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Abstract: The purpose of this paper is to identify the impacts of marketing on new product development. The author defines the background of new product development, product life cycle marketing, and their implications concerning the impact of marketing on new product development.

Impacts of Marketing on New Product Development

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Individual Report

IMPACTS OF MARKETING ON NEW PRODUCT DEVELOPMENT

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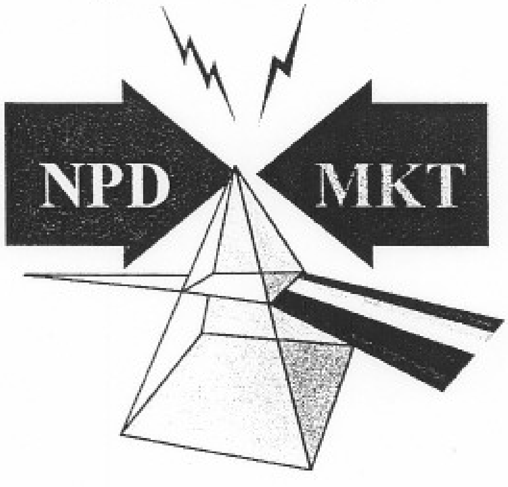

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TABLE OF CONTENTS

I. INTRODUCTION

Rapidly changing competitive, social, economic, and technology climates have exerted great demands on the new product development. With the significance that new product now carries in a company's performance, new product development greatly influences a company's performance. One of the most significant factors influencing the NPD is marketing.

Clark and Kim address that new product development holds hope for improving marketing position and financial performance, creating new industry standards and niche markets, and even renewing the organization.[13]. Also, Gupta et. al, Mckenna, and Spencer et al [9],[10],[11] say that technology is creating new segments, markets, and industries and, as a result, many corporations are becoming "technology driven." The development of products with more technology content and reduced time from design to commercialization is rapidly becoming a critical success. Every company must carry on new product development. Replacement products must be created to maintain or build sales. Furthermore, customers want new products, and competitors will do their best to supply them. We see that the market relies significantly on new products; therefore, it is very interesting to look at the impacts of marketing.

The purpose of this paper is to identify the impacts of marketing on new product development. The author defines the background of new product development, product life cycle in new product development, factors which influence new product development, impacts of marketing, and their implications concerning the impact of marketing on new product development.

II. BACKGROUND

Due to the fact this course is not the new product development class, the author would like to review about the general knowledge of new product development.

A. Classification of new products

A company can add new products through acquisition and /or new product development.

The acquisition route can take three forms.

- The company can buy other companies, it can acquire patents from other companies.
- The company can buy a license.
- The company can buy franchise from another company.

The new product development route can take two forms.

- The company can develop new products in its own laboratories.
- The company can contract with independent researcher or new product development firms to develop specific products for the company.

In the market, only 10% of all new products are truly innovative and new to the world. These products involve the greatest cost and risk because they are new to both the company and the marketplace. Thus most company new product activity is devoted to improving existing products. For example, at Sony, over 80% of new product activity is undertaken to modify and improve existing Sony products. The consulting firm Booz, Allen & Hamilton has identified six categories of new products in terms of their newness to the company and to the marketplace.[1]

- *New to the word product:* New products that create an entirely new market.
- *New product line:* New products that allow a company to enter an established market for the first time.
- *Additions to existing product lines*: New products that supplement a company's established product lines (package sizes, flavors, and so on)
- *Improvement and revisions of existing products*: New products that provide improved performance or greater perceived value and replace existing products.
- *Repositioning*: Existing products that are targeted to new markets or market segments.
- *Cost reduction*: New products that provide similar performance at lower cost.

B. The new product development process

The basic objective of the new-product development process is to identify new-product opportunities that can be successfully commercialized at the greatest return on the funds invested and that are compatible with the firm's resources-both financial and managerial.

Step 1: involves setting objectives and choosing a strategy for a firm's new-product development effort. Firms cannot implement the new-product development process successfully without a viable set of objectives and a well-articulated product strategy. The business must set certain criteria by which new products are selected. These include a fit with the company's resources, minimum sales revenues and market share, being an innovator or a follower, fit with present channels of distribution, quality level, and so on.

Step 2: opportunity identification, results from analyses of the macroenvironment, the industry, close competitors, the product life cycle, and customer segmentation.

Step 3: deals with converting an idea into a product concept, whose attractiveness can be tested.

Step 4: is concerned with product development, which requires articulating the product benefits and features followed by an estimation of its sales potential and preparing a business plan including a financial analysis.

Step 5: involves designing the product, use testing it, engaging in simulated test marketing, and full-scale market testing.

Step 6: deals with the commercialization of the new product.

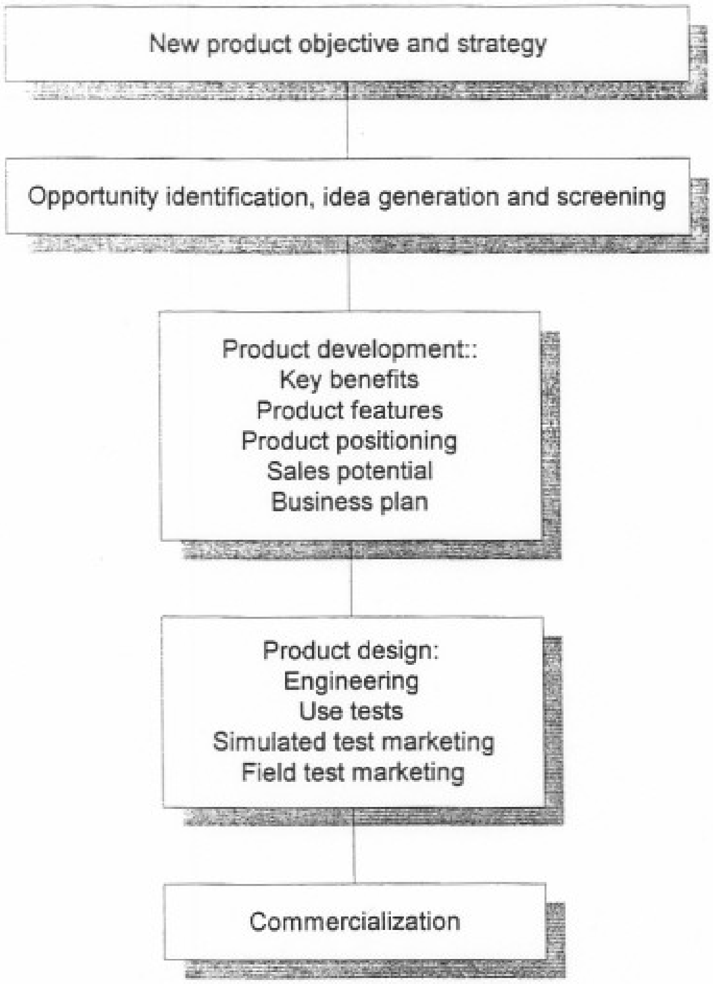

Figure 1 The new product development process

C. Factors and Strategies for New Product Development

Numerous studies into new product success and failure, together with case studies and publications and books, have suggested myriad factors that ought to drive new product development performance. From these, five keys factors seem to be essential [6],[7].

1. *Process*: the firm's new product development process and the specific activities within this process. Processes that promote a strong market orientation, undertaking the marketing tasks in a quality fashion, doing the predevelopment activities well, and having sharp, early product definition, are purported to yield positive outcomes.

2. *Organization*: the way projects are organized. The use of a cross-functional team, interfaces between departments, and empowered leader yield much better results than a functionally based new product development effort.

3. *Strategy*: the firm's total new product strategy. Having an explicit new product strategy, or which defines the role and goals of the new product development in the company's overall strategy, specifies product/market areas as areas as to focus on, and formalizes the necessary organizational structures for implementation—results in more positive performance.

4. *Culture*: the firm's internal culture and climate for innovation. Facets of a positive climate include: encouraging intrapreneurship; providing support (rewards, risk, tolerance, autonomy, and acceptance of failures without punishment); fostering the submission of new product ideas; and providing free time and resources to undertake creative activities.

5. *Commitment*: senior management involvement with and commitment to new product development.

D. Organization structure used in manage new product development

Successful new-product development requires the company to establish an effective organization for managing the new product development process. An effective organization begins with its top management.

Top management is ultimately accountable for the success of new products. New product development requires management to define the business domains and product categories that the company wants to emphasize. Thus, top management must establish specific criteria for acceptance of new-product ideas, especially in large multidivisional companies. A major decision facing top management is how much to budget for new-product development. R&D outcomes are so uncertain that it is difficult to use normal investment criteria for budgeting.

Companies handle the organizational aspect of new -product development in several ways as follows:

- Product manager
- New-product manager
- New-product committees
- New-product development
- New-product venture teams

III. PRODUCT LIFE CYCLE IN NEW PRODUCT DEVELOPMENT

Product life cycle is a framework that has been used by several marketers to explain technology or product phenomenon. Product life cycle model(Appendix I) consists of four main stages: First, introduction stage is a period when the product or service is first presented to the market. Second, growth stage is a period when the product starts to take off. Third, mature stage is a time when the market reaches its peak period. Four, declining stage is time when both sale and competition are declining. Thus, the question of "Why do we want new products?" arises. This question can make many discussions as to why, and it also will change a lot of things. The general reasons follow[5]:

♦First, many companies want to diversify or expand the market.

♦Second, the company was technologically falling behind the competitors, so it had to reverse.

♦The third reason is that the product life cycle continues to rise in the late growth.

IV. FACTORS WHICH INFLUENCE NEW PRODUCT DEVELOPMENT

To determine the effect of marketing on the new product development, one must have a frame work for how NPD is measured. These measures can vary widely. Is output measured in number of NPD projects, or revenue generated by the new products? Are inputs measured in terms of total expenses invested? Perhaps this explains the lack of data available on this topic. Griffin and Page [13] present a framework for measuring NPD, which is shown in Figure 2.

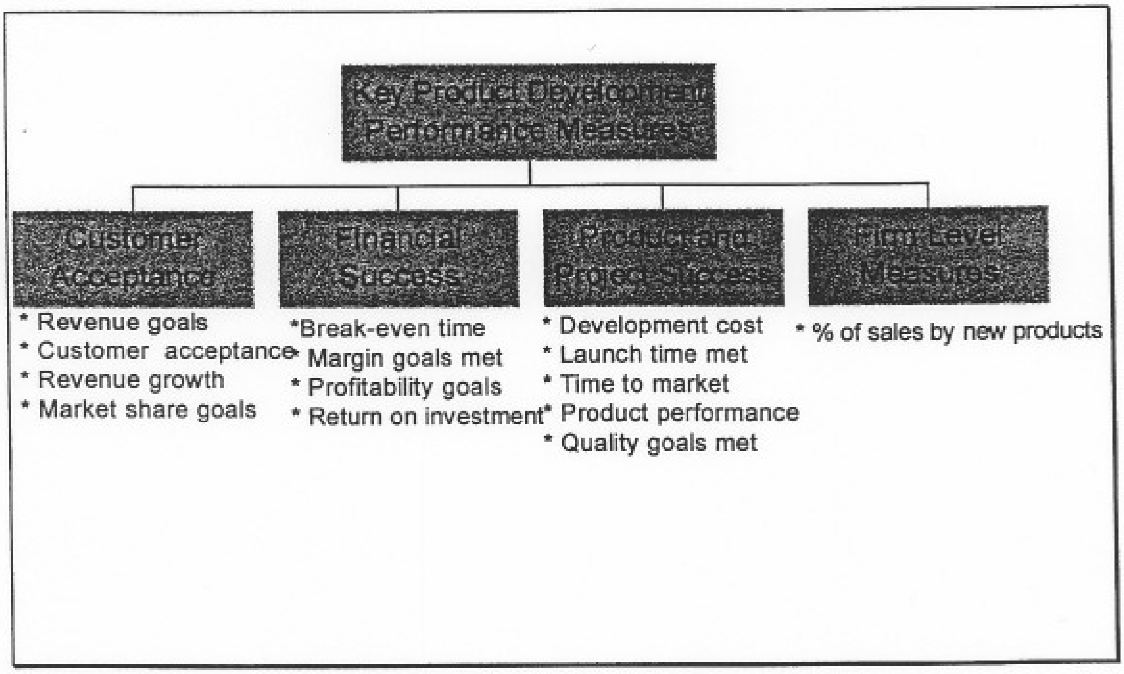

Figure 2 - Performance Measures

These performance measures are business performance measures that are in turn influenced by development output performance, by manufacturing performance and by marketing and sales performance. Development output performance, the result of NPD, is of course effected by development process performance.

V. IMPACTS OF MARKETING

All marketing decisions must be carefully made in terms of the firm's ability to reach its objectives as well as in terms of environmental impact on its market plan. These environmental factors cannot be controlled and hence must be understood for marketing. The following steps will address the key area where impact of marketing is involved.

Customer Value

With all of the new products coming out, will people buy them? What do the customers want? Will they welcome these new products or will they be reluctant to change? The customers will be one of the largest impacts on the new product development. Therefore, we will look at key customer value drivers for New Product Development.[20](Appendix II)

◆ *The Customer's Buying Situation*: Purchase behavior always occurs within a situational context. The situation may act as a constraint or to facilitate a given purchase or it may have no effect at all.

◆ *Buyer's Motivation Economic Value*: The buyer's psychological motivations and goals for a particular purchase are central to the decision process. Additional motivation may involve novelty seeking and knowledge acquisition.

◆ *Valued Performance/Function*: Performance value is based on the buyer's perceptions of the utility to be derived from the functional specification associated with a product and service.

◆ *Economic Value*: Economic value drivers are based on the buyer's perceptions about the cost of acquiring, owning, installing, using, and disposing of a product or service.

◆ *Buyer's Perception About the Supplier*: The buyer's perceptions about the supplier is a major factor in gaining acceptance for a brand. Economic and performance value can be influenced relatively rapidly by changing the price and product design.

There should be a new or current need for the product, or large, growing markets, where customers have a high need for such products, and where the product is important to the customer [17]. This indication of adequate market demand is by far the most important criterion of a proposed product. Assessing the total marketing opportunity should take into account such factors as the characteristics and attitudes of consumers or industries that may buy the product, the size of this potential market in dollars and units, and the nature of the market in respect to its growth or decline.

Competitor

Nowadays we are faced with rapid, relentless, and uncertain changes which companies have to cope with. There are forces like market fragmentation, production to order in arbitrary lot size, information capacity to treat masses of customer as individuals, shrinking product life cycle times, service, etc. There is a long list of challenges for competitors. Therefore the competitor is very important for companies, which want a longer period on the first change environment. The companies should understand the following questions:

- Who are our present and potential competitors?
- How can we compete with their products, and what are the strategies of our competitor?

The current competing producers, prices, and marketing policies should be evaluated specifically in regard to their effect on the target market share of the proposed product. The new product should be able to compete successfully with products already on the market by having features that will meet or overcome current and anticipated competition. Consideration should be given to the ease with which either a present competing product could be improved or a new, strongly competitive item could be marketed. Or the good market that companies should consider is one where competitive intensity is low, there is a little price competition, competitive products are weak, and their prices, sales force and service are poor.

Time to Market

Time to market is widely viewed as a key source of competitive advantage, particularly in "fast cycle" industries where product life cycles are often 2 years or less. Time to market has become perhaps the most significant competitive advantage in high technology business today[14, 15]. Datar et.al [18]address formation at the product level on the following four key variables:

- Number of customers: the number of customer that expressed intent to buy the product and provided input on its design.
- Engineering expenditures: The expenditures for engineering related to new product development and process design. The expenditures represent the investment made by each company for product development effort.
- Number of concurrent product: The average number of products being developed concurrently during time to market.
- Time to market: The time taken from the time the new product concept was finalized to achieving volume production.

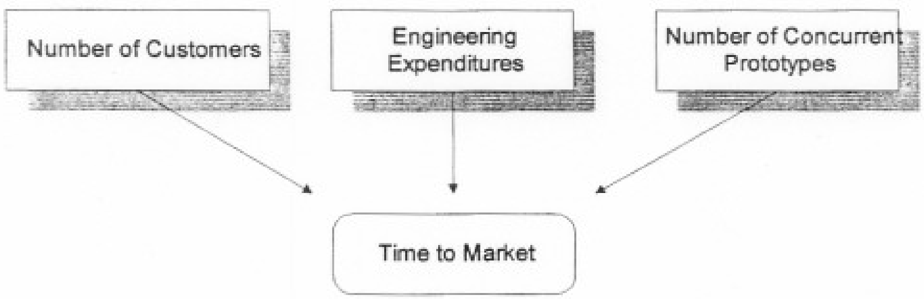

Figure 3 Time to Market

The number of products is waxing, and product development times are waning. Market segmentation is becoming increasingly fragmented to the point where Goldman[14] has defined them as market "particles."

Marketing System

Marketing system is the another one of impact of marketing. It is important that the new product be compatible with existing management capabilities and marketing strategies. Marketers should be able to be fully utilized in this new product effort. Strategic marketing is the marketing driven process of strategy development, taking into account a constantly changing business environment and the need to achieve high levels of customer satisfaction[21]. Companies have to build a strong marketing relationship. The marketing strategy is an interesting impact field to look at. The following steps will address key areas where marketing strategy can be linked to customer value[20].

1. *Marketing Segmentation Strategy* : This strategy enables the targeting of specific groups of customers who have identifiable value requirements for the appropriate product and range, so the companies have to know the marketing segmentation strategy.

2. *Product Development Strategy*: For this strategy the marketers must ensure that the voice of the customer is represented in the product development process, and the marketing has to ensure the product and service are based on customer value. This will help it to succeed in the market.

3. *Positioning Strategy*: Positioning strategy represents a company's decision of how and where it will use its distinctive value-creating competencies to create competitive advantage [22].

4. *Distribution Strategy*: Distribution strategy is one of the hottest areas of marketing strategy right now. It allows the creation of direct relationships between the firm and its customers [23]. This will be the best strategy to get to the customer value.

5. *Pricing Strategy*: The goal of the value-based pricing strategy is to maximize the return to the company through the price charged for the value created for the customer. The defining customer perceptions of value: The value equation

Perceived Value $= \frac{PerceivedBenefit}{Delivered\,\mathrm{Pr}\,ice}$; From the equation, it shows that if price is down, the demand will go up.

Financial

The product should fit into the company's financial structure. In this regard, the manufacturing cost per unit, sales and adverting expense per unit, the amount of capital required, and amount of inventory required should be estimated. These estimates, combined with the price consumers would be willing to pay, will give an estimate of the length of time necessary for the product to reach the breakeven point.

Social Change

Rapid technological advances as well as economic instability, energy shortage changes in consumer needs, wants, and tastes, invariably induce social change. For example, one of the major social changes that has favorably affected the introduction of the new products is the increase in personal income[19].

A growing concern for the impact of social and environmental factors on the new product development has emerged by increased public awareness of social and environmental needs. Such concern will have a direct effect on product planner when decisions are made to add, modify, extend, or eliminate products from the product line. Failure to consider social and environmental factors invites government regulation, which will not only negatively affect new product introduction, but could also be detrimental to the reputation of existing products.

The traditional market concept requires the firm engaged in new product development to first consider customer needs and wants when designing the product. New social pressures have altered the meaning of the marketing concept so that protection may be imposed on the consumer to an undesirable extent. Protection provided by seat belts, and automobile bumpers are examples of changes imposed by government because of public pressures, but the average consumer may not feel that such protection is desirable. Thus, public pressures in some instances induce nonessential product changes that result in additional production costs and consequently a higher price to the consumer.

Legal

All legal requirements should be met. Before any new product idea receives further research, legal obstacles should be met and overcome. Any patentable features should be registered, the trademark protected, and all pertinent regulations adhere to.

Image

The new product should comply with, and indeed add to, the company's overall image and success. The new product idea should not be contrary to the company. The image also need to care about the customers that this paper early talk in the customer part. The image should be positive to the customers that will bring the firms to be the leader in the market.

Demarketing

One factor of considerable importance is raw material shortages that have immediate effects on new product development. One strategy that may result from shortages would be to deemphasize marketing so as to discourage or reduce demand for products that are short supply. The deemphasis of marketing would seem to naturally influence any product line expansion, modification. It certainly may imply that firms will have to become more efficient in the marketing decisions.

The existence of raw material shortages and other energy crises could have an opposite and more dramatic effect on new product development. Instead of demarketing, many firms may step up their development work to design new products and services that will use different raw materials than those in short supply or find new solution to energy problems.

VI. RECOMMENDATIONS

Once a company has carefully segmented the market, chosen its target customer, identified their needs, and determined its desired market positioning, it is ready to develop and launch appropriate new products. Marketing management plays a key role in the new development process. Rather than leave it to the R&D department to develop new products on it own, marketing actively participates with other departments in every stage of product development. Also, the teamwork aspect is particularly important. New-product development is most effective when there is teamwork among R&D, engineering, manufacturing, purchasing, marketing, and finance .

Next, the product idea must be researched from a marketing point of view, and a specific cross-functional team must guide the project throughout its development as shown in the figure 4. When the company is careful about the new product development process, it will reduce the impacts of the marketing on the new product.

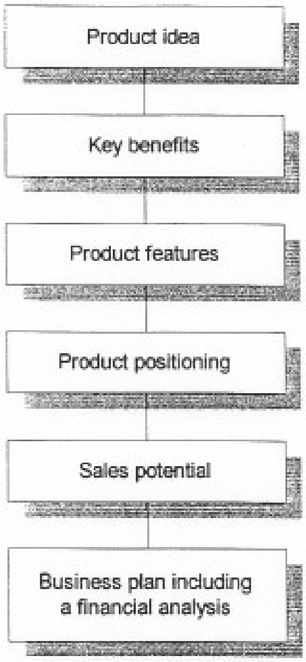

Figure 4 New Product Development Process

Another recommendation, to be successful on NPD, the eight principal factors Maidique and Zirger identified are listed below[8].

1. The developing organization, through in depth understanding of the customers and the marketplace, introduces a product with a high performance-to-cost ratio.
2. The create, make, and market functions are well coordinated and interfaced.
3. The product provides a high contribution margin to the firm.
4. The new product benefits significantly from the existing technological and marketing strengths of the developing business units.
5. The developing organization is proficient in marketing and commits a significant amount of its resources to selling and promoting the product.

6. The R & D process is well planned and coordinated.
7. There is a high level of management support for the product from the product conception stage to its launch into the market.
8. The product is an early market entrant.

VII. CONCLUSION

New product development holds hope for improving marketing position and financial performance, creating new industry standards and niche markets, and even renewing the organization. Today more firms are introducing many new products and modifying existing products that utilize numerous variations of advanced applied science. A good company/project fit is defined in terms of resources and skills in sales force, distribution system, advertising and promotion, market research, customer service, and management. Therefore, the companies which want to be successful in the new product development have to consider on the marketing impacts.

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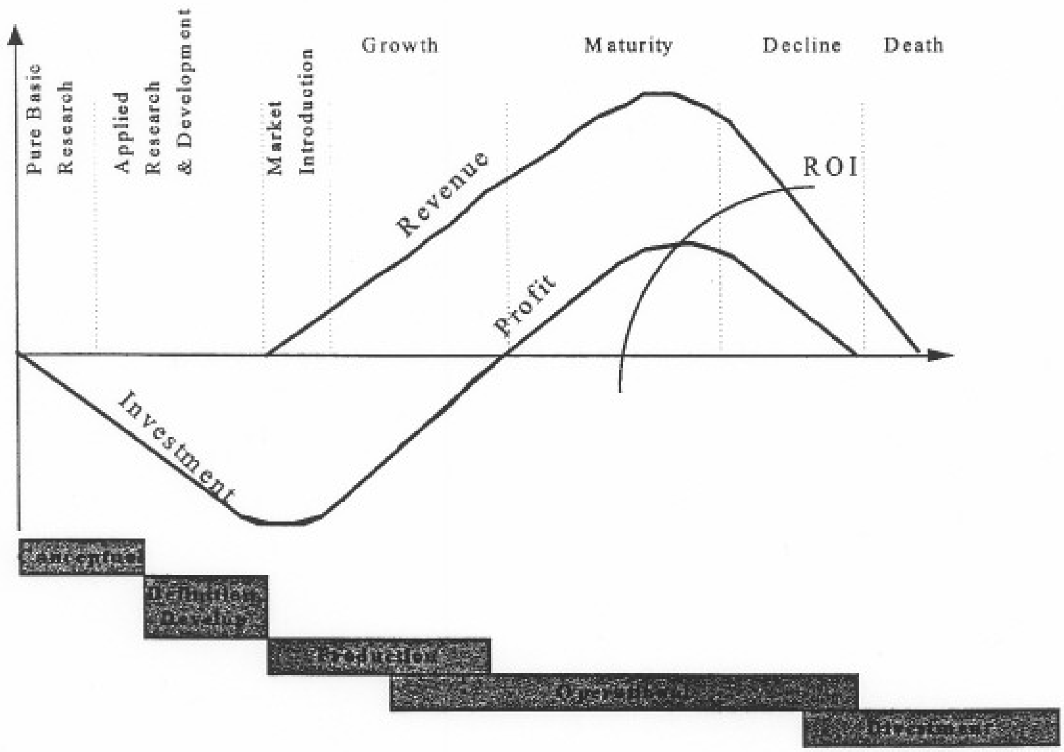
APPENDIX I.
The Product Life Cycle



Product Life-Cycle [4]

APPENDIX II.

Key customer value drivers for NPD

Product - Referent Value Drivers	
A) Economic Value ◆ Deliver cost (price) ◆ Cost of ownership ◆ Cost effectiveness ◆ Degree of budget fit ◆ Price sensitivity ◆ Volume discounts ◆ Environmental costs ◆ Opportunity costs	**B) Performance/Functional Value** ◆ Best quality/reliability ◆ Best feature set ◆ Meets /exceeds specifications. ◆ Outperforms competition ◆ On time delivery ◆ Best technical solution ◆ Innovative solution ◆ Faster/easier install & maintenance ◆ Ease of training ◆ Integrates with company installed base ◆ Complies with industry standards ◆ Superior service and support
Customer - Referent Value drivers	
C) Buyer's Perceptions about the supplier. ◆ Shared value ◆ Credibility (trust, expertise, similarity) ◆ Good strategic partner ◆ Loyalty ◆ Wants buyer to succeed (cares) ◆ Commitment to market ◆ Long-term viability ◆ Sufficient resources (financial, technology, human, etc.) **D) The Customer's Buying Situation** ◆ Buyer's task requirements ◆ Buyer's resource capability ◆ Buyer's time horizon ◆ Buyer's experience with related products/services ◆ Organizational/social influences on the buyer	**E) Buyer's Motivations & Goals** ◆ Visibility, recognition, self esteem ◆ Desire to be viewed as a problem solver ◆ Makes good decisions/avoids bad ones ◆ Prestige ◆ Seeks best business partner ◆ Avoid high-profile failures ◆ Avoid technology blind alleys