

New Product Development

Dr. M. Thirumagal Vijaya

M.Com., M.Phil., MBA., PGDCA., Ph.D, Head, Department of Commerce, PSG College of Arts and Science, Coimbatore-14, India

Abstract: *The creation of products with new or different characteristics that offer new or additional benefits to the customer. Product development may involve modification of an existing product or its presentation, or formulation of an entirely new product that satisfies a newly defined customer want or market niche. In business and engineering, new product development (NPD) is the complete process of bringing a new product to market. A product is a set of benefits offered for exchange and can be tangible (that is, something physical you can touch) or intangible (like a service, experience, or belief). There are two parallel paths involved in the NPD process: one involves the idea generation, product design and detail engineering; the other involves market research and marketing analysis. Companies typically see new product development as the first stage in generating and commercializing new product within the overall strategic process of product life cycle management used to maintain or grow their market share.*

Keywords:

1. Introduction

Product development is the process by which a company does one of two things:

1. Creates an entirely new product that either adds to an existing product line or occupies an entirely new niche;
2. Modifies or updates an existing product. Successful product development is essential for any business if it hopes to exist for any length of time.

2. New Product Development

Product planning is the activity charged with the responsibility of providing new and profitable products for management to evaluate. It is also charged with the responsibility of reviewing the profitability of existing products. Product planning deals with changes in:

1. The kinds of goods or service offered,
2. The number or kinds of products or different lines, that the company offers,
3. The width of assortment within each product line offered,

4. The quality levels or levels acceptable to various classes of consumers, and
5. The degree of distinctiveness.

The following are the basic changes that may be required in products:

1. Improving the existing products
2. Weeding out unprofitable items in the product line (simplification).
3. Expansion of the current product line (diversification)
4. New product development for the present customers, and
5. New product for new customers.

Introducing new products is rather difficult as it involves long-range planning. Customer's need should be identified, competing and substitute products should be evaluated and above all the strength of the company should be examined before deciding to produce a new product. The policy and strategy involved in new product development

3. New product Development Planning



4. Steps in New Product Development

The following steps are recommended in the development of new products:

1. Exploration

The first stage of the new product's evolution. This stage is also termed as 'Idea Generation'. Ideas may originate from R&D, distributors, consumers, employees, etc. All the ideas may not have immediate market potential. At the same time, a firm must always keep a collection of ideas ready in stock, because the creation of new products is a condition of

survival in many industries. The specific activities performed in this stage are :

- 1) Determining the product fields of interest to the company,
- 2) Establishing a programme for planned idea generation, and
- 3) Collecting ideas through an organized work.

Sources of New-Product Ideas

| Source | Examples |
|--------------------------|--|
| Sales force | Knowledge of customers' needs; inquiries from customers or prospects; knowledge of the industry and competition. |
| Research and development | Application of basic research; original or creative thinking; testing existing products and performance records; accidental discoveries. |
| Other company sources | Suggestions from employees; use of by-products or scrap; specific market surveys. |
| Outside sources | Inventors; stockholders; suppliers or vendors; resellers; advertising agencies; customer suggestions; competitors' products; patent abstracts; trade shows and journals. |

2. Screening

At this stage, the ideas collected are scrutinized to eliminate those inconsistent with the product policies and objectives of the firm. Some ideas may already be protected by patents and some others may not be fit for consideration because of the non-availability of raw materials for production. The main intention of this phase is only to eliminate unsuitable ideas as quickly as possible. The procedure adopted includes :

- i. Expanding each idea into full product concept,
- ii. Collecting facts and opinions to decide whether the product idea could be converted into a business proposition, and
- iii. Assessing each idea for its potential value to the company.

3. Business Analysis

It is a continuation phase of the above. At this stage, creative analysis is applied to the idea finally selected. Product features are analysed and a rough programme for its development is fixed. This stage emphasizes :

- i. Further study on each idea in a detailed manner,
- ii. Determining the desirable market features for the product and its feasibility, and
- iii. Developing specifications and establishing a definite programme for the product.

4. Development

During this stage, the 'idea-on-the paper' is turned into a 'product-on-hand'. In other words, the idea is converted into a product that is producible and demonstrable. This stage is also termed as 'Technical Development'. It is during this period that all developments of the product, from idea to final physical form, take place. Once the management decides to go forward with the product idea, the following activities are undertaken :

- i. Establishing development projects for each product,
- ii. Building the product with the changed specifications, if necessary, and

iii. Competing laboratory evaluation and realizing the product for testing.

5. Testing

The object of this stage is basically to assess whether the product meets the technical and commercial objectives envisaged in the original proposal. There are various tests conducted at various levels in order to ascertain the product acceptability. There are three types of tests usually conducted:

(a) Concept Testing

This is concerned with measuring customer reactions to the Mea or concept of a product. In fact, it is a kind of research in which the product idea is screened before any money, time or labour are committed to making the prototype products.

(b) Product Testing

Once the concept test of the product is successful, the next step is to put the real product into a few selected markets. This test will prove whether the product performs as expected or whether it lives up to the promise of the concept. Such a test enables the management to pick out the likes and dislikes of the consumers towards the product. It also gives an opportunity to the buyers to compare the product with the competitive products.

(c) Test Marketing

Even the most favorable results from the two tests mentioned above 'are not a conclusive evidence for the success of a new product. For instance, even where the product is seen to possess a high quality, market failure is still a possibility if other important factors in the marketing mix show weakness. It is, therefore, logical to examine how the company's total marketing mix may be tested using test marketing methods. Experience shows that the chances of a new product being successful are 'significantly greater' if it is first put into a controlled test market where it is exposed to realistic competitive conditions. The survey will reveal whether the earlier satisfaction continues to be derived, whether people like the product and make re-purchase, whether the advertising is appealing, etc. On the basis of the findings, changes, will have to be incorporated before the product is finally launched in the market.

Commercialization.

In this stage a product is submitted to the market and thus commences its life-cycle. Commercialization is also the phase where marketing is most active in connection with the new product. This stage should be checked whether advertising and personal selling have been done effectively and whether proper outlet have been arranged for the distribution.

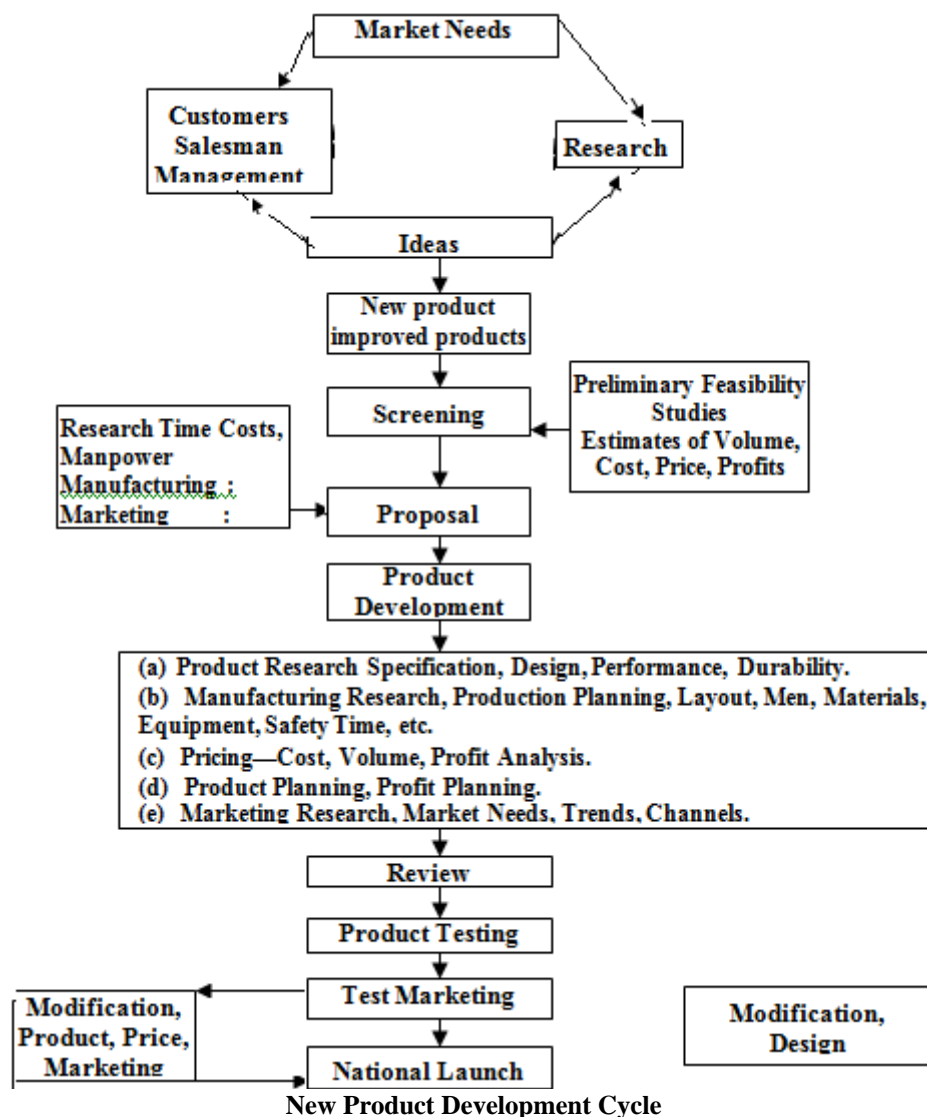
The following activities are usually undertaken during this stage.

1. Completing Final plans for production and marketing
2. Initiating coordinated production and selling programmes
3. Checking results as regular intervals.

Problems in introducing new products

Shortage of finance for Investment in designing, developing and launching new products are

- i. Lack of adequate and reliable information regarding tastes and preferences of consumers.
- ii. Lack of technical know-how and inputs required for introduction of new products
- iii. Reluctance and inability of the enterprise to bear the risk involved in that failure of new products.
- iv. Resistance to change involved in introducing new products.
- v. Time and costs involved in new product development.
- vi. Shortage of ideas for new products.
- vii. Fragmented markets.

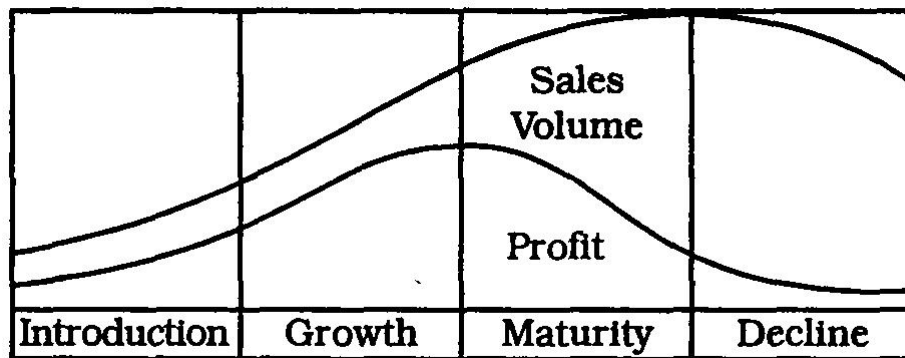


5. Product Life Cycle (PLC)

Product life-cycle (PLC) Like human beings, products also have an arc. From birth to death, human beings pass through various stages e.g. birth, growth, maturity, decline and death. A similar life-cycle is seen in the case of products. The product life cycle goes through multiple phases, involves many professional disciplines, and requires many skills, tools and processes. Product life cycle (PLC) has to do with the life of a product in the market with respect to business/commercial costs and sales measures. To say that a product has a life cycle is to assert three things:

- Products have a limited life,
- Product sales pass through distinct stages, each posing different challenges, opportunities, and problems to the seller,
- Products require different marketing, financing, manufacturing, purchasing, and human resource strategies in each life cycle stage.

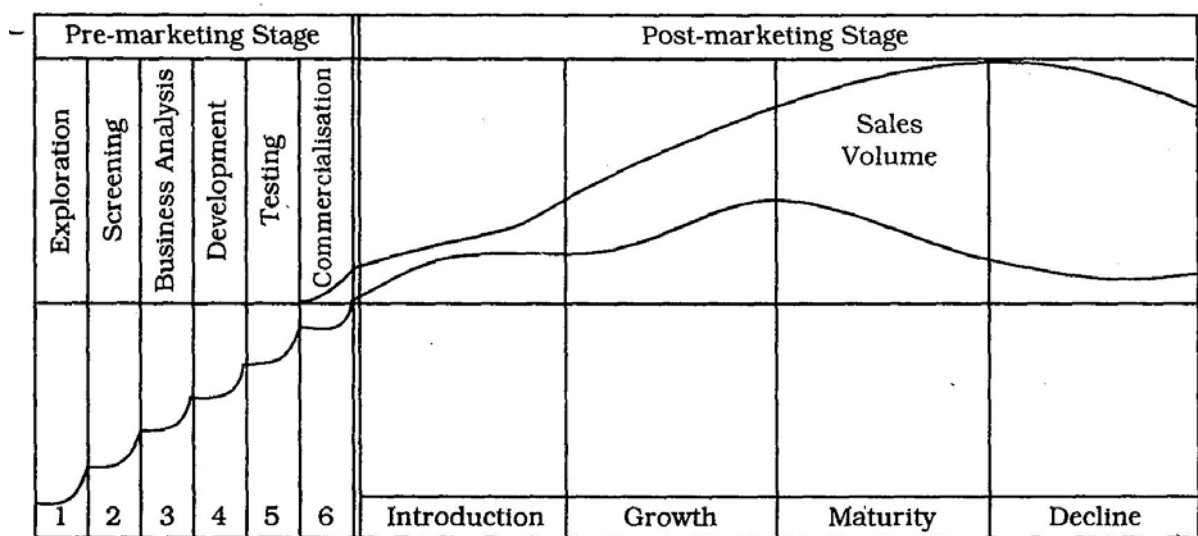
The four main stages of a product's life cycle and the accompanying characteristics are:



Product Life Cycle

| Stage | Characteristics |
|------------------------------|--|
| 1. Market introduction stage | <ol style="list-style-type: none"> 1. Costs are very high 2. Slow sales volumes to start 3. Little or no competition 4. Demand has to be created 5. Customers have to be prompted to try the product 6. Makes no money at this stage |
| 2. Growth stage | <ol style="list-style-type: none"> 1. Costs reduced due to economies of scale 2. Sales volume increases significantly 3. Profitability begins to rise 4. Public awareness increases 5. Competition begins to increase with a few new players in establishing market 6. Increased competition leads to price decreases costs reduced due to economies of scale 7. Sales volume increases significantly 8. Profitability begins to rise 9. Public awareness increases 10. Competition begins to increase with a few new players in establishing market 11. Increased competition leads to price decreases |
| 3. Maturity stage | <ol style="list-style-type: none"> 1. Costs are lowered as a result of production volumes increasing and experience curve |

| | |
|---------------------------------|--|
| | <ol style="list-style-type: none"> effects 2. Sales volume peaks and market saturation is reached 3. Increase in competitors entering the market 4. Prices tend to drop due to the proliferation of competing products 5. Brand differentiation and feature diversification is emphasized to maintain or increase market share 6. Industrial profits go down |
| 4. Saturation and decline stage | <ol style="list-style-type: none"> 1. Costs become counter-optimal 2. Sales volume decline 3. Prices, profitability diminish 4. Profit becomes more a challenge of production/distribution efficiency than increased sales |



The Full Life Cycle of a product from its Exploration Stage to Decline Stage

Product Management- Why Products Fail?

The following are the usual reasons advanced for the product failure :

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1. Inadequate Market Analysis. Biased information of improper analysis will yield only wrong data. Acting on such data leads to product failure.

2. Product Defect. This arises out of technical flaws in the process of production. This is fundamental reason for product failure. Inadequacy in products, to a large extent, are got rid of by proper product testing.

3. Higher Cost. Higher final costs than anticipated at the time of product is another reason for product failure. It might partly be due to wrong pricing policies adopted by the firm. The cost estimates also often go wrong when the products are finally introduced into the market.

4. Poor Timing. The fundamental principle to be followed in product planning is to find out the exact time at which the product is to be introduced into the market. Usually *when* and *how* are the two questions a manufacturer is often finding it difficult to answer. A close analysis of the market condition and consumer behavior and attitudes is essential to find an answer to the two problems.

5. Competition. This is also an important factor that leads products to struggle hard in the market. There are various methods to overcome severe competition, including price cuts (mark down prices) and various kinds of discounts, etc. Consumer products are most affected by severe competition. However, it should be noted that it is not the low price alone that will help a product to compete and succeed in the market. Basically, offering high quality products excelling the existing ones is the basic determinant in deciding the success of a product in the market. There is a widespread recognition that it is ultimately the quality of a product which will enable the product to withstand competition.

6. Insufficient Marketing Effort. It is wrong to assume that a manufacturer's job ends the moment a product is ready for sale. Proper promotional activities also form a part of his job to make the product known to consumers. Proper selection of the channels of distribution and the methods of physical distribution also help in proper and efficient marketing of products.

7. Inadequate Sales Force. Selling is done by personal or impersonal methods. Impersonal methods include advertisement and similar promotional activities. Personal methods, on the other hand, are more intimate and more efficient. Promotional activities should be backed by adequate sales force to introduce the product properly in the market.

8. Weaknesses in Distribution. The distribution of the product is one of the major marketing problems. It is this marketing function which enables the product to reach the proper markets at proper time at a proper price. Distribution management is considered to be one of the important areas where management decisions require far-sightedness and

vision. All these problems could be solved by the timely action of the management. Product failure can be prevented :

- a) By ensuring that there is adequate demand existing for the product. In other words, one should identify and ensure a potential market for his products,
- b) By making a product that is acceptable to the society,
- c) By selecting a product that would exactly fit into the existing market structure of a company,
- d) By using continuous and efficient demand creation methods, and
- e) By selecting a product that should reflect the company's image already created in all respects especially with regard to quality and price.

Blain Cooke opines that today three-fourths or more of new products fail. According to him, "the new products which fail are not in the literal marketing sense products at all—they are merely interesting but worthless artifacts of the production process."

This compels the management to adopt certain well-defined stages in the process of evolving new products. These may be listed as follows :

1. A forecast of Market Demand—How large is the market and for how long will it last.
2. A description of the market profile—An analysis of customers are to who wants what and where.
3. A product concept—Analysis of product features including the price.
4. Designing an efficient organizational structure for the distribution of products.
5. Undertaking consumer tests. On the basis of results obtained the entire process to be rescheduled, if necessary.

Causes of New Product Failure

1. Faulty estimates of market potential.
2. Unexpected reactions from competitors.
3. Poor timing of introducing the new product.
4. Rapid change in market.
5. Poor quality control.
6. Faulty estimates in production costs.
7. Inadequate expenditure on initial promotion
8. Faulty market testing.
9. Improper channel of distribution.

6. Conclusion

New product development should start with an insight based on consumer needs. Throughout the NPD process, market research is a valuable tool to check viability and minimizes the risk of the product launches. Being a company, it is essential to develop new products using the insights of consumers across markets and cultures. This ensures the products are relevant to a large number of global consumers and will deliver the maximum return when launched. This maximizes return on investment for the company and results in happy, satisfied and loyal consumers.