temporarily discard it. Once the product proceeds past this fourth stage it then becomes the full responsibility of the line departments which must produce and sell it.
The Role of Product Policy in New Product Development

(i) The Functions of a Product Policy

In establishing a new product planning department to guide product ideas through their various stages until they appear finally as commercial products, it is assumed that there is some basis upon which these ideas are evaluated. There are certain decisions, based on definite standards, that must be made at each step of the evolution. These standards or criteria are normally referred to as the product policy. Some of the purposes that a product policy serves will be outlined in this section.

Many companies have a written policy which outlines a set of standards to follow, although there are also many firms that do not put any such limits down on paper.¹ It is not the purpose here to discuss the merits of a written or an unwritten policy but only to point out that both forms do exist.

When a company is established there are certain basic long term objectives that it adopts with respect to future expansion and profit growth. These objectives provide management with a framework within which it can build a set of policies to use as a guide to operating

decisions. One of these policies is the product policy which is the guidepost for all product line decisions. According to Kline, this policy serves three functions for the company.\(^2\)

The first function states that a product policy provides information to facilitate decisions that must be made as to the content of the product line. When management sets out this policy it has rather definite ideas of the areas into which it is willing to expand. If the firm is presently in the chemical industry, it is likely to establish some limits on new product development that will keep it within the boundaries of this industry. There are certainly exceptions to this, particularly in the case of companies that acquire firms in entirely different industries. However, a firm's product policy should serve the purpose of defining the areas into which its product line will or will not expand.

This first function is important in the very early stages of the activities of the new product planning department. It acts as the screening device which the department uses to sift out the relevant ideas and to eliminate those deemed irrelevant.

The second function of a product policy that Kline

\(^2\) Kline, op. cit., pp. 91-92.
suggests, is its use as a supplementary check on the usual estimates of profit and loss. He claims that techniques such as market research and sales forecasting provide data which are only approximations. Kline said that "an unsatisfactory record for an existing product may reflect a basic mistake in product policy, but it may also be the result of poor organization, unsuitable sales and promotion, faulty design, or inadequate plant facilities." An analysis in terms of a basic product policy often shows up weak spots in the financial estimates and indicates factors which are not easily reduced to numbers.

The third purpose mentioned by Kline is the most relevant to this thesis. He refers to the policy as a device to direct the activities of the entire company towards some common goal. This agrees with the statement that new product development is a frame of mind in the organization. For the new product planning department to operate effectively, this united atmosphere must be present and for it to be present there must be a product policy which acts as a directing or co-ordinating device.

Product policy, to be effective, must be communicated to all personnel so that it can operate in the desired way. With all personnel being familiar with the policy it may be utilized, not only in top management

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3 Kline, op. cit., p. 92.
decisions, but in the day-to-day decisions that are made in the lower management levels.

(ii) The Necessary Elements of a Product Policy

Once the function of the product policy is established, it is necessary to formulate the policy including the relevant elements in it. The financial investment required and the potential return on that investment, are two of the most important factors that must be considered in any product decision. A company is in business to produce profit for its owners and thus any decision pertaining to investment in buildings or equipment that is required for the production of any new product must be made with extreme care. Marketing and production cost information must be available if management is to make valid decisions. The executives must have some estimate of the potential sales volume of a given product so they can determine the process economics. Therefore the product policy should attempt to define some standards of investment return to facilitate product-line decisions.

The demand conditions in a company's market may have important influences upon product decisions. The product policy should be designed to enable new product development in the areas that are indicated by present market conditions. It is obvious that a policy should be flexible to allow a shift in the company's product mix
which is consistent with changes in market conditions. These market factors may change because of changes in customers' product mix, or they may be as a result of changes in manufacturing processes by customers. 4

The competitive situation is the next factor to consider in a product policy. There should be some standards stating whether a company will enter a certain product field if it cannot hope to gain an advantage over present competitors. Some firms are not satisfied with anything less than the number one position. Since only one company can be in the first spot, there are many different policies that can be adopted with respect to this point. If a firm cannot capture the major portion of the market it can attempt to seek other advantages perhaps through a superior quality product. Such factors are part of a product policy.

The effect that a new product might have on present company products or on the products of a customer is another important decision area. When a new product is introduced into a line there is a distinct possibility that it will have an adverse effect upon existing products that are comparable. There is also the possibility that a new product might be in direct competition with a product

of a major customer. The effects of the introduction must be evaluated carefully in these cases. Each situation must be evaluated on its own merits but normally the company has an established policy in terms of what it will sacrifice with its established products and how much damage it will do to a customer relationship.

The list of factors to include in a product policy could become almost endless but certainly there will be policies referring to the effect that new products will have on distribution channels. The costs that are sometimes related to distribution are a significant portion of the total costs. A particular product idea may have to be abandoned because of additional costs that may have to be incurred. The same situation might occur with raw material supply channels and costs.

(iii) Summary

The product policy is the guidepost which the new product manager can use to evaluate an idea's progress at various stages of its development. The flexibility of this policy will depend upon the specific situation; it must be rigid enough to be effective and yet it must be flexible to allow profit growth. The product policy's importance will become apparent in Chapter IV where the responsibilities of the new product planning department are developed.
The Developmental Process of a New Product Idea

The details of the four stages that the new product ideas pass through will be discussed in this section. The product idea sources and the methods of tapping these sources will be illustrated first. The second topic will be the discussion of the screening stage. This will be followed by an analysis of the important aspects of the specification stage, which in turn will be followed by the discussion of the predevelopment and testing stage.

A. Obtaining Product Ideas

The backbone of any new product development operation is the existence of a supply of sound product ideas. The sources of the ideas will vary from industry to industry but there are many generally satisfactory areas that can be exploited by an alert company. At this stage of the idea development no concern should be given to company product policies because if the ideas are not relevant they will subsequently be discarded. The important factor is to investigate many different sources and not to narrow the search to a few established ones.

New products are inventions. Their origins lie in the mind. The causes which produce them can be observed, and two stand out above the rest.\(^5\) One is the dissatisfaction

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with things as they are and the second is a special ability to produce. These two are especially relevant in the chemical industry but should be applicable to many other industries. How are the new product ideas stimulated? One answer might be that there is a recognition of a need for a product or service not now available or it might be the recognition of a special ability to produce. In chemistry a frequent source is creative thinking and an outgrowth of this is the finding of something of value while searching for something entirely different.

What is meant by the statement "recognizing a need?" Most companies start their operations with one product based on one idea. As experience is gained, there is often an urge to add different products to the line which will contribute to stability and profits. In a dynamic organization this need for new products results in alerting the personnel to carry out searches for acceptable ideas. Now the seed has been planted and time will produce ideas whether they be from sales personnel, who through their interactions with customers, have developed worthy ideas or from research people who have come up with ideas to supplement the company's product line. Once the company establishes in the minds of the personnel the fact that new ideas are desired, the probability of obtaining them is greatly increased.

Another stimulant which is responsible for several
ideas in industry today is the effect of social pressure or legislation. In the chemical industry, it is not unusual to have government departments (i.e. defense, agriculture) request the production of certain types of chemicals. Often the products requested are new and different from any existing at present. This offer presents a challenge to the research people to come up with new ideas that will satisfy the requirements of the government request. The fact that the government contracts are usually substantial is an added stimulus to be the first to develop the desired product.

Increasingly, legislation is concerned with stream and air pollution. Because the pretreatment of industrial wastes can be a costly operation, every effort is made to develop techniques which produce the products in a manner that minimizes the presence of undesirable wastes. These efforts have resulted in new ideas such as the various types of flue gas precipitators which reduce the concentration of unfavourable substances in the effluent gases of a process. They have also caused the development of many processes which utilize the wastes or by-products of other processes. An example of this was given by the company representative who was interviewed. Chlorine, which is difficult to dispose of, is a common by-product of

6 See Chapter V of this thesis.
his firm's processes. To utilize some of the chlorine, the firm developed a method of producing Phosphoric Acid which requires chlorine at some stage of the process.

Thus the stimuli that cause new product ideas to come forth can be from many different sources. In the following section reference will be made to some of the specific areas which management can look to for new ideas. The sources of new product ideas can be divided into three groups called primary, secondary and tertiary. The primary sources are those within the company itself. The specific areas within the firm would, of course, depend upon the nature of the organizational structure and the personnel. Some of the main departments that would be worthy of examination are the sales, research and development, patent, engineering, and manufacturing departments. Many of the ideas emanating from these sources will be a result of creative thinking, while others will result from interaction with some of the secondary or tertiary sources.

The secondary sources can be grouped under some major headings. Some of these are: technical consultants; research institutions and foundations; customer complaints; customer inquiries; competitor's activities; educational institutions; government laboratories; and independent inventors. The methods that could be used to tap these sources are difficult to determine. It is
evident that too much concern given to these areas could become costly and time consuming. However, the new product planning department should endeavour to arrange that all of these sources are examined periodically.

The tertiary sources are also valuable because many of them can be studied without excessive cost or time. Some that are worth examining are: trade advertising and literature; trade journals; professional societies and their publications (i.e. Chemical Institute of Canada); scientific publications; Federal and Provincial Departments of Trade and Commerce and private survey sources.

The new product planning department must establish a program for planned idea generation. This will require that all members of the organization be made aware of the various sources because a company can never determine where its next good product idea will come from.

Many pertinent ideas may be overlooked if the firm has no co-ordinating body such as the new product planning department. This department becomes designated as the idea collection body. Often aggressiveness and creativity are not parallel personality characteristics so the department must be prepared to "pull" out ideas from some sources. In other words, it must develop methods of encouraging the personnel to offer the ideas that they have created.

This aspect of the department's activities must be
designed to enable a comprehensive collection and preliminary evaluation system. Obviously, many of the ideas submitted will be beyond the realm of possibility for the firm but the department must be careful in dealing with the ideas for several reasons. First of all, too hasty rejection could mean the loss of valuable ideas and secondly, and perhaps even more important, too hasty rejection could mean the loss of an excellent idea source. Because of these factors, care must be taken when handling the person submitting the idea.

B. The Screening Stage

The second stage of the product idea's development is concerned with a careful screening process. Let us assume that the new product planning department now has a group of ideas that have been considered worthy of further study. These will have to be screened in far greater detail and developed to the point where an intelligent decision can be made whether to consider them further or to reject them. This stage is still a preliminary one but some approximate cost and market data are necessary.

The first stage of development is to expand each idea into a full product concept. In other words, the idea must be translated into business terms. This process requires some preliminary information from the research people pertaining to possible uses for the product as well as
possible difficulties that may arise. The department will also want some estimates of production costs and possible capital expenditures. The marketing group will provide information with respect to potential markets and the competitive situation. At this preliminary stage of the development it is not necessary to carry out an extensive study of these information sources but merely to gather enough data to allow an intelligent evaluation.

Readily available facts and opinions bearing on the product ideas as business propositions should be collected. With the assistance of the other departments the new product planning department should identify the best sources of facts and qualified opinions and tap these sources in the most rapid and most inexpensive method. It is suggested at this stage that telephone interviews and basic references may be adequate. To prevent too extensive searches being carried out, the department should restrict the amount of time it will spend on its preliminary examinations. It must be remembered that at this stage the new product planning department is examining several ideas and that an extensive search at this time would mushroom costs out of proportion. However, this does not imply that a careless search should be made because it is felt that this stage is extremely important in separating the relevant ideas.

Continuous reference should be made to the product
policy of the company while collecting the production and
marketing information required for the screening process.
This means that the policy's stipulations regarding in­
vestment restrictions, market demand, competitive effects
and the product's profitability, should be considered care­
fully. The prime consideration will be an estimate of the
magnitude of the profit opportunity.

The ability of the new product department to use
the available facilities of the company, will be tested.
The first step might be to consult the marketing depart­
ment and have it determine estimates of the total market
for such a product. The new product department would want
information regarding the size of the total market with an
indication of the producers presently in the field. If
there are competitors, the department would require an esti­
mate of the relative sales positions of these companies. It
would also want to know if there were any indicated changes
or trends. An estimate of the strengths and weaknesses
of the competitors' products is important, however, it may
be difficult to determine. The most important element in
this initial study is an estimate of the company's share
of the market after the product is introduced. This estimate
is obviously very subjective but it can be made on the
basis of past introduction schemes and the value that cus­
tomers put on the company's name. For the marketing
department to make acceptable estimates, the new product
planning department must enlighten it about the possible characteristics of the product and its strength and weaknesses.

The department will also require some cost and production information from the production and engineering departments. It will give the production people the details of the product proposal and ask them for approximate estimates of the equipment, men, and materials that would be required. The new product department would also want some estimate as to when the product, if accepted, could be in a final marketable form.

The new product planning department at this stage has collected preliminary marketing and production cost data. With the assistance of the finance department, it then must make an assessment of the investment, time and risk requirements. The department must also consider the legal and regulatory aspects of the product idea. This will include an investigation by the legal department into patent protection possibilities and also the chance of patent infringements. The lawyers would also investigate such things as federal regulations pertaining to advertising, excise taxes, and prices and allowances. They should also examine provincial legislation with regard to taxation, limitations on sales or advertising, licensing requirements and any other areas worthy of investigation. It might be necessary for the industrial relations depart-
ment to examine some aspects of the labor union regulations depending upon special characteristics of the product.

The screening stage is, for all intents and purposes, over at this point. The department now must review all the information and prepare a recommendation for top management. The new product planning department does not have the authority to approve projects without the permission of top management. It is the department's duty to submit a recommendation to management giving its opinion on the product idea. Even though it strongly recommends the idea, there is no guarantee that management will approve it.

Those ideas that the department does not develop further are set aside but they should not be permanently forgotten. There should be a stipulation that the department must review the rejected ideas periodically because the conditions of the market might change to make the product investment worthwhile.

C. The Product Specification Stage

It is assumed that top management has approved the preliminary report that the department submitted to it at the completion of the screening stage. If a company is large, there would be several product ideas being developed at the same time. Therefore it is safe to assume that the
department could not possibly co-ordinate all activities of new product planning and at the same time carry out detailed product analysis. It is for this reason that one aspect of a scheme suggested in the literature will be used. Product project teams will be adopted. The members of this team will be from research and development, marketing, and production. Their appointments will be in conjunction with the approval of their respective department heads. It is preferable to have one of the members, if possible, from the group that did the original work on the product idea. To a lesser degree this team is also a co-ordinating body in that its task is to carry out a detailed analysis of all aspects of the product in the development of preliminary design specifications. The project team should be under the authority of the new product planning department but it may call upon the various line and staff departments for the detailed information necessary at this stage. The members of the team would be full-time employees of their line departments but they would be temporarily on loan to the new product department. This does not mean that at the same time they would not be expected to carry out a certain amount of their normal duties. Thus working under the auspices of

the new product planning department, the project team will set out initially to determine the desirable market features for the product and its feasibility.

Several of the areas touched in the screening stage are re-examined in more detail in this stage. The project team must be thorough because the results of its findings will be used as a basis for the recommendation to management to carry out a development and testing stage on the product. Another reason for thoroughness is that beyond this point the product idea moves into areas where considerable capital expenditures will be required.

The team should initially examine the market aspects of the idea because unless these appear favorable there is little use in developing product specifications. The extent of market research carried out is often inadequate and as several writers pointed out, too little research is often the reason for new product failures.

With the assistance of the market research department the team will determine the size of the present market and the potentials of it. This is often a difficult determination because if the product is a radical improvement upon present products then an estimate as to future expansion is difficult. This difficulty was pointed out in a case history of Dow Chemical's Chlorothene Nu which was an improved solvent used for cleaning several common metals. This product was developed to replace solvents like carbon
tetrachloride even though it sold at a higher price. The prime selling feature was that it offered one twentieth the risk of explosion or poisoning. In the initial marketing program the new product sold a quantity which considerably exceeded the amount of traditional solvent that it replaced. Therefore the total solvent market was expanded. This expansion had not been predicted by the company's research operation. When the project team attempt to establish the market size and its growth trends for a new product there may therefore be certain factors that are not predictable.

As indicated earlier, an important part of the market study is the determination of what part the competitors play. In the chemical industry, a large percentage of the new products are developed as replacements for others so that when a new product is developed, it seemingly has some characteristics that the company considers superior to those in any existing product. In its investigation of the competition the team will work with the marketing or sales departments. Some of the obvious information it will look for is the present share of the market that given competitors hold. This information can be obtained quite accurately through several sources, one of which is trade publications. The team will also be interested in any information pertaining to future moves planned by competitors. This will obviously be more difficult to
determine than information pertaining to present market conditions. One source of this data is often a common customer. An alert salesman may be able to get information from a customer who has had discussions with competitors about possible product changes. The reliability of information in such cases may be questionable because competing companies have been known to plant rumors to lead their adversaries astray.

With the assistance of customers and the technical services department the team can get valuable information about the strengths and weaknesses of competitors products. This information will obviously be useful in establishing product specifications at a later date. With these facts in mind and a good knowledge of the characteristics of the new product the team must make an educated estimate as to the percentage of the market the new product could obtain. This might require hypothesizing some price ranges to determine the market's sensitivity. These ranges will be largely determined by production costs, competitive prices, and the market's price sensitivity.

The impact that the new product will have on sales of related products of the company is an important area to study. This problem existed for Dow Chemical which made both Chlorothene Nu and carbon tetrachloride. Some of the information necessary for this estimate can be
obtained from the sales department. It should be familiar with the strengths and weaknesses of present products and all the uses to which customers put them. At this stage it may be helpful to have the technical services people carry out a small scale experiment on the product to give some preliminary information to the team about the product's performance characteristics. These data may be helpful in evaluating the product in relation to competitors and in relation to the company's present products. It should be pointed out that this research work would be done within a predetermined budget that the team had assigned to it. The new product planning department has budget restrictions that have been established for any product that goes beyond the screening stage. The department has several products that it develops fully in any given year. Therefore each project team is given a restricted budget that it can spend on its investigation operations.

It must not be assumed that because a product has reached the specification stage it will be accepted. It is during this phase that detailed studies are carried out that may well show that further development is unwarranted.

With the assistance of the marketing, marketing research, and technical services department the team is equipped with extensive information about present and potential markets, competitors products, and the new product's
characteristics and usefulness. With this information gathered the team must now attempt to evaluate the feasibility of developing and manufacturing the product as conceived.

Before submitting its findings to the department, the team must gather another important set of data. It has now determined the desirable market features for the product, therefore the team must now develop specifications and establish a definite development program for the product.

For assistance with product specifications the team will approach the production or manufacturing personnel. It is assumed that the line department managers have been kept posted as to the progress of the product's development. They will therefore have information about the market potentials and the product's characteristics. Estimates of required building facilities and production equipment will be determined for the team. It will also want to obtain data with respect to possible additions to the existing personnel. The production and purchasing personnel will also provide information about the sources, quality, and costs of raw materials.

The product team now has complete marketing and production information. With the new product planning department, it will convert the data into a sound business proposal in terms of time, cost, manpower, possible profits,
and other benefits. The proposal will be submitted to management for the decision of whether to continue with the development or to discard it.

The importance of management's decision at this stage must be realized. To this point in the development there has not been any significant expenditure in terms of capital equipment other than laboratory supplies. A considerable cost in terms of employee time has been made but now, if the idea is approved, the next step will probably require the establishment of pilot plant facilities or perhaps even production facilities. Because relatively large expenditures will be required, the advantages and disadvantages of the proposal must be weighed carefully.

It will be useful to summarize the operations to this point. An acceptable way to do this is to look at the entire developmental process in relation to the part played by the new product planning department. In the initial stages, the major role was played by the department that produced the idea. As the idea progressed to the collection stage and then to the screening process, the role of the new product department emerges into the prime position and continues to be primary into the specification stage. The idea will now move into a testing stage where the new product department will still be active but the roles of the production and marketing departments will begin to emerge and increase in importance.
D. Predevelopment and Testing Stage

In the final stage of the development the new product department will work hand in hand with either the sales engineering or the technical services department, whichever one is in close contact with the customer. The objectives of this stage are to determine specific product-design defects and to determine any product characteristics that should be altered. The department also attempts to determine specific product advantages for use in an effective sales and promotional campaign. With effective testing techniques it will attempt to uncover any latent demand; that is to discover any new applications of considerable market importance. At the same time the new product department may be able to determine more accurately the competitive position of the proposed product.

In the chemical industry the techniques of testing will vary from product to product depending upon the role it plays in the customer's production operation. A common method is to have the technical service men work with the customer and introduce the new product into a process on a temporary basis. This is of course done at the cost of the testing company.

The new product planning department can guide these activities and make sure that the type of information
required is obtained in the tests. It is then able to take the information and present it to the respective divisional heads who in turn can decide two things: first, they decide whether the product as designed requires alterations, and secondly they decide, after extensive testing, whether to proceed to the full commercialization of the product. Once this stage has been reached the activities of the new product planning department are terminated with respect to this new product.
CHAPTER III
THE ROLE OF MARKETING RESEARCH IN NEW PRODUCT PLANNING

A. Introduction

The role of innovation has become an integral part of the industrial community in the North American economy today. Innovation can refer to change in markets, organizational structure, production techniques, and product line. With product change there are two main problem areas that must be studied prior to adoption of a new product. These are production or technical problems and market analysis problems. The technical problems in industry today, are certainly not minor but they are continually being handled with more ease. Companies are discovering that their major area of concern with product introduction is that of market analysis.

Until relatively recent years companies were almost totally concerned with the problems of production and operated on the premise that what could be produced could be sold. After many disastrous introduction failures, some of these companies made the change from production orientation to market orientation.

Market or marketing research includes the analysis of a firm's present and potential market. The term market research is somewhat more restrictive than the latter term.
For the purposes of this thesis the more common one, marketing research, will be used. Crisp has defined it in the following way:

... it is the systematic, objective, and exhaustive search for and study of the facts relevant to any problem in the field of marketing. It includes the analysis and study of the sales methods and policies which can most effectively be used. The analysis and study of proposed new products, sales forecasting, establishing territorial sales potentials—all these fall within the area of marketing research." 1

When people hear the term research, immediately they think of the process of gathering facts about a specific problem. In the case of technical laboratory research this is often the situation but in marketing research the collection of the factual information is only one part of the process. Knowing what to do with the information once it has been collected is the most important step. It is necessary to evaluate all market information in a careful, objective and unbiased manner. The decision of whether to carry out a certain product project is made during the process of interpreting results.

Product failures have influenced many companies to change their approach to new product introduction. The

major reason for many of these failures has been too little market research. There are, in turn, three explanations for this lack of research. One is that many additions to product lines are made solely for the purpose of meeting competitive moves. These matching moves are often made without careful analysis of the size of the potential market for that particular type of product. The lack of research not only creates problems as to market size but also means that there is neglect in studying the profitability of the product, the potential life of the product and several other related problems.

Another reason for hasty introduction is the belief by management that new products are the automatic key to growth. Companies are often obsessed with the notion that growth is the measure of success and to maintain the growth they often attempt any acceptable line of action. This policy can be a successful one if applied in a carefully planned manner but often in introducing these products, the companies are overly concerned with short-run profits. This obsession with the short-run can be disastrous to the long-run future of the company.

The failure to develop a sound marketing plan to facilitate the guaranteed long-run growth of the company

2 Richard D. Crisp, op. cit., p. 15.
is the third reason for minimizing marketing research. The lack of a program can often lead to the short-run approach discussed above. If there is no plan then often management will adopt this approach and be concerned only with products ensuring them of returns in the near future.

An organized marketing research operation could help a company to avoid these pitfalls and could produce a far higher ratio of product successes to product introductions. The United States Department of Commerce estimates that eight out of ten new products fail. This means that only one out of five products that reach the production stage are successful. One large chemical company reports that out of 100 new product ideas, 95 are discarded after varying stages of investigation, and of the five that eventually reach the production stage, only one is successful. It appears then that even with careful analysis the chances of success are relatively small. Unfortunately, information is not available pertaining to how many products are successful with marketing research and how many are successful without it. A determination of this sort would be practically impossible because of the difficulty in differentiating formal from informal research. Marketing research of some type is done on all products introduced.

It is an organized approach that shall be dealt with in this study.

B. History and Growth of the Activity

Probably the first marketing research study as it is known today was conducted in 1879 by N. W. Ayer and Son, a local advertising agency in Philadelphia. The agency attempted to determine their clients' needs prior to setting up the plans for their advertising programs. However, according to L. C. Lockley, it was not until 1910 that market research became a recognized form of business activity.

Since that time the popularity of the activity as a function in a firm has grown until it is now practised by numerous types of companies and agencies. Manufacturers, as a group, are the greatest users of marketing research. In larger firms the marketing research activity is usually formalized with an elaborate division of labor. There has also been a growing tendency to integrate the activities of the market research department with those of the marketing and production departments.

Market research is used to a much lesser extent by retailers and reluctantly by wholesalers. A growth in its use with wholesalers has been evidenced with advances

in warehousing methods and inventory control techniques. Marketing research is also carried out in varying degrees by: government agencies which examine almost every aspect of marketing; marketing research agencies which work on special problems for other business organizations; advertising agencies; trade associations; universities which carry on basic research into fundamental marketing problems; and several other forms of businesses such as newspapers.

Crisp in a study carried out in 1957 and 1958, examined company practices at that time. He investigated the number of firms that carry out any form of marketing research, the organization of the department responsible for it, the scope of its operations, and the status and responsibilities of the people occupying the positions. Crisp sent out 1,000 questionnaires of which he received 239 in return. He classified the results according to the size of the companies which he grouped as follows: small ($0 - $25 million); medium ($25 - $100); large (over $100 million). His sample of 1,000 firms was chosen from a list of manufacturing companies listed in a standard business directory in the United States. Of the 239 replies only 44 firms did not practice some form of marketing research. Only 27 per cent of the 195 firms that

5 Crisp, op. cit., pp. 7-33.
used some form of research were classified as small according to his standards; 30 per cent were medium; 41 per cent were large; 2 per cent did not report their volume.

It is impossible to draw any conclusions from this survey because of the lack of knowledge of the techniques used and because it is not known why some 761 firms did not reply to the questionnaire. Canadian firms are often a few years behind their American counterparts in adopting new activities like this, therefore it would be impractical to try to draw any conclusions about the Canadian situation even if the data were valid.

Another study sponsored by the National Association of Manufacturers in the late nineteen forties showed that only 38 per cent of the responding companies performed any marketing research activities. 6 The purpose of noting this report is not for the results, which are outdated, but it is to indicate one of the conclusions that was reached. The study stated that even though many of the companies reported that they performed no marketing research, the investigating committee decided that all companies perform some research functions or it would be impossible for them to remain in business. It was assumed that the

respondents, in these cases, failed to recognize the functions they performed as marketing research functions; they probably considered them as normal functions of the line departments which were performing the functions at that time.

Tietjen's study for the American Management Association stated that one of the key problems in product planning was determining the size of the potential market for a given product. It was for this reason that one of the executives he interviewed stated that market research had a vital role in new product development.

C. Industrial and Consumer Marketing Research

Prior to discussing the role of marketing research in new product planning one must differentiate between the orientation in consumer goods research and industrial goods research. This means illustrating the difference between the two kinds of goods themselves. Normally, industrial products are those that are used to produce other goods or to render some service whereas consumer goods are thought of as those sold to a householder in the form for final consumption.

The important distinguishing characteristic is the

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purpose for which the product is used. Many products on the market bridge the gap and are used in the same form by both types of purchaser.

The major differences in the marketing of these two kinds of products lies in the buying motives and criteria of the customer. Traditionally it was assumed that consumer goods were bought for emotional, esthetic, and impulse reasons, and to satisfy certain basic needs of food, shelter, and clothing. The industrial buyer will sometimes buy on impulse or for prestige, but generally he buys objectively asking himself such questions as: Do they meet industrial specifications? Will they save the company money? Will they pay for themselves in lowered maintenance costs? Another important difference is the number of buying units. The industrial producer often has only a few hundred potential customers rather than thousands or millions.

The marketing researcher then must clearly define his product and potential market and attempt to study them in a relevant manner. The new product studies in these two basic categories would obviously take entirely different approaches.

D. Positions of Marketing Research in the Organization

In advocating the necessity of having marketing research performed in conjunction with new product develop-
ment it was not felt that any one organizational form was superior to another. To optimize a company's introduction activities it is suggested that some form of marketing research is necessary. In some companies the research people are organized into a separate unit with the director in a relatively high administrative position. In many cases he is a participant in some policy decisions. The practice, in other firms, is to develop a specialty within the marketing department so that the activities are directed by the person in charge of marketing. Crisp investigated the form of the department in the firms that replied to his questionnaires. It will be recalled that there were 195 firms which returned the questionnaires and these were broken down according to size. It will be illustrative to present his data.

Crisp found that 63 per cent of the firms made marketing research a full-time responsibility of a specialized department or individual; there were 19 per cent with part-time responsibility of a line executive; 7 per cent with part-time responsibility of a staff executive; 3 per cent with responsibility assigned to an outside agency, but an individual within the firm had part-time responsibility for communicating research findings and co-ordinating use of data; 5 per cent responsibility shared by two or more of the above; and 4 per cent were unclear responses.

Twenty-one per cent of the responding small
companies had marketing research as a full-time responsibility; in the medium size firms it was found that 66 per cent practiced it full-time, and in the large firms the figure was 88 per cent. These figures are useful in illustrating how in firms of substantial size the tasks performed by the marketing research department seem to be of utmost importance.

E. Activities of Marketing Research and New Product Planning

In the evolution of the product idea discussed in Chapter II it was emphasized that the process consisted of continuous stages. There were decisions that had to be made at the end of each stage with respect to continuing the development of the product idea. In making these decisions, questions of market potential, production costs, and control factors had to be considered. As the product approached its final form, the market analysis estimates became more exact.

The new product responsibilities of the marketing research people will be presented in this section. As the process advances, it will be shown where the information fits into the evolution discussed in Chapter II. Marketing research is not only used in connection with new product development but as mentioned previously it is also used to evaluate present products and to modify them where necessary. However, regardless of the type of study that
is to be carried out, it is necessary to design a research investigation to enable an organized approach to the problem.

(i) Research Design

The design acts as the model or master plan for the investigation and can only be made after the problem is clearly defined and the objectives of the research are specified. The problem and the objectives should be considered carefully in relation to the time and resources available for the study. The American Marketing Association suggest that the design of the project should be put in writing and it should cover some basic areas.

The design should include: the objective and its relation to the problem; the methods that will be used in attaining the objectives; the form in which the results will be presented; and how the results will be used. The design should specify a time schedule for the entire operation, including possible deadlines for the various phases of the work. To facilitate control of the proceedings there should be a budget broken down into the types of expenditures. Depending upon the individual characteristics of the study, the design may have to include other

information not listed above.

As well as providing a master guide for the investigation, the design performs other functions. It promotes careful advance analysis of the problem, of the possible methods of approach, and in general, of the nature and value of the proposed project. The design must also recognize and account for the various factors that might affect the investigation's results or confound the analysis.  

It promotes efficiency because possible obstacles have probably been reckoned with and planned for. When one can refer at any stage of the project to a written plan of its entirety, problems can be resolved more readily. The final function that the design can provide is that of a control device. Personnel and budget requirements have been estimated in advance, therefore, at various stages of the project, reference can be made to the design, to determine if there are any deviations from the estimates.

(ii) Product Uses

The market researcher must have some basic knowledge about the new product which he is studying. Obviously he must be aware of the possible uses of the product before he can make any estimates about the potential market size. The task of determining uses for established

products is much easier because many of the uses are already known while others can be determined through studying the literature. When dealing with an entirely new or unique product, the problem of determining the possible uses for it is much more complex. Here the researcher is looking for applications that do not exist as yet. A search of the literature or other companies' product lists will not give him any assistance. In a situation like this he must study the characteristics of the product and use his technical knowledge to try to determine how it can be used. Members of the technical services and research and development staff should be consulted to gain their experience. In any case it is obvious that imagination is required.

(iii) Product Users

After estimating possible product uses, the next major task is to determine who the potential users are for the new product. Normally a company keeps itself abreast of developments in the industrial world in which it operates. It can determine what companies are producing certain types of products through continuous study of trade publications. Often the sales staff keep the firm posted on industrial developments in its markets. The market researcher then has several ways of determining what companies are active in the production of goods which will utilize the product he is studying. This task must
be performed in a thorough manner to avoid missing any potential customers. Once he has information about the uses and potential product users, the researcher must determine in detail the size and location of the market.

(iv) Determination of Market Characteristics

In Chapter II it was stated that when a product idea was accepted for further consideration by the new product planning department, it was believed that a potential need for the product existed. When the department moved into the specification stage of the study and began to carry out more detailed production cost and market potential studies, the researchers were interested in facts about the size and location of the market. There is certain information that the researcher must include in his final report to the new product planning department.

a) Stability of demand

One factor that must be determined is the stability of demand in the market. There are various factors that can influence demand and depending upon the nature of the industry some of these are more important than others. Knowledge of the frequency of technological changes is important in today's quickly changing environment. It is evident that if the frequency is high then the demand schedule for the product may be subject to violent fluctuations and in fact the demand for the product itself may be eliminated because of some technical advance. Seasonal
fluctuation in demand is another common determinant of stability. If a considerable portion of the product's market consists of customers whose purchases are dependent upon seasonal conditions, the demand for the new product may be subject to substantial fluctuations. In some cases a new product is added to a product-line to even out seasonal peaks that presently exist. The researcher should also consider the number of customers that will be using the product. Obviously, a product with only one or two uses and relatively few customers is subject to sudden obsolescence or wide fluctuation in demand. In the preparation of the report the researcher must weigh these factors in coming up with a final estimate of the stability of demand.

b) Buying habits

There must be an evaluation made of the buying habits of the potential customers. The next step is to determine whether the existing distribution channels conform with the buying practices of the prospective users. It is much easier to conform with buyers habits than try to change them. One question to ask in this area is: Do users buy direct from the manufacturer or producer, or are middlemen involved? If there are wholesalers, distributors, or agents involved, who is supplying the customer with the products at present? In other words, if middlemen are involved who are they? Where do they operate from? How well
established are their relations?

c) Price

The importance of price in the proposed product's market must be determined by the market researchers. Normally price is an important determinant of whether a certain product will be used by a manufacturer. To establish a price-volume relationship for a new product often requires extensive study. This cannot always be determined by methods similar to those used in consumer goods research. When the researcher receives price-volume estimates from customers he must evaluate this information carefully and assess the reliability of it.

d) Buying motives

The market researcher in his study must attempt to determine the buying motives of the customers. This type of study is not only confined to consumer goods because often important motivational points can be revealed that give an insight into why the industrial customer buys the way he does. This information can often be useful in determining future trends in the market and its potential growth.

e) Other factors

There are other major forms of information that should be determined during the study. An estimate should be made as to what type of inventory requirements the
customers will require. This data is important to scheduling production runs and determining distribution requirements. Information pertaining to service or installation requirements may be useful in determining costs of the introduction process. It was mentioned in Chapter II that an important piece of information is the effect that the new product will have upon the sales of the existing product line. This again requires complete knowledge of the product's uses. There is a distinct possibility that the sale of the new product will be made at the expense of the existing products. An estimate must be made of the long-run effects of this possibility.

The researcher must concern himself with the local, provincial, or federal codes that dictate product specifications. The limitations of these specifications can have important influences on the product's use and its compatibility with present manufacturing facilities.

The information that a report encompassing all of these areas would include, might mean the difference between a product's success or its failure. F. C. Akers, marketing research director of Crane Company, states that failure to comply with the requirements set down above could and often does mean market mortality of a product. ¹⁰ It is evident that this type of study is

¹⁰ American Management Association, Report No. 8, op. cit., p. 87.
necessary for consistent success in product introduction operations.

(v) Analysis of Competition

The role of competitors in the market must be determined. An important determinant of the policies that will be followed in introducing a product is the knowledge of the competitors' plans and activities with respect to both products and markets. Industrial-goods firms have a more difficult job of accurately evaluating competition than do consumer organizations. Industrial firms generally deal with highly technical products which require factual data rather than opinions. In addition, they work with skilled engineers and professional buyers who base their decisions on a close scrutiny of how much money the use of a product will make them, and how much it will save them. Market information of all types thus tends to be more difficult to obtain and more difficult to interpret and apply.

The first question to answer is: what constitutes the competition? Normally the definition includes the following elements: present manufacturers of products comparable to the products the firm is presently making; potential manufacturers of these products; and competitors' methods or techniques.\(^{11}\)

The study of known competitors usually accounts for

\(^{11}\) American Management Association, Report No. 8, *op. cit.*, p. 110.
most of the researchers' effort. The evaluation of potential competitors becomes increasingly difficult, particularly in a period of diversification and acquisition, when a company producing one product this month could be producing an entirely different type of product next month. It is for this reason that it is necessary to keep abreast of the market activity of people whose products are in the same general areas of application, but who use an essentially different method or principle.

The next questions the researchers ask are, who are the competitors? How many are there? What is their relative strength and position in the industry? The study made of a competitive company should be as detailed as possible. Its organization, financial strength, reputation in the industry, and similar factors that help determine why it has been successful must be examined. An attempt should be made to gather any statistical data on its sales, earnings, and profit history. The competitor's strengths and weaknesses must also be evaluated.

Once the major competitors are known the next task is to determine the market share that each of them possesses at present. Sometimes this information can be obtained from association figures or from government publications. If this cannot be done then another possibility is to review statistical and financial corporation reports. This latter approach may be impossible if the corporations
are large and their statements are consolidated. The company can use field sales staff estimates if these other approaches are not satisfactory. The salesmen can often make fairly accurate estimates of the percentage of the business that competitors are receiving in a particular area. This method is obviously subject to serious errors but it can be used for approximate estimates.

When introducing a new product a company should be interested in the products of its competitors. The first question that the researcher should ask is what are the current competitive products on the market? Once he has determined this he will then try to find out who is producing them and what advantages or disadvantages they have compared with his firm's new product. He should also attempt to determine just how strong the competitive products are so that he can evaluate the opportunity that a new product would have in the market. If the present products are weak, he must decide if the market for a new product is so opportune that other manufacturers are likely to produce it themselves. If the competitors are working on a similar new product, the market researcher should determine how soon it will be on the market and what its characteristics will be. The research department will attempt to estimate the share of the market the new product can capture immediately after its introduction. This will obviously not be easy to determine. The researcher must
attempt to determine the initial share of the market, using information about the competitors' products, the strengths and weaknesses of the firm's new product, and the present market conditions. Much of the information desired can be learned from the technical services people. Part of their job is to continually test competitors' products and compare them with the company's products.

The research staff must use all the information available to it to determine the proper time for introducing the new product. An analysis of competitive moves and general market conditions can often indicate that the time is not right for the introduction of a particular type of product. It is evident that market research is important in this aspect because no doubt too little research has meant that many companies in the past have not taken advantage of a ready market for a new product. The determination of the correct time for introduction may not be easily determined, therefore even with ample research the correct time may still be missed. However, the frequency of success would definitely be higher with research than without it.

One final evaluation that should be made with respect to the competitors is the human element. It is often relatively simple to gather information about products and markets but to know the competition adequately, a company must have an idea of how the competitor's management thinks
and operates. The quality of these people is important because it is with them that the product decisions are made.

(vi) Summary

An important phase of marketing research is the examination and evaluation of the company's competitors. The literature indicates that few firms analyze their competition effectively. 12 This lack of research causes wrong decisions to be made and thus results in a waste of time and material and hence money. The time may eventually come when most firms will realize the value of careful, organized market research in new product development. It is suggested that this research is only one important phase of the activities that must be carried out in effective new product planning. As was shown in Chapter II, a knowledge of the market is essential to the proper procedures in new product introduction, and for that reason marketing research is an integral part of the process suggested in this thesis.

12 American Management Association, Report No. 8, op. cit., p. 117.
CHAPTER IV

THE ORGANIZATION

OF THE NEW PRODUCT PLANNING DEPARTMENT

A. Introduction

A detailed definition of the new product planning department will be presented in this chapter by intensively discussing the responsibilities, activities, and the inter-relationships it has with other departments in the firm. A department will be developed which is a composite of many ideas gained through an extensive search of the literature.

(i) Study's Frame of Reference

To facilitate a clearer understanding of the following material it will be useful to establish the frame of reference from which the ideas were developed. A new product planning department as a separate unit is not desirable for all companies. Many small and medium-size firms could not economically establish a distinct department in their organization. What then is the cut-off point for a department of this type? This question cannot be answered in definitive terms because many companies with dynamic policies, have established active departments which are continually keeping abreast of new ideas to facilitate advancement to the top bracket in their respective industries. Many of these firms are not large in absolute terms. At
the same time many multi-plant, multi-product companies in Canada do not have a separate new product planning department but rather depend upon their parent American company to supply them with their product ideas. This latter technique may be entirely suitable, depending upon the industry, but in many cases it cannot be the optimum method because of the differences between the two countries. These may be economic, raw material or potential market differences.

Can any criteria be established to aid in determining what firms can or cannot use separate new product planning departments? To attempt to answer this question, a study was made of publications that refer to practices in specific companies. In one article the writer stressed the development of sound company policies to facilitate an organized approach to new product programs.\(^1\) He stressed that the company should follow certain procedures before attempting to establish a new product department. Management should first analyze the long-range company objectives and knowing these goals it should then attempt to audit the firm's resources. In other words it should objectively evaluate the personnel resources and the physical facilities. This author felt that with careful preparations and

sound policies, the form the department eventually assumes is not of prime importance.

The approach to new product planning used by the American Standard Corporation is similar to the one that will be suggested in this thesis. American Standard's department consists of a special committee which reports to the sales executive and which acts as the co-ordinating body for all new product developments. The article, in this case, was written by the company's marketing manager who suggested that the important factor in the formation of the department is the organization and structure that it assumes. Thus in the first two articles there are two opposite views, one stressing company policies and preliminary preparation, and the other stressing the unit's form.

The use of a separate new-business development division is suggested by the marketing and technical sales manager of Minnesota Mining and Manufacturing Company. According to the organization chart presented, this division has its own general manager with a large staff under him ranging from a product and process development department to a sales and marketing department. This company's division had complete control of all new product develop-

2 American Marketing Association, op. cit., p. 57.
ments and was solely responsible for all new product activities. Rather than being a guiding and co-ordinating body it had complete functional authority. The major conclusion that the writer of this article came to was that the division was an effective corporate tool.

The Johnson Wax Company took a slightly different approach to the problem. It did not stress the organization of the activity but rather emphasized the need for a co-ordinating body. The writer viewed new product development as a co-ordinating and guiding responsibility.

Du Pont views new product development as an overall way of thinking. The author did not stress any particular type of department but rather he felt that the company as a whole must take a new product attitude. Management must be innovation minded and must encourage original thinking on the part of all employees. This view is supported by McCarthy who claims that the form of the organization does not matter but rather the dynamic innovating attitude on the part of both top management and all the members of the organization is the important factor.


McCarthy does not emphasize organization in new product planning, but he does mention that at present there are six basic forms that this activity can assume. They are: "(1) a facilitating committee (usually top management); (2) a member of management, perhaps assisted by a co-ordinator or a committee; (3) the research or engineering department; (4) the sales department; (5) a new product development department reporting to the director of research; and (6) a new product development department reporting to management."

The proposed system of this thesis, will be similar to the sixth one that McCarthy suggests. Even though a distinct system is proposed it is not the absolute structure that is of prime importance. In Chapter II it was shown that a new product idea must be handled in a certain manner. To enable this to happen there must be some body in the company that will carry out the activities. The organization of that department must be such that the required activities are carried out effectively and efficiently. In an industrial company any one of McCarthy's suggested forms might be suitable depending upon the company's operations. However, to be suitable the department must carry out the required activities in an optimum manner.

7 E. J. McCarthy, op. cit., p. 385.
In choosing the proposed system of this thesis other forms were not consciously eliminated but rather certain tasks were visualized as being necessary and a department was constructed which would perform those tasks effectively. With minor modifications, numbers one, two, five and six of McCarthy's lists could easily become the same system. Only in numbers three and four is the responsibility handled by an existing line department in the company. The advantages of having a separate department or group handling new product planning will be presented throughout this thesis and particularly in Chapter VI.

(ii) The Importance of Creative Leadership

There are particular aspects of new product planning that are stressed in the statements of the company representatives previously cited. It will be shown that there is at least partial agreement with each of these factors. The concept that Du Pont's spokesman presented is felt to be essential to successful new product development. As he indicates, management and the company as a whole must adopt a frame of mind that is conducive to possible innovation. In his book *Leadership in Administration*, Selznick indicates the importance of a creative management. This creative role has two aspects. First, there is what Selznick calls the "institutional embodiment of purpose."

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This is the task of building purpose into the social structure of the enterprise, or to "transform a neutral body of men into a committed organization." Du Pont has adopted this approach in their new product development and this thesis stresses it as an important element to ensure better results with a new product department.

In product innovation Selznick said that "creativity is exercised by strategic and tactical planning, that is, analyzing the environment to determine how best to use the existing resources and capabilities of the organization." The process of "transforming men and groups from neutral, technical units into participants who have a peculiar stamp, sensitivity, and commitment" is ultimately an educational process.

This unified purpose then is not something that management can adopt hastily; it must be developed slowly until it is a way of life with the employees of the company. Koontz and O'Donnell suggest that management's influence is transmitted to all levels through a permeating effect. They say "a phenomenon of extraordinary

9 P. Selznick, op. cit., p. 90.
10 Ibid., p. 149.
11 Ibid., p. 150.
importance is the way in which the influence of the top leader of a group filters through an organization structure, touching each member as it seeps by and largely accounting for the reputation of the enterprise."¹³ Therefore product innovation is not simply the adoption of a separate planning department but rather it is the development of a unified company spirit which is truly devoted to creative thinking.

(iii) The Importance of Co-ordination and Organization

There are two factors, other than a creative spirit, which are important to the success of a new product department. The first is the co-ordinating ability of the department and the second is the actual form that the department assumes. The organization of the new product planning department is important with respect to its ability to facilitate co-ordination and to engender a creative spirit. Arguments will be presented in this Chapter and Chapter VI to show how the proposed system does allow optimum co-ordination of all new product activities and how it also facilitates effective control and efficient communication channels.

The ability to co-ordinate all of these activities is of utmost importance to companies that are developing several new product ideas at any given time. Management

must have some system at its disposal to regulate and guide all developmental operations. Because of this need it will be illustrated that any new product planning department must act as a co-ordinator.

B. Two Basic Methods of New Product Planning

(i) Structured System

It is assumed that there are only two major systems that new product development can adopt: the structured, and the unstructured. The first, which will be developed in detail later in this chapter, is the structured system. Using this method, a company has some specific department or group that is responsible for the new product development activities. McCarthy claims that these departments can be classified under six major headings. The proposed structure will be based on the sixth type that he lists.

(ii) An Unstructured System

If a firm does not have a distinct department responsible for new product planning, how then does it plan and introduce its new products? The company that was studied in Chapter V uses this system, however, it would be difficult to generalize from its activities to all other firms. The forms that this unstructured operation could assume range anywhere from a completely arbitrary introduction scheme where little planning is done, to one where
the operations are effectively handled through close cooperation on the parts of the various departments involved. Under this latter scheme the planning activities are often the assigned responsibility of the various product departments or divisions within a company. The divisional product managers usually act as directors of the new product developments. It is evident that the amount of time they could devote to new product development would be limited due to other responsibilities. In Chapter VI it will be shown how this system could lead to neglect of the developmental activities. Because the variations are infinite and because the procedures followed in any one firm may vary from time to time it is difficult to become specific about the unstructured form. The common characteristics are that the responsibility is not directly assigned to any individual or group and there is no basic evolutionary process that the product idea passes through. In Chapter VI a discussion will be presented which will attempt to show that the control techniques and co-ordinating ability of this form are less than optimum.

There are probably many firms that use the unstructured system which have satisfactory results. Certainly some firms, because of their inherent characteristics do not require a new product planning department but for those that could support and utilize it in their organization, the probability of success in introducing products would
be greatly increased.

The Proposed New Product Planning Department

A. Preliminary Examination of the Company

(i) Introduction

An evaluation of the firm's resources should be made prior to establishing a new product planning department. This includes a detailed analysis of the personnel, productive facilities, product line and management. To allow management to design a department which is best suited to the company's characteristics there must be an objective determination of each of these factors. It is also necessary to examine the product policy to ensure that it is clearly defined and universally understood throughout all supervisory and professional levels of the company. In Chapter II it was mentioned that the policy should state the type of business activity in which the company will engage. It may even include a description of the product scope which is a definition of the product limits of each of the manufacturing units. Management will be prepared to design a new product planning department after carrying out this audit.

(ii) Carrying out the audit of resources

There is considerable evidence that many programs have foundered because the business involved moved too quickly into the execution stages of new-product develop-
merit without sufficient advance planning. Because a new product development activity will be relatively expensive, too low a percentage of new product successes could seriously jeopardize the over-all success of the business. Initially then a company must examine its objectives and ask the question: What are we trying to accomplish with this program? The answers to this question would likely fall into the following categories: (1) to use idle factory capacity; (2) to reduce costs; (3) to get ahead of competition; (4) to fill out the product line; and (5) to maintain an existing technical organization. These replies appear valid on the surface but it is believed that a deeper examination would be more revealing. The answers would be those of department managers and they would represent feelings that their department possesses some resource, real or imagined, which can be utilized in new or expanded fields of endeavor to the ultimate benefit of the business.

When the research and development people say, "We need new product programs in order to utilize our technical


See also: A.M.A. Report No. 8, op. cit., p. 7.

staffs," they are really saying, "here are brains which can contribute to the success of the business, if properly directed." A similar interpretation can be given to the replies of the other divisional managers. Therefore the company must take an objective inventory of its resources to see if in fact the firm is capable of attaining the levels predicted by the department managers.

The knowledge that is actually needed is whether or not the idle factory capacity, for instance, is truly a competitive facility. Is the caliber of the research and development people truly such that they can step out and capture design leadership? Can a broader product line actually be effectively sold through the existing field sales force? Management will decide whether to establish a department depending upon the replies to these questions. The answers might also indicate that the productive facilities have to be expanded or that more competent personnel is required. The resource analysis may also indicate that basic policies will have to be altered if the new product department is to function effectively.

Like any individual, each corporation has its peculiar strengths and weaknesses. The fact that none of us likes to admit to weakness in his own area of operation makes the establishment of a factual inventory of resources a difficult task. The success of a new product activity will depend in great measure on how well the organization
capitalizes on its strengths and avoids overburdening the weak areas. Therefore to be of real value the inventory of resources must be factual.

The exact nature of the inventory will depend greatly upon the type and size of the organization. All that will be suggested here are areas which probably should be considered: (1) management; (2) physical plant; (3) financial strength; (4) specialized skills; (5) personnel resources; and (6) location. To evaluate management such factors as experience in various types and sizes of organizations, experience in various business and market areas, and general professional skill and vitality should be considered. As was pointed out earlier the importance of a careful study of management cannot be overemphasized. It is not only management skill that should be evaluated but also the views that it has on product innovation. It may be necessary to have the audit carried out by an external agency because of the inherent difficulty of management evaluating itself.

The analysis of the plant facilities will produce information with respect to productive capacities, equipment condition, and the versatility of the equipment. These data will assist management in reaching a decision as to the competitiveness of the company's producing units.

This coupled with information about the firm's financial strength will allow management to estimate future requirements and the ability to finance those needs. A study of specialized skills should include: an evaluation of manufacturing engineering knowledge such as tool, machinery, or process development skills; an analysis of specialized product-engineering skills and an evaluation of special marketing skills.

An analysis of the existing product line should also be performed when contemplating the establishment of a new product planning department. The analysis includes a study of each product in terms of its potential sales volume and potential future profitability. It also indicates the life-cycle stage of the various products. This portion of the inventory would be useful in designing the operating policies of the new department.

The relative strengths of the firm's resources will also have to be evaluated. Normal operating or accounting data will be sufficient to supply the necessary information for the appraisal of the physical plant and the financial strength of the company. It is difficult to evaluate management and specialized skills; in these areas a detailed analysis of real reasons for past successes and failures should be helpful in pointing out strengths and weaknesses. A comparison of the productivity of the company's manufacturing facilities with those of other similar companies will often yield useful information. In the final analysis, the
evaluation of the company's resources is made by management. Its decisions pertaining to the strengths of the firm, in the areas studied, will have an important bearing upon the success of the new department. The organization of the new product planning department will be designed to capitalize on the firm's strengths and to avoid its weaknesses, thus the correct evaluation of these resources is imperative.

B. Establishment of the Department

(i) Introduction

It has been shown in the previous chapter that prior to establishing a new product planning department, management must analyze the company's objectives, the product policy, and the firm's resources. With this background information, management is now prepared to establish a department and set forth its organizational details. It has been assumed in this thesis that the company which will be adopting the suggested form is a multi-plant, multi-product firm in the Chemical industry. This assumption is made to illustrate that the firm would be innovation-minded because of the rapid growth of this industry and because of the large research investment that is made to develop new products.

An attempt will be made to develop a department that is flexible to enable its adaptation to most industrial companies. It must be a co-ordinating unit, it must com-
municate all new product information throughout the firm; it must be effectively controlled; it must have enough authority to act to enable effective operation; and it must produce more consistent results with the new product introduction schemes.

(ii) Details of the New Product Planning Department

a) The department's form and staff

In Chapter II it was illustrated how several departments of the firm become involved with the product idea as it progresses towards its final form. Because the company takes an integrated approach, the new product planning department has marketing, legal, and production information submitted to it when required. The new product planning department should be organized to minimize any departmental conflicts because of the need for continual contact with the line departments.

The integrated approach to new product planning has been emphasized throughout the thesis, thus the department co-ordinating these activities will be dealing with all major line and staff departments at some time in the process. The department will also be working with top management to obtain approval for continuing from one stage to the next with a particular project. For these reasons the department will be reporting to the executive committee of the company and thus, as will be shown presently in this chapter, it will be a staff department with functional authority.
To co-ordinate new product development, it was decided to establish a committee system. There will be one permanent member on the committee who acts as the director. He would normally be someone with several years training in many phases of the organization and one with the ability to initiate, lead, and co-ordinate. It would be advantageous if the director was familiar with the operation of the research and development department. This background would allow him to evaluate the product ideas coming from this source more intelligently.

The other members of the committee should be representatives of the research and development, marketing, production, and any other relevant departments in the firm. It is recommended that they be experienced men in their field with the assigned responsibility to act primarily as new product men but to do so in conjunction with the activities of their department. They will still be line employees but their chief responsibility will be to act as liaison officer between their department and the new product planning department. Therefore, the majority of their time will be devoted to the new product development activities of their division.

The members of the committee will still be able to remain updated on all major proceedings in their departments. This dual contact will allow the committee representatives to remain technically competent while co-ordinating the
product development operations. The maintenance of the technical ability will permit more intelligent evaluation of the problems occurring in their respective departments. This is particularly important in industrial companies where the committee is dealing with customers who are technically oriented and who communicate effectively only with people who speak the same jargon.

The committee now consists of four or five personnel. It functions as the co-ordinating body of all new product development in the firm or respective division. The reference to a division infers that if the firm is a multi-plant operation, it would likely be divided into different divisions (i.e. plastics, petro-chemicals, organic chemicals) and there probably would be a committee for each one. This possibility is dependent upon the size of the firm and also on how it carries out its product development operations. If each division is operated as an autonomous business it would then be feasible to have a new product planning department for each division. One of the advantages of this system is that it is small and flexible enough to be used in each division of the firm if necessary.

b) The scope of the new product department

What is a new product? With what degree of newness does the committee deal? The answers to these questions are often difficult to determine with certainty
as indicated in Chapter I. To assist in defining what products the department will deal with, it will be useful to present a chart presented by Johnson and Jones. Certain activities on the chart are definitely part of the responsibilities of the marketing and research and development departments. However, in the classifications, "market extension," "product line extension," and "diversification," it is evident that these areas are under the responsibility of new product development. The category "improved product," is a combined marketing, research and development, and new product planning department responsibility. The activities in the bottom row are market investigation problems and those in the right column are primarily research and development activities, therefore in the lower right-hand corner there is both a new product and a new market.

When the term new product is used in connection with the new product planning department, it refers to products with at least some technological modification which are being offered to the same or new markets.

c) Organizational Aspect of the New Product Planning Department

The relationship of this department to the other major departments of the company was illustrated in Chapter II by discussing the procedures that are followed as the product planning department...

17 Johnson and Jones, op. cit., p. 52.
<table>
<thead>
<tr>
<th>Product objectives</th>
<th>No technological change</th>
<th>Improved technology</th>
<th>New technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>no market change</td>
<td></td>
<td>reformulation</td>
<td>replacement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(seek new and better ingredients for present products)</td>
<td></td>
</tr>
<tr>
<td>strengthened market</td>
<td>remerchandising</td>
<td>improved product</td>
<td>product line extension</td>
</tr>
<tr>
<td></td>
<td>(to increase sales to consumers of types now served by the company)</td>
<td>(to improve present products for greater utility and merchandisability to consumers)</td>
<td>(broaden the line offered to present consumers through new technology)</td>
</tr>
<tr>
<td>new market</td>
<td>new use</td>
<td>market extension</td>
<td>diversification</td>
</tr>
<tr>
<td></td>
<td>(find new classes of consumers for present products)</td>
<td>(reach new classes of consumers by modifying present products)</td>
<td>(to add to the classes of consumers served by developing new technical knowledge)</td>
</tr>
</tbody>
</table>
passes through its evolutionary process. In carrying out these processes, there are certain basic organizational principles that must be followed. It has been stressed that this department acts as a co-ordinator of all new product development schemes but to do this there must be communication with other areas of the firm; there must be control of the operations and there must be certain authority relationships.

1. Authority Relationships

Confusion has arisen both in literature and in management practice as to what line and staff are, and the results of this confusion have more than semantic significance. There is a tendency to regard line and staff as types of departments. Although it is true that certain departments may stand in a predominantly line or staff position with respect to other departments, line and staff are authority relationships and not groupings of activities. A satisfactory way to regard line-staff relationships was outlined by Hamilton. He stated that a line man was solely responsible for doing the main work of the organization in the prescribed time, of the prescribed

quality and at a competitive cost. The staff man was to provide the line man with specialized advice and assistance in a way that did not relieve the latter of this responsibility. Theoretically a staff department is purely advisory with no authority delegated to it. 21

A department with no delegated authority would not be able to effectively carry out all of the activities required for new product development. It is for this reason that the staff department which will be proposed in this chapter, has functional authority delegated to it. Functional authority is not restricted to the manager of a particular type of department; it may be exercised by line, service, or staff department heads. 22

For the new product planning department to operate effectively and for it to carry out all of its responsibilities described in Chapter II, it must possess a limited amount of authority. The functional authority that it has delegated to it is the power of one manager over specified processes, policies, or other matters relating to the implementation of activities undertaken by personnel in other departments. 23 This concept violates the basic principle of unity of command but there are

21 Koontz and O'Donnell, op. cit., p. 149.
22 Ibid., p. 147.
23 Loc. cit.
several acceptable reasons why this principle can be violated at certain times. Two of the reasons that Koontz and O'Donnell present are particularly valid in this thesis. Unity of command can be violated when there is a lack of ability of the line officials to supervise the processes and secondly when there is a danger of diverse interpretations of policies and procedures.

There is a successive set of steps described by Koontz which are normally followed as a line department gradually gives up authority over particular activities. A description of these stages may be useful to visualize how a firm would gradually establish a distinct department of specialists to handle some activity such as new product planning. The first modification of the line-staff relationship ordinarily occurs when the staff man's superior delegates authority to him to transmit information, proposals, and advice directly to the line executive's subordinates. The second modification occurs when the specialist not only transmits information and advice to the line managers but also consults with them to show them how the information should be used or how the recommendations should be put into effect. The final step of the transition to functional authority is accomplished when the staff man is delegated specific authority to

\[24\] Loc. cit.

prescribe processes, methods, or even policy to be followed in all subdivisions of either staff or operating departments.

Therefore, in establishing a new product planning department, the authority that must be delegated to it must encompass all of the factors outlined in the final modification described above. The need for this authority is seen when the various product projects are being fitted into an agenda. The committee must have the authority to initiate the study in its preliminary stages to allow it to decide which of the projects is to be undertaken first. To enable effective evaluation of new product projects, the committee must also have the authority to call in outside consultants where it feels it is necessary. This would be realistic in situations where the departments are in conflict over important issues.

The committee must have authority to make independent recommendations to the vice-president or executive committee to which it reports, and the department managers whenever it feels that it is necessary. This is an important aspect of the authority delegated to the department because it means that it can expedite slow moving projects and that it can also stop failing projects before they become inordinately expensive. To be most effective, the committee must realize its limits and act within them. Any violation of these limits will only cause ill will between the department and the line departments which will
defeat the whole purpose of the planning body.

The most important area of authority that must be granted to the product planning department is the power to stop unsatisfactory projects. This would normally be done in conjunction with the appropriate line department manager. The implication is that the product planning committee, which is familiar with all aspects of the progress on a particular idea, can perhaps see that the market analysis has shown beyond a doubt that the market for a particular product is not extensive enough to make it profitable. With this knowledge, the committee can then go to the research and development department and point these facts out to it and thus terminate the project without further cost. This ability to see all aspects of the product's development is one of the most important advantages of the proposed scheme. Many companies operating without this department would not be able to recognize these facts as rapidly and thus the project might go on to more advanced stages before being terminated.

2. Communication

Throughout the product development process, it is of major importance that key departments and individuals be kept informed of progress. The new product planning department acts as the communications centre for the firm on all new product activities. The minutes of each of the committee's meetings, where the progress of product
projects is discussed, must be distributed to all top personnel in all departments as rapidly as possible. If the new product department establishes an agenda stating when various product development activities will commence it must also be distributed with the minutes.

One of the principal causes for the failure of business planning in practice is the lack of planning communication. The cited authors present a principle of planning communication which states that the best planning occurs when everyone responsible for it has access to complete information affecting his area of planning. This principle necessarily implies that objectives, premises, policies, plans of others which affect a manager's plans, and other information must be available. The information must be as specific and thorough as possible. "It is probable that the person required to execute a plan will do his best job if he understands the plan in its entirety, including the objective to be gained, the general and definite means of attaining it, the jobs others are expected to do, and his own assignment."  

It is therefore important that complete and concise information on all product development activities of the firm be distributed regularly to the chief departmental

26 Koontz and O'Donnell, op. cit., p. 567.
27 Ibid., p. 568.
personnel in the firm. Communications between key areas (i.e. research, production, and marketing) will be assisted by the personal reports of the members of the committee who will be guiding activities within their respective departments.

The importance of a communications' system must be emphasized. To enable the new product planning department to act as the co-ordinating body that it is designed to be, it must have an efficient communications' system at its disposal. This system must be established when the department is organized to allow it to attain its objectives. When the communications system is established plans must also be made to overcome the problems inherent in crosswise relationships. These relationships occur in any organized enterprise between the subordinates of a given manager and the personnel in other divisions who may occupy positions of equal, lower, or superior status. In a complex organization it would not be realistic to follow the route of the traditional organization chart for all communication. Koontz and O'Donnell suggest that there are three ways to minimize the problems encountered. The first is an understanding between superiors that crosswise relationships will be encouraged; the second requirement is an understanding that subordinates will refrain from making policy commitments beyond their authority; and finally there must be

28 Koontz and O'Donnell, op. cit. p. 421.
an agreement that subordinates will keep their superiors informed of their interdepartmental business contacts.

Because of the nature of the activities of the new product planning department there is a necessity for crosswise communication. This means that the committee must never over-step the boundaries of the understandings it has with the other departments of the company. To ensure success of the committee's operations there must be efficient communication but to obtain this there must be mutual co-operation on the part of the firm's departments.

3. Control

The committee must have restrictions placed on it with respect to the financial limit of the product projects it can authorize. In other words, prior to approving expenditures of a certain amount, the committee must receive the approval of the executive committee. However, this control must be flexible enough to permit the new product committee to operate effectively without facing excessive delays. This control factor is further accentuated by the various approvals that are required as the product idea progresses from one stage to the next. This means that top management is maintaining a periodic review of all developmental proceedings.

The department follows other procedures that tend to act as controls. The progress reports that are
distributed to the departments would keep all areas aware of the progress and expenditures being made on each project. One important control that is inherent in the system is the makeup of the committee. With representatives of each of the major line departments on the committee, there is an implicit control which would tend to prevent excessive expenditures being made in any one area.

In addition to these procedural and organizational controls that are incorporated into the department, there are certain basic controls which should be a part of any corporate structure. The first refers to the product policy that has been mentioned earlier. It is within the boundaries of this policy that all of the department's operations must lie; it must not at any time approve projects which are violations of this policy. Because the new product planning operations are integrated, the policies of the other departments of the firm will influence the operations of it substantially. The research policy likely be the most influential. In the Chemical industry, the research people are responsible for a major portion of new product ideas. Thus a policy which restricts the amount of original experimental work that a company will undertake, will greatly effect the operations of the product planning department. These restrictions will control the range of product ideas that the department can approve.
The second control is the operating budget of the new product planning department. The limits of the committee's operations will be dictated by the budget that management allocates to the department. It is probable that the work the research and development, marketing research, and the technical services' departments do in new product development will be charged to the committee. Thus with a costing system such as this and a limited budget, the number of development projects that can be carried out will be restricted. This control is necessary because a firm must attempt to allocate funds according to the benefits it receives from the department's operations. With a department such as this it is often difficult to measure the returns, thus many times the budget allocated to new product development may be less than is necessary to do a satisfactory job. This is another factor which illustrates the importance for the proper frame of mind towards innovation on the part of management. It must accept the premise that the results of the department may be difficult to determine in the short-run and thus it is the long-run effects that management should be concerned with.

d) Summary

A new product planning department can be most effective when it steers, appraises, expedites, and communicates. It should not be allowed to make technical
decisions on any aspect of the product. These are matters for technicians to decide within their respective departments. It must be remembered that the new product planning department has functional authority, not direct line authority, and because of this it should strive for cooperation with all departments in the firm.

The product planning department should be kept as simple as possible. There is no doubt a constant temptation to overprocedurize product development. A noteworthy principle is: the simpler the developmental procedures the more time the committee has for project review. One important advantage of the proposed system which facilitates more effective operation is its flexibility. It is evident that all new product ideas will not require the same handling so the committee must be capable of dealing with special cases. The flexibility can be established when the limits of authority are delegated in the formation of the committee. Flexibility in operation refers to the ability to adapt to any new product situation and this ability can be attained through effective relationships with the other departments of the firm. To be efficient in new product development work, the techniques of the committee can never become rigid because if they do, the committee will lose its meaning.

CHAPTER V

A STUDY OF NEW PRODUCT PLANNING PROCEDURES IN
A LARGE CANADIAN CHEMICAL COMPANY

A. Introduction

(i) Purpose of the study

A detailed discussion was presented in Chapter II to clarify the various phases that new product ideas pass through prior to becoming commercialized products. An analysis of product policy and its functions was presented to act as a guidepost for that discussion. The role that the policy played in new product development became apparent as the various idea stages were encountered. To present the details of the product idea's evolution as clearly as possible, it was necessary to follow a rather rigid format. The procedures followed by a leading chemical company in Canada were studied to determine the validity of the methodical process.

The objectives of the company study were first to determine which department or departments were responsible for new product development and how they were organized; and second to determine the major sources of product ideas and the process those ideas pass through before becoming finished products. In addition to the two major objectives, it was also desired to study the marketing research
operation of the company and to determine its role in new product planning.

(ii) Methodology of the Study

A series of interviews was arranged with a company representative to gather the information required to attain the objectives in the previous paragraph. This individual was a field sales manager with several years experience in the sales and marketing departments. The company's Assistant Canadian Sales Manager indicated that the individual to be interviewed was completely familiar with the firm's new product planning activities because of a varied background with the firm.

The field sales manager (the subject) was informed of the role that the interview would play in the thesis. He was also told that the name of the company would not appear with the material of the interview. This stipulation was insisted upon prior to presenting any information regarding the firm's operations.

With the permission of the subject, a tape recorder was used to collect all information given. To make him feel at ease, the only part of the recorder that was visible to him was a small microphone placed off to the side of his desk. The interview was more like an informal discussion because of the lack of notes and other equipment.

The subject was encouraged to talk about the company's new product planning operations with an occasional pointed
question to keep him on the desired topic. With this method of interviewing it was felt that the atmosphere of the meeting would be more relaxed and, if left relatively free to roam, the subject might cover some aspects that were not thought of by the interviewer. Precautions had to be taken to prevent the subject from digressing too far from the topic. To control the digression, a checklist was used and at opportune moments a pointed question was asked to redirect the subject's discussion.

(iii) Organization of the Chapter

The material presented in this chapter will follow the basic outline used in Chapter II. Initially a brief background of the growth of the company will be presented; this will include statements of the competitive position of the company's products and estimates with respect to the relative size of the firm's production facilities.

A discussion of the company's new product planning operations will be presented following this background material. The headings it will be organized under are: the product policy; product idea sources; screening stage; specification stage; and the development and testing stage. The organizational principles that are relevant in new product planning operations will be discussed in the second section of this chapter. The topics that will be covered in this section are: the authority relationships; the communications system; and the control procedures.
Prior to the concluding remarks, details of the company's marketing research operation will also be discussed.

B. Background of the Company

(i) Historical Development

The parent American company was asked by the Canadian Government in the late nineteen thirties to establish a synthetic rubber plant in Canada. In 1945 this was turned over to the federal government to be operated as a crown corporation. The site on which this plant had been constructed was a natural salt bed. Because a vast number of the company's products were dependent upon salt, it was decided to establish another plant in Canada to produce various industrial chemicals. One fact that had a bearing upon the decision was that several of the company's employees were living in Canada, therefore reducing the personnel problem. The original plant began operation in 1947. Since that time the firm has grown at an unprecedented rate and at present it has five producing plants and six regional sales offices in various parts of Canada.

The company is presently undergoing a major reorganization. Like so many industrial companies in the past, it was almost completely production oriented. Under these conditions, the ability to sell was secondary to the ability to produce. The company is now in the process of shifting to the opposite position where the marketing department will be the focal point of the organization.
(ii) The Competitive Position of the Company's Products and Production Facilities

1. Products

An indication of the relative size of the company was part of the general information that was required. One method that was considered was a ranking of the total sales of the firms in the chemical industry. However, even with this measurement a difficulty arose as it was practically impossible to compare these companies in terms of total sales because there were substantial variations in the types of products that were sold. Many of the companies commonly thought to be in the chemical industry were so completely vertically integrated that it was virtually impossible to make a meaningful comparison.

Some size estimates were made that may be useful. An estimate was made of the company's position in the product lines in which it had competition. The firm is the sales leader in Canada in industrial chemicals. In the heavy chemical market, particularly chloro-alkali products, it has the largest total sales. At present it produces 65 per cent of all chloro-alkali products and plans to increase its production in the next two years. Not all of these products are sold commercially because a substantial portion is used internally in other processes.

In the phenol and glycol product line the company is the largest single producer. In glycols it was studied at one time by the Combines Investigation Commission for an
alleged monopoly but no charge was laid. The investiga-
tion alone would suggest that it has almost complete control
of this market because the practice of the Combines Com-
mission has been to ignore monopolistic practices until a
firm has virtual control of the market.¹

Plastics are the fastest growing product lines in the
chemical industry. In this field the company is the Canad-
ian sales leader by a significant amount. The firm has a
considerable lead over its competition in polystyrene,
which is a specific area of plastics. It is fourth or
fifth in the poly-ethylene market because it does not pro-
duce the low density product which is the largest selling
item, on a poundage basis, in this line. This company and
another large international firm produce a high density
poly-ethylene in Canada. However, this other firm has a
somewhat larger capacity and thus it is assumed that its
sales are greater.

In consumer products the company studied ranks far
down the list because it is only in recent years that it
has integrated into this market. At present, the only
products that it produces in Canada that could be termed
consumer products are rigid containers and blown bottles.
The firm also markets some consumer products that are pro-
duced by its American parent company. These are major

¹ Richard Gosse, The Law on Competition in Canada, The
competitors in the food wrapping line and should provide an excellent entree into this market when the time arrives. At present the Canadian company markets these on a commission basis for the parent firm.

2. Production Facilities

In terms of investment in capital equipment, the company is in the leading position in Canada. The ranking of production facilities can be misleading because the company studied makes several basic products which it sells to other industrial chemical firms which in turn convert them into the final marketed products. Therefore the other firm markets the final product, while this company has made the capital expenditure for the primary production facilities. Examples of this are Polyvinyl chloride resins. The company is the only producer of vinyl chloride in Canada, which it sells to at least two other large manufacturers who convert it into the final resins which appear on the market. Through this two-step process, it is illustrated how total sales and production facilities do not always coincide.

An important indicator of leadership in new product planning is the expenditure made on original research and development in Canada. This company does not rank high in this field. Most of its research work is done by the parent American company which means that the investment in staff and equipment in Canada is relatively small. The firm does have a small research operation in Canada which works
closely with its American counterpart. The subject claimed that a large degree of autonomy is maintained because the Canadian company merely requests the research group in the United States to do work for it. The resulting suggestions of the parent group can either be accepted or rejected.

Another illustration of the autonomy of the Canadian operation is the fact each of the production units is modified or completely different from those in any part of the organization. For some products, the production route followed is also completely different. This means that not only is the equipment modified but the reactants used in the process are entirely different. Therefore it is safe to assume that the Canadian subsidiary of the company is a relatively autonomous operation.

C. The Company's New Product Planning Operation

1. The Product Idea's Evolutionary Process

   (i) Introduction

   The firm's product policy will be discussed prior to the analysis of the procedures followed as a product idea is converted into a marketable product. To facilitate clearer understanding of the following material, it will be useful to present an organization chart of part of the company's operation. The firm is organized on a product department basis, as follows: Chemicals, Plastics, Bioproducts, Converted Products, and a fifth department which includes the industrial service operations. Each department manager
is in charge of all marketing and production personnel in his unit. His responsibilities and activities will be clearly illustrated in the ensuing discussion.

As is indicated in this chart, the field sales offices are responsible only to the vice-president of marketing. They are in no way directly related to any of the department managers and their staff. (This chart may or may not be valid at any point of time because the firm is reorganizing).

(ii) The Company's Product Policy

It was difficult to get the company representative to indicate any of the details of the product policy. The company's policy consists of an unwritten set of requirements that the product must satisfy. The initial bounds are evident; this firm is in the chemical industry thus its product scope is narrowed, in reality, to any product which can be classified under one of the five product departments.
However, upon further analysis of these five areas it will become apparent that most industrial chemicals could be classified under one of them. Therefore, if some chemical product is developed that has the required sales potential and that will return an acceptable profit, the firm would certainly consider producing it. The company is particularly interested in some specific product areas. Several of the present processes produce either as primary products or as by-products, chlorine derivatives such as hydrochloric acid. The firm is continually on the search for new processes which will utilize these products and solve some of the disposal problems. The product policy, therefore, has three elements: it is interested in the production of industrial chemicals; (2) the products must meet certain profit requirements established by management; and (3) the company is particularly interested in those products which in their production will utilize some of the by-products of other processes.

The firm's policy also refers to the situation when a new product idea would be a profitable addition to the company's product line but it would also be a detriment to other products and to a customer's products. In circumstances such as this, there would be a careful analysis made of the effects that this product would have on both the firm's products and those of customers. The benefits of the product's addition would be weighed carefully
against the costs of losing a customer. The field sales manager stated that in the past, product developments have been terminated for one or both of the above reasons. He also indicated that management is very hesitant to eliminate potentially new products even if it will mean the loss of customers. It was inferred that elimination is only resorted to in special situations. Unfortunately, when questioned further as to the details of these situations, the subject refused to answer.

Even with the rather loose boundaries of the product policy, it is evident that the restrictions that it does have act as guides to new product development. It therefore serves the first function that Kline presented which was outlined in Chapter II. This was a definition of the limits of the product line. The policy, as described, tends to act as guide which the firm uses to attempt to reach a common set of long-range objectives.

(iii) Product Idea Sources

Where do the product ideas come from? Does the company have any organized system of generating these ideas? These questions were asked to initiate the discussion on the sources of new product ideas in the firm. One part of the reply to the above questions was that one of the functions of the research and development people is to look constantly for new products in which the company might be

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interested. The product ideas that the research department normally suggest are the unique ideas which have not been developed and which would be classified as highly experimental. The sources that the research department normally use are its own research operations, the activities of the parent research department, and the various trade sources that were outlined in Chapter II. The sales staff is the second major source of product ideas. In this company it is the source most commonly used. The sales personnel are continually on the look for new ideas in their customers' plants. They are interested in three basic types of information: (1) new applications for old products; (2) variations to old products, and (3) pound and price information of any product being used in their territory. A new idea may appear from any one of these channels.

(iv) The Screening Stage

It will be assumed that the sales department was the source of ideas developed in the following sections. A member of the field sales staff would submit a report to his regional manager stating that a certain customer was using X tons of product Y and that he was paying a certain company Z dollars per ton. The first phase of the screening process takes place at this point. If the sales manager decides that the product does not conform in any way with the requirements of the product policy, he
will eliminate it at that point. However, if he decides that it is within the limits of this policy and that it appears to be used in substantial quantities in his territory, the sales manager will submit a report to the relevant product department manager giving him the details of the idea.

The department manager will then request all other sales offices to submit any information that they may have collected pertaining to this product. After receiving all of the relevant market information, the product manager then analyzes the existing production, sales, and service facilities to see if the idea is compatible with the resources possessed by the company. If both sets of data are favorable, the product manager will prepare a report which will be submitted to the executive committee. Based upon the preliminary market analysis, production study, and the recommendations of the department manager, the committee will decide whether to proceed with the idea's development. If approval is given, the idea advances to the specification stage.

(v) The Specification Stage

The department manager initiates a detailed study in three major areas, having received executive approval. First the sales department is requested to carry out studies to determine all market characteristics. The salesmen collect data about comparable products of competitors with
respect to the market's price sensitivity. They also
gather more detailed information about present and poten­
tial users of this type of product. The salesmen also
attempt to obtain information about the strengths and weak­
nesses of the competitive products. This set of data will
be of assistance to the production and engineering people
when they are attempting to determine the details of the
manufacturing process.

When the field sales offices are gathering detailed
market information, the research and development depart­
ment is working on the end-use details of the product. In
other words, it is examining the new product to determine
the possible uses to which it can be adapted. At the same
time it is determining the product specifications which
must be adhered to for either health or safety reasons.

The product department manager presents the pro­
duction and engineering people with the specifications and
market potential information and requests that they submit
estimates as to the cost of the capital equipment necessary
to produce the finished product in the desired volume.

When the three sets of data are finally submitted
to the department manager, he prepares a report containing
the information, which he submits to the executive com­
mittee. The authorization for the development and testing
phase of the product idea is based upon the details of
this report.
(vi) The Development and Product Testing Stage

Under the direction of the product manager, the technical services and development department assume responsibility for this phase of the product's evolution. It is normal in the Chemical industry, at this stage, to construct pilot plant operations to allow the technical services people to study the end-use and product specification information submitted by the research department. When the theoretical laboratory information is subjected to realistic production situations, there are usually several modifications to be made. As a result of the pilot plant modifications, the technical services people arrive at what will be the final product specifications. These final characteristics are normally arrived at by two possible methods. The first is the previously mentioned pilot plant operation and the second is through a customer testing scheme. The company commonly makes an agreement with an established customer to introduce and test the new product in the customer's manufacturing process. Through this testing procedure, the technical services department determines the strengths and weaknesses of the new product. It is able to vary the product's characteristics to eventually arrive at an optimum set of specifications to be used in the final product.

The nature of the product largely determines the extent of the testing operations. If it is a weed killer
where there are hazards to livestock, then it is normally a lengthy task. The company must initially obtain a permit from Ottawa stating that the product is registered and that it satisfies the Government authorities.

After the technical services department has thoroughly developed and tested the new product, it presents the results to the product department manager. He analyzes the information and returns to the executive committee where the final decision is made to produce or to temporarily discard the idea. If the idea is approved, the product manager then authorizes his production and marketing staffs to begin the commercialization process.

(vii) Summary

The field sales manager indicated that the company's process did not follow any formalized scheme and that some products are developed in a more abbreviated manner. However, the operations described above indicate that the product ideas pass through an evolutionary process. When the company representative presented the information, he did not indicate any formal stages as the product progressed towards its final form but rather these stages were presented by the writer as a means of classifying the information.

II. The Organizational Details

(1) Authority Relationships

The product manager, who directs all new product
planning operations within his department, has direct line authority over the production and marketing personnel concerned with the product's development. When the manager deals with the sales offices to obtain market information, he does not have direct authority but rather he must work through the field sales manager. It appears that this is a functional authority relationship. The field sales offices handle all the details of the market analysis and simply submit their findings to the department manager.

There is also a functional authority relationship between the department manager and the technical services people. In the final development stage of the product's evolution, the technical services department takes over responsibility for gathering the data but the department manager directs its operations.

(ii) Communications Network

The product manager utilizes the established lines of communication within his own department to transmit information to the marketing and production people. However, it was indicated that the firm has problems in communicating information from one product department to another. To attempt to overcome this problem, a weekly product managers' meeting is held to discuss the progress of new product development projects.

There are also problems encountered in communications between the product departments and the field sales offices.
It appears that the only system used is the regular contacts the two areas have during the market analysis operations. This area of communications has given the company a great deal of difficulty.

(iii) Control Techniques

The subject offered little information pertaining to this topic but from the details presented in previous sections there are at least three controls that are evident. The first is the firm's product policy which presents rather definite limits with respect to the product ideas that the department manager can attempt to develop. This policy also sets certain profitability and investment standards that must be complied with prior to developing the product in its final stages. The second and most effective control placed upon new product development operations are the three different approvals that must be received from the executive committee. The first occurs after the screening stage, the second after the specifications stage and the third prior to the commercialization stage. These three analyses by management can, if performed properly, function as effective control devices.

The third control is the department manager's operating budget which is established by the executive committee. The limited budget may, if properly designed, restrict the expenditures made on product development operations. It will also prevent a disproportionate amount of
funds being allocated to any one project. A combination of these three controls should ensure that the company maintains a proper balance in the expenditures it makes on new product development.

D. The Marketing Research Activity in the Company

Until approximately three years ago, this firm had one man employed as a market researcher. It was his responsibility to gather detailed market information pertaining to any product which the company was interested in developing. However, three years ago this position was eliminated entirely. Unfortunately the reason for eliminating the activity, as a separate responsibility, was not disclosed.

At present most of the marketing research is done by the sales department. This became evident as the discussion of the firm's new product development operations was presented. This means basically that the sales staff is responsible for the collection of data pertaining to market demand conditions, competitive conditions and data relevant to new product development. These duties are combined with the salesmen's primary task of selling the company's products.

The technical services department is responsible for studying the characteristics of competitive products and evaluating their strengths and weaknesses. Because it
works constantly with the customers it is aware of the market conditions as well as the competitive product details.

The marketing research responsibilities in this company are, therefore, jointly carried out by the field sales offices and the technical services department. The implications of this arrangement will be discussed in detail in Chapter VI where the entire operation of the firm in the new product development field will be evaluated with respect to the system which is proposed.
CHAPTER VI

AN EVALUATION AND CRITICISM OF THE
NEW PRODUCT PLANNING PROCEDURES OF THE COMPANY STUDIED,
RELATIVE TO THE PROCESS PROPOSED IN THIS THESIS

A. Introduction

The methods for developing new products outlined in Chapter V will be compared, in detail, to those proposed in this thesis. To illustrate the details of the various stages that the product idea passes through, it was necessary to present the information in a schematic manner. The impression was created that each idea was handled in an identical manner regardless of its nature. This rigid procedure would not always be feasible in an industrial firm where new product ideas vary greatly in content. However, even if product ideas are handled in varied ways, there are still certain stages through which each idea progresses and with each of these stages there are definite decisions that must be made and controls that must be exercised.

Certain questions must be answered in the analysis in this chapter. The first is: Does the process outlined in Chapter V differ greatly from the proposed one? Secondly: Is the formal process suggested here suitable for a company similar to the one studied in Chapter V? Finally and most important: Can innovation be handled in this organized manner?
A brief review of the proposed system and a summary of the company's procedures will be presented to assist in answering these and other questions. After this summary, the two will be analyzed in terms of the major topics discussed throughout the thesis. This discussion will prepare the way for the conclusions to be presented in Chapter VII.

In Chapter II, the importance of the role of marketing research in the new product planning process was emphasized. It is assumed in this chapter that the company has a formal marketing research activity and that such an activity can be adapted to the forms proposed in Chapter III. The reasons for this assumption will be presented in Chapter VII.

It must be remembered in the following sections that there are at least three important aspects of new product planning that determine its effectiveness. These are: (1) the attitude of management towards innovation; (2) the organization of the new product planning operation; and (3) the co-ordinating ability of that organization.

B. A Summary of the Proposed New Product Planning Department.

The structure suggested in Chapter IV consisted of four to five members. Of these members, one was a permanent director. This individual was a widely trained, well-experienced man with the ability to initiate and lead, The other members were representatives of the marketing,
production, research and development, and any other relevant department in the company. These people constituted a committee which was responsible for all new product planning in the company. The representatives were liaison officers between this committee and their respective departments. The amount of time they would spend on their planning activities would be a function of the size and complexity of the organization.

The organization position of the committee was a major problem to solve in this proposal. It was suggested that it was in a staff position with functional authority and as such was the communications centre for the new product planning activities. Because the reports that the committee prepare are the basis for capital expenditure decisions, it was suggested that it report directly to the vice-president in charge of marketing or the executive committee which makes the investment decisions.

The authority of this committee must be clearly defined, but definition will not be easily achieved because of the interaction of the committee's work with line operations. The stipulation that the organization, as a whole, must be innovation minded was advanced because of the possibility of authority conflicts.

The new product planning department must have the functional authority necessary to secure from line departments the required market and production information. If
the marketing research activity is part of the marketing department, the new product planning department must be able to commission research studies for new products. Because the committee director has an over-all perspective of the developmental procedure, he must have the authority to move in and advise the departments when to expedite or discontinue a study. This action would normally be taken after consultation with the line managers or the executive to whom the new product director reports.

Care must be taken not to devote a disproportionate amount of funds to the developmental procedures of the proposed department. To ensure this there must be effective control established when the department is organized. Two controls that were mentioned were the regular progress reports that are distributed to all management personnel and the periodic reports submitted to the executive committee. The new product planning department will obviously be given an operating budget which will act as an over-all guide in the allocation of its funds. An additional control is built into the committee with the representatives being from each of the line departments. This might have a tendency to prevent a disproportionate allocation of funds to any one project. The committee, therefore, is effectively controlled with a combination of budgets, reports, and project approval limits. Management can thus regulate the flow of funds being devoted to new product development.
The problem of communications in an industrial organization can often be an extremely troublesome one. This problem could be magnified by the presence of cross-wise relationships such as those that occur between the new product planning department and the other departments of the firm. Therefore the addition of a staff department with functional authority could multiply the problems of communication. One of the major requirements in organizing this operation is the establishment of efficient communication channels.

The primary function of the new product department is to act as a co-ordinating body. To facilitate this objective the communications network should have the characteristics referred to in the previous paragraph. This network serves a twofold purpose. First, it permits the transmission of data to the committee from all of the departments that are involved in the developmental project. Second, the network allows the transfer of information to all management levels with respect to progress being made on each project. With management completely informed of the details of the product's development, the planning process in the firm is greatly assisted.

Some of the major strengths and possible weaknesses of the proposed system have been indicated in the discussion. A comprehensive analysis of these will be left until the concluding section of this chapter where an over-all
look will be given to the proposed department.

C. A Review of the Procedures Followed by the Company Studied in Chapter V

The company that was studied is primarily in the industrial chemical business. The few consumer goods that it handles are either marketed on behalf of its parent American company or they are sold through subsidiary companies in Canada.

Although it is presently in the midst of an organizational change the firm is basically operated on a product group system. It is divided into five major product areas each directed by a divisional product manager. Each department manager has direct control of the production and marketing operations within his department. The product departments are related to the field sales staff only through the vice-president in charge of marketing. The implications of this setup will be discussed presently.

The new product development procedures are handled through the five product departments. With the manager acting as the co-ordinator in these studies, there might be five separate groups carrying out investigations at any given time. The majority of the new product ideas that are presented to the department manager come from either the sales staff or the research and development people.

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1 See Chapter V of this thesis.
The technical services department determines the product specifications and potential end-uses as the new product progresses. Finally, the department manager submits a report to the executive group where the commercialization decision is made. The decisions concerning capital expenditures for new equipment and personnel are also based upon this report.

The department's operating budget and the reports submitted to the executive committee are the basic controls placed upon new product development in this firm. The existence of a budget may be a better control than it first appears. The product manager's department is charged for all research and other investigation work done for it. This means that on each project the time, and hence the cost, devoted to each aspect is easily determined. It can thus be assumed that with his over-all budget and a knowledge of his costs in other areas, the department manager should be able to allocate funds to the developmental projects in an equitable manner. The fact that this manager works closely with the executive committee on new product development provides an additional control which would appear to be quite effective.

The authority and responsibility relationships have been indicated in the previous discussion. The problems of line-staff conflicts are minimized with the
organizational set-up of this company. The department manager has direct authority over the production and marketing people in his department, who will be carrying out the new product development studies. There still exists a staff-line inter-action between his department and the legal, research and development, and the field sales departments.

Throughout the thesis it has been emphasized that an efficient communications network must be at the disposal of the new product planning operation. The field sales manager of the company stressed the fact that communication is a major problem with this company in all of its operations. The firm's major methods for communicating data in its product planning activity are: the regular meetings of department managers; and the reports that are submitted to the executive committee. The communications in each department would travel the normal routes that have been developed through the regular operations.

There is no separate marketing research department or division in the firm at present. The tasks such a department would normally perform have been carried out primarily by the sales people with the assistance of the technical services department in the area of competitor product analysis.

2 See the organization chart in Chapter V of this thesis, p. 108.
The recent reorientation of the firm has had a definite effect upon its approach to new product development, an effect all the more striking because the industry as a whole and this management in particular have long been production oriented. Their former procedures were naturally influenced by this concern with production. The development would tend to be entirely centered around the characteristics of the product, with only a minimum of market analysis. The firm eventually converted to market orientation after several other companies in the chemical industry made the change.

D. An Analysis of the Company Operations Relative to the Proposed Process

The major headings: product policy; co-ordination; control; communication; authority; line-staff relations; company objectives; and marketing research; will be used as a basis to analyze and answer the questions posed at the beginning of this chapter.

(i) Product Policy

The product policy must be designed to attain the goals set out in the long-run company objectives. The combination of these objectives and policies establishes the foundation upon which management develops the company. The attitude that the company, as a whole, takes towards innovation is also largely determined by these factors. It has been pointed out repeatedly, that this
frame of mind is an essential factor for the success of a new product planning operation. The department will not be effective even with the most elaborate preparations unless the company is dedicated to progress through innovation.

The organization of the new product planning department would also have a major influence upon the results achieved. Because management is devoted to an innovating approach it does not necessarily mean that results will occur without efficient planning. The key to this planning is an organization that will facilitate effective co-ordination.

(ii) Co-ordination

The comparative co-ordinating ability of the two systems is one of the major areas that must be examined in the analysis. To fully understand this principle a definition of the scope of the term must be given. Co-ordination means that all of the activities involved in a new product planning operation, are optimized with respect to the over-all company objectives and policies.

a) Company operations

There was a possibility of five distinct new product planning activities being carried out at any one time in the company studied. There could therefore be five directors or co-ordinators attempting to develop new products at once. Although the product managers are working
for the benefit of the organization they are primarily held responsible for the results achieved within their respective departments. It can be safely assumed then, that the decisions these managers make might be biased with respect to the benefits received by their departments. They are capable of co-ordinating the activities being performed in their own departments but the question arises as to their ability to make new product decisions that will benefit the company as a whole. The department manager is appraised and promoted on the basis of his department's operation not on the basis of the profitability of the firm. The term co-ordination in this context means that all processes are regulated to produce an optimum result. The processes at the control of the product manager are those within his own department. Therefore the co-ordination that he will obtain will be with respect to his department and not necessarily to the entire firm.

The reluctance of a department manager to devote time and money to product investigations which may prove to be worthless 90 per cent of the time is one additional problem that may arise. It was cited that approximately 90 per cent of all product ideas are discarded prior to commercialization and of those that are marketed only about 1 in 5 ever become profitable. When a manager devotes money, which he is responsible for, to investigations he is faced with the reality that the
opportunity for success is indeed minute. He may, therefore, become reluctant to carry out an analysis on any idea that shows the slightest indication of failure because, among other factors, he is probably evaluated on the basis of his department's profitability. This is of course a supposition but it is a distinct possibility. Thus there is a danger of adoption of a short-run approach to new product introduction and with this approach goes the possibility that the long-run objectives of the firm will be neglected.

The one major safety valve to prevent the adoption of a short-run approach is the influence that the executive committee has upon the expenditures on new product planning. The committee may exert pressure on the managers to make new product development expenditures and thus relieve some of the apprehensive conditions. This does not completely solve the situation because the executive committee cannot possibly study the details of all the product ideas which have been eliminated.

b) Proposed System

The problems of co-ordination will be minimized under the proposed system. When an external body (i.e. external to the line departments), collects and analyzes the data relevant to all new product projects and views these relative to the company objectives, the possibility of arriving at an optimum result for the company, as a
whole, is greatly increased. For the entire company to adopt an approach conducive to new product development, the operations must be co-ordinated so that the personnel feel that they are contributing to some common company goal.

The possibility of adopting a short-run approach is minimized when the responsibility for new product planning is placed with an individual or a body which is external to the line departments. A firm interested in a progressive approach to new product planning needs an organization that will ensure decisions that further the company objectives and product policies.

The probability of co-ordination is increased when the responsibility for new product development is placed with one body rather than with several. The possibility exists that when there are five departments carrying out rather independent product research activities they might strive for five different objectives.

(iii) Communication

a) Introduction

To attain a highly co-ordinated new product planning operation in a firm, the department performing these procedures must have an efficient communications system at its disposal. This department would be the communications center of the firm with respect to its product planning activities. To maintain a frame of mind conducive
to product innovation, all pertinent personnel should be kept completely informed of the operations in progress in the company at that time. The ability of the company to work as a unit toward some common objective will be determined by the amount and content of the information which is communicated to the people involved. New product planning is only one important phase of the over-all company operation. However, unlike the production or marketing departments, which have their own personnel and facilities to attain certain objectives, the new product planning activity depends upon the operations of the other departments for its success. With the facts that the department continually receives it compiles data on a given project. The importance of effective communications in this collection process cannot be over-emphasized.

b) Company operations

In each product department of the firm studied it has been assumed that the communications system is relatively effective. The effectiveness of this network contributes to the operation of the department. However, its contribution to the company as a whole is marginal. To facilitate complete transmission of information there must be some other system. The departments attempt to utilize a weekly managers' meeting which allows facts to be transferred from one department to the others. There are also periodic reports that are submitted to the executive committee.
This communications system may appear to be completely adequate but there are possible weaknesses that become apparent upon further analysis. The department managers have the responsibility for the marketing, production, and technical service activities in their departments. This means that the problems of new product planning constitute one small group of the numerous problems facing the department manager. If this is combined with the fact that there are at least five departments represented at the weekly meetings, then it is doubtful as to how much time is devoted to discussing, in detail, the problems and progress of each new product development project.

The field sales manager interviewed, pointed out that communication was indeed a major problem and that attempts were being made to improve this situation. The little time that can be devoted to discussing new product development at the weekly meetings, can help to explain part of the problem. However, this is only a partial explanation. There are other departments involved in these procedures that are in no way directly related with these five product groups. One is the research and development department. It has been the source of many product ideas in the past and as such it must be kept informed of the progress that is being made on the various projects. It is also involved in the latter stages of the development as well as the initial idea stage. Often new products that
are developed from other sources must be analyzed carefully by the research people to determine the chemical characteristics and the possible end-uses. The research department must therefore be kept abreast of all developments in any project.

The role of the sales staff is important in new product introductions and developments in this firm. It appears to be the major source of new product ideas and it is also strategically involved in the various stages of the product's development. However, it was noted that the sales offices are only related to the five product departments through the vice-president in charge of marketing.\(^3\) Communications must therefore travel via the traditional structural route. This does not necessarily mean that this route is ineffective but rather it is suggested that problems may occur with cross-wise communications. The fact that the field sales offices are geographically separated from the five product department managers introduces another complication.

c) Proposed System

The problem of communications was considered carefully in the proposed department. In a modern complex organization the problems of communication can never be completely eliminated but attempts can be made to minimize them as the organization is expanded. If a staff

\(^3\) See Page 108 in Chapter V of this thesis.
department such as the new product department is to be established, provision must be made to make it operate as efficiently as possible. Communications are essential to the success of new product planning. Therefore, the next step is to show how the proposed system solves most of the communications problems.

The methods followed by this department assure that complete and current data are transmitted to all personnel involved in product developments. The system allows for rapid data transmission to the committee and also allows for efficient transmission of summary reports to all department heads. The communications centre receives all the pertinent data, compiles it, analyzes it, and transmits the output to all relevant areas. This enables all departments to plan accordingly and also the entire organization to be aware of all new product developments.

(iv) Authority

The authority relationships between the new product planning department and the other departments of the firm, that are involved in new product development, must also be discussed. A common management principle is: the authority to act should be placed where the responsibility lies. In new product planning it is almost essential that all of the major departments of the firm be involved. This integrated approach has been outlined thoroughly throughout the thesis. The problems of obtaining
co-operation on some common task by the various line and staff departments involved are a result of this integrated approach.

One of the prerequisites to success is a company's ability to operate as an integrated entity. Several writers stressed the need for an integrated approach to new product planning. This means that the different departments must co-operate on common problems and jointly share the responsibility for their solution. Because the new product development activity is an integrated operation involving all of the major departments, it is almost impossible to have one person or group with direct authority over all of the operations required for a thorough investigation.

The department manager of the firm in Chapter V had direct authority over the production and marketing people involved in the process within his own department. To gather information from other areas he had to work through the respective department managers. Thus the possibility of authority conflicts was present even though it may not have been probable.

This same possibility is present in the proposed department because there is an even greater staff-line interaction. However, the question must be asked: Is this necessarily a drawback? The entire company must support the new product planning operation to make it a success.
This will require an integrated approach with both staff and line departments co-operating with the new product planning department by providing it with the required information. Because of the need for constant interaction between the new product planning department and the other departments, it has been suggested that it be delegated with functional authority. However, the possibility of interdepartmental conflict is still present. Therefore, it is maintained that the important element in this entire operation is that the company be innovation oriented. The conflicts will be minimized if this is the situation.

The importance of the authority relationships is believed to be subordinate to the areas of co-ordination and communication in this activity. Thus in establishing the department stress should be placed on those aspects which will nurture an over-all company approach to new product planning and facilitate easier attainment of company objectives.

(vi) Summary

From the analysis it is evident that there are distinct differences in the two systems but there are several similarities in the procedures followed in developing a product idea. However, these procedures are not the main subject of the thesis. It is the form of the department that is important. The effectiveness in handling these operations is of prime importance. It is with this
aspect that the thesis has dealt.

The second question that was posed early in this chapter dealt with whether the proposed system could be adopted by the company studied. The important determinants of this issue are the attitudes of management and the organization of the department.

When the department was set forth in Chapter IV one of the major stipulations was that the firm should be a multi-product company in an industry where innovation was an important factor. The chemical industry and the company studied, comply with these stipulations. The proposed department will operate most efficiently in a company of this type. Product innovation in a one product company is not a major problem.

Because the firm studied is one of the leaders in its industry it is safe to assume that its management is progressively minded and that it would be willing to accept the addition of a new department if it promised the firm an improved return. The number of people that the company would be willing to devote to this activity would be dependent upon several factors; two of these are the personnel cost and the magnitude of the possible returns. Throughout the thesis it has been shown that even if management is innovation minded, there is still a need for an efficient organization to direct the activities to produce the desired results in new product planning.
CHAPTER VII

SUMMARY AND CONCLUSIONS

The major objectives of this study were outlined in detail in Chapter I. They basically stated the desire to establish a department in a firm which would effectively co-ordinate the new product planning operations. It was hoped that a structure would be developed that would facilitate more consistent results in product introduction programs. Does the proposed system fulfil these demands? Prior to answering this there are other points to consider.

There is a distinct possibility that an over-concern with academic principles will result in a proposition that lacks reality in a study of this type. In developing a department that is to be used by an industrial company, care must be taken to ensure that the final result will in fact be applicable to industry. One of the first points to consider then is whether the new product planning department can feasibly be adapted to a firm such as the one studied in Chapter V. It will be recalled that in Chapter VI, this problem was dealt with in some detail. The resulting conclusion at that time was that the proposed system could indeed be applied to such a company.

For a firm to adopt this system, management and the company as a whole would have to completely support the department and its objectives. To be as realistic as
possible it must be pointed out that management would be concerned about the cost of instituting such a setup and the benefits that could be derived from it. Whereas the costs could be determined with relative ease, the problem of quantifying the benefits is not as simple. How can a dollar figure be placed on a concept such as this?

It is almost impossible to give a direct answer to this question so an indirect approach must be used. What would stimulate management to become concerned about their new product planning operations? It is likely that the major factors would be an indication of extreme costs and a high number of failures in this area. These factors would probably initiate a study similar to the one carried out for this thesis and seemingly the end result would be a complete analysis of the company's operations and the development of a department which would more effectively handle the process. This structure would ensure management that the success rate of the product introduction operations would be increased because of the thorough analysis given to each project. The profitability of many industries is closely related to their product line, therefore any assurance of a higher ratio of successes to introductions would convince management to incorporate such a system.

Again the decision to utilize a structure similar to the proposed one hinges on the realization by management that new products are an important key to their future.
With this realization goes the sincere desire to adopt some system which will more effectively ensure a new product's success.

Is the make-up of the committee as described in Chapter IV unchangeable? This committee with its permanent director and department representatives is designed to enable it to be modified as any company might require. The eventual size of it would be dependent upon the size and organization of the company. The important characteristic of this system is the concept that there is at least one permanent member and that the committee itself is flexible. This flexibility and thus wide applicability is a distinct advantage of this system and it is concluded that for the type of companies described in the thesis this form would be extremely effective.

A. The Evolution of a New Product Idea

In Chapter II the details of the various phases a product idea passes through prior to becoming a final marketable product, are outlined completely. This thesis stressed that an idea must be handled in an organized manner and that certain basis decisions must be made at strategic points in the ideas growth. It is maintained that with this organized approach, the firm will be forced to consider all of the relevant factors which will determine whether a product idea is worthy of further development. The purpose of breaking the evolutionary process into four phases was to indicate
clearly the necessary decisions that must be made and to illustrate how the new product planning process is an integrated operation.

To ensure that these decisions are made and that the operation is co-ordinated, it is necessary to outline the details of a department that will facilitate the efficient development of all new product ideas. In Chapter IV this department was established and discussed thoroughly.

B. Product Policy

A company considering the adoption of a separate new product planning department must clearly define its product policy. Management adopts its long-range objectives for the company and sets out to establish policies that will attain these goals. It must determine the policies that outline the details of the types of products the firm will produce and sell. In establishing this policy though an objective evaluation of the company's potential must be made. This means that management must attempt to rate its own abilities as well as those of the members of the organization. This self appraisal will allow it to adopt realistic goals and policies. With these tasks accomplished management can establish a new product planning department. Without the policy as a guidepost the essential long-run approach to new product development could not be adopted and thus the decisions made would merely be short-run solutions which are all too prevalent in industry at present.
C. Co-ordination

In arriving at the conclusion that the proposed system was superior because of its flexibility, there were other important factors considered. One which was continually mentioned throughout the thesis was the necessity for the department to co-ordinate the product planning activities effectively. This was developed in conjunction with the idea that new product development is an integrated activity. As an integrated process there will necessarily be developmental work being done in several departments of the firm at any one time. The external feature of this committee places it in an ideal position to take an over-all look at proceedings and guide them accordingly. For new product development to contribute most to the company objectives it will have to be handled in an integrated manner rather than as a series of individual projects being performed in different areas of the firm. This committee and the methods outlined in Chapter II will readily facilitate the attainment of these goals.

D. Communication

For the committee to succeed in its co-ordinating activities it must be designed with effective communications networks at its disposal. These systems have been clearly discussed before but it is concluded here that the proposed department will readily allow the rapid transmission of
data to and from the various departments. The networks are not an inherent feature of this system but rather they are made possible by the form of the committee and the methods it will utilize. Set up as a staff department reporting to the executive committee, the new product planning department tends to act as the communications centre of the product planning activities. This feature allows all departments of the company to remain current on all projects and to plan their strategies accordingly.

E. Control

A new product planning activity must be designed to enable effective control by management. It is concluded that the proposed system fulfills this requirement. The details of the various control measures have been presented in previous chapters. They included: the regular progress reports that were distributed to all departments; the close contact with top management; the limitation of project approval; the make-up of the committee; and the operating budgets provided for investigation purposes. The fact that the committee could observe all developmental procedures meant that it could more easily allocate funds to the various projects in a proportionate manner. This system therefore makes it possible for management to control the department's activities and for the department to control expenditures made on each product idea.
F. Marketing Research

It is also concluded that an important key to the success of the planning activity is the presence of an efficient organized marketing research department. The various forms that this department could adopt have been outlined in Chapter III, however, the important element here is that the new product planning department has a group at its disposal to carry out detailed analyses of the market.

It was emphasized that the need for extensive market information was imperative to the success of product introduction schemes. As pointed out previously, a large proportion of the product failures at present occur because of insufficient market knowledge. Too many companies have developed the product fully before they have determined whether there is any market for it.

Alarm was therefore expressed when the company studied in Chapter V indicated that it had recently eliminated its meagre one-man marketing research operation. It was unfortunate that the details as to why this was done could not be determined. Doubt was expressed as to the reliability of the market information gathered by the sales staff presently employed by the firm.

Thus the new product planning activity and thorough market knowledge go hand in hand. The techniques employed to gain this knowledge are not at question here.
G. Pitfalls to Avoid

The advantages of this proposed system are clearly illustrated and its adoption by certain companies is recommended. However, there are some cautions that must be expressed.

First, the company adopting this system should not be hasty. In other words the adoption should come only after a complete analysis of the company's resources has been carried out. Without this preparation a department may be established without careful planning and the results obtained may be discouraging forcing cancellation of the operation. Just as any other department in a company, this one must be carefully outlined and planned. The important factors previously discussed in this chapter must be accounted for and the structure designed accordingly.

Another possibility that is equally dangerous is that the department will be over-organized. By this it is meant that the company should realize its limits, in terms of potential growth, and adopt a structure suited for its size. It might happen that management's enthusiasm to organize its new product planning activities may cause it to over-extend itself. This would result in disproportionate costs and would send the department to an early death.

The new product planning department should not be adopted for the tool's sake. This means that a company should not establish a separate department solely for the
reason that other firms have successful new product operations. This again returns the discussion to the fact that management must clearly believe in such an operation and it must be truly concerned with improving its performance in new product introductions. If management adopts this approach the possibility of the entire company supporting this operation will be increased and therefore the probability of successful new products will also be increased.

This same argument can apply to the adoption of a marketing research department to provide market knowledge for the firm. When management decides to establish these types of departments they must be clearly convinced that it is for the benefit of the company and that they will aid in the future growth of the firm.

In review it is thus concluded that the proposed department and the methods described for new product planning will effect more consistent results in new product introduction. It stimulates organized thinking and in so doing, increases the possibility that all factors are considered in product decisions. The department forces management to adopt concrete product policies and to plan their product line in an attempt to reach the company's long-run objectives. The new product planning department also ensures that eventually the system of producing a product and then attempting to sell it, will be discarded.
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