

---

# UNIT 12      PRODUCT LIFE CYCLE AND NEW PRODUCT DEVELOPMENT

---

## Objectives

The objectives of this Unit are to explain the:

- concept of product life cycle
- stages in the product life cycle, and the different types of marketing mix required at each stage
- need for product modifications
- need for new product development and the process through which a product has to pass before it is finally launched into the market.

## Structure

- 12.1 Introduction
- 12.2 The Product Life Cycle Concept
- 12.3 Marketing Mix at Different Stages
- 12.4 Options in Decline Stage
- 12.5 New Product Development Strategy
- 12.6 Summary
- 12.7 Key Words
- 12.8 Self-assessment Test
- 12.9 Further Readings

---

## 12.1 INTRODUCTION

---

Most products have limited profitable life. This Unit will give you a complete picture of what happens from the time a new product is introduced till it declines, and will show you how the decline can, to a certain extent, be postponed. Product development involves careful planning and implementation. Sometimes organisations revive declining products by modification or else they follow several steps ranging from identification of market opportunity to launching of new products to replace the declining products. The greater is the competitiveness of market, the greater is the need for product development.

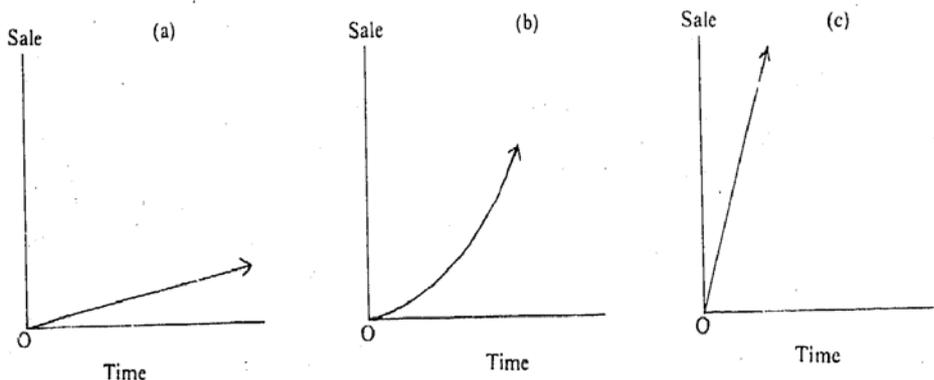
---

## 12.2 THE PRODUCT LIFE CYCLE CONCEPT

---

A company which introduces a new product naturally hopes that the product will contribute to the profits and provide consumer satisfaction for a long period of time. This however, does not always happen in practice. So, progressive organisations try to remain aware of what is happening throughout the life of the product in terms of the sales and the resultant profits.

**Figure I : Sales Trend - Introductory Stage**





### The Introduction Stage

Let us start thinking from the very beginning about what happens when a new product is introduced in the market.

Figure I gives three optimistic alternatives as to the likely sales trend. If the product is well-designed, the sales would not increase slowly but would shoot up after some time as in (b). Rarely would there be a case where they would shoot up as in (c). Poorly designed product may experience a slow take off as shown in (a). Thus (b) represents a suitable sales trend for a new product. This stage is called the 'introduction' or 'innovation' stage in the life cycle of a product.

Since the product has been just introduced and it is natural to expect that it will take some time before the sales pick up. There are some prerequisites for that too. The product must be brought to the notice of the customer. It must be available at the distribution outlets and all this takes some time. Therefore, a likely picture of the sales trend in this stage would be (b) as given in Figure I.

---

#### Activity 1

In the introduction stage of a product what is likely to be the profit trend? Tick below what you think would be the profit picture at this stage:

- i) Profits will rise rapidly [     ]
  - ii) Profits will rise gradually [     ]
  - iii) There will be a loss in the beginning [     ]
  - iv) There will be a loss throughout. [     ]
- 

In the introductory stage, there is likely to be no profits or more likely a loss. This loss may continue for some time depending on the market factors. Thus, the correct answer could have been either (iii) or (iv). It is because, at this stage, considerable amount of funds are being devoted to promotional expenses with a view to generate sales while the volume of the sales is low (as already seen in the Figure I). Thus in the beginning, there is likely to be a loss and later on, as the sales grow, the profit might accrue.

### The Growth Stage

In case the product launched is successful, the sales must start picking up or rise more rapidly. The next stage is then reached which is known as the 'growth stage'. Here the sales would climb up fast and profit picture will also improve considerably. This is because the cost of distribution and promotion is now spread over a larger volume of sales. As the volume of production is increased, the manufacturing cost per unit tends to decline. Thus, from the point of view of product strategy, this is a very critical stage.

### The Maturity Stage

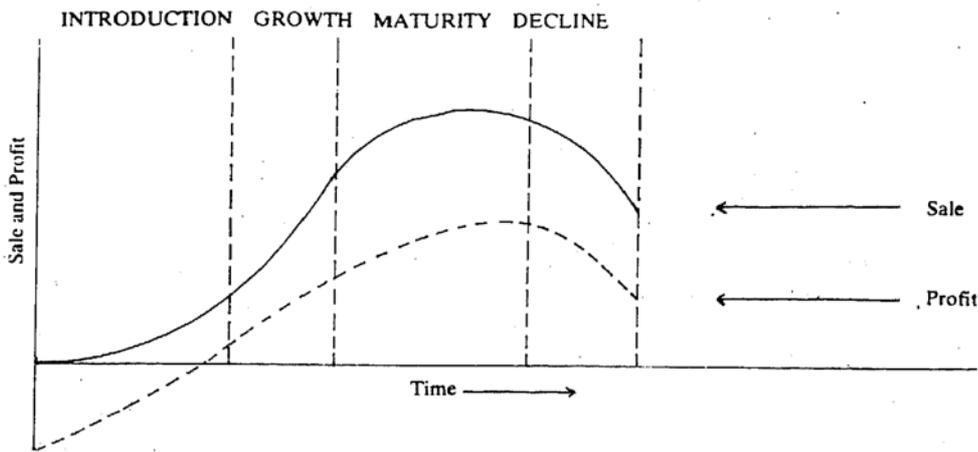
It is too optimistic to think that sales will keep shooting up. At this stage, it is more likely that the competitors become more active. In case your product is a novel one, by now competition would have come out with a similar product in the market to compete with yours. Therefore, the sales are likely to be pushed downwards by the competitors while your promotional efforts would have to be increased to try and sustain the sales. Thus the sales reach a plateau. This is called the 'maturity stage' or 'saturation'. At this point it is difficult to push sales up. With regard to the 'profit' picture, the profits are likely to stabilise or start declining as more promotional effort has to be made now in order to meet competition. Unless of course, you have the largest market share with your product and it needs no extra push in the market.

### The Decline or Obsolescence Stage

Thereafter the sales are likely to decline and the product could reach the 'obsolescence' stage. Steps should be taken to prevent this obsolescence and avoid the decline. This decline that generally follows could be due to several reasons such as consumer changes and tastes, improvement in technology and introduction of better substitutes. This is the stage where the profits drop rapidly and ultimately the last stage emerges. Retaining such a profit after this stage may be risky, and certainly not profitable to the organisation.

Figure II shows the 'product life cycle' and the different stages.

**Figure II: The Product Life Cycle**



**Activity 2**

Identify at what stages of their respective product life cycle are the following products in Indian market context.

Product	Stage
1) 29 inches Flat colour televisions	.....
2) Pagers	.....
3) Mosquito Repellent	.....
4) ink pens	.....
5) Walkman	.....

**12.3 MARKETING MIX AT DIFFERENT STAGES**

Let us now discuss the 4Ps of marketing strategy in relation to these different stages. Before we do that, we would like you to apply your mind and give suggestions about what should be emphasised in connection with the 4 Ps at different stages.

**Activity 3**

Please answer in the following format what will happen in terms of the mix for these stages by putting a relevant check-mark in the appropriate place.

**Marketing Mix at different stages**

	Increase	Reduce	Improve	Any other, please specify
<b>1) Introduction Stage</b>				
a) Pricing	( )	( )	( )	( )
b) Physical Distribution	( )	( )	( )	( )
c) Promotion	( )	( )	( )	( )
d) Product	( )	( )	( )	( )
<b>2) Growth Stage</b>				
a) Pricing	( )	( )	( )	( )
b) Physical Distribution	( )	( )	( )	( )
c) Promotion	( )	( )	( )	( )
d) Product	( )	( )	( )	( )



<b>3) Maturity or Saturation Stage</b>				
a) Pricing	( )	( )	( )	( )
b) Physical Distribution	( )	( )	( )	
c) Promotion	( )	( )	( )	( )
d) Product	( )	( )	( )	( )
<b>4) Decline or Obsolescence Stage</b>				
a) Pricing	( )	( )	( )	( )
b) Physical Distribution	( )	( )	( )	( )
c) Promotion	( )	( )	( )	( )
d) Product	( )	( )	( )	( )

Let us discuss the marketing mix strategies at different stages in the product life cycle. At the **introductory stage**, we have to increase and thus spend a lot on physical distribution and promotion. This is because we have to create an awareness and acceptance of our product. We must also increase its availability. Very often in India, it is noticed that a product is advertised but is not available at the distribution outlets. This is a waste of promotional expenses. We must make optimum use of the available resources of the organisation. Thus distribution should be arranged before the product is launched.

In any case, in these two areas substantial amounts would have to be spent. We have to also counter the reluctance of customers to change their established patterns and make them purchase our product, particularly if it is of a novel nature. As against this, if it is a novel one, people may even buy it out of sheer 'curiosity'.

Next in the **growth stage** when the sales shoot up and we are satisfied with the profit generated by the product, competitors will now enter the market and perhaps offer new product features. Therefore, we may have to think of improving our product so that we do not reach the ultimate 'decline' stage too quickly. The promotional expenditure is maintained at the same level or is raised slightly in order to meet competition.

We now come to the next stage called the **maturity stage**. This stage generally lasts longer than the other stages and poses problems for the management in maintaining the sales level. Actually, there is a slow down in the growth rate of the sales in case of such matured products. The decline can be arrested by improvements in the product and promotion. We should, however, at this time seriously think in terms of a new product, mix, that is, the elimination or redesign of the current product within the near future.

Finally, the **decline stage** catches up. The decline may be slow or rapid. It may be due to better substitute products, better competition, technological advances with which we have not kept up and several other reasons. Such a product now proves expensive for the organisation. One must, therefore, be willing to consider the elimination of such

marginal or unprofitable products. Eventually, the last weapon is to reduce the price. This is dangerous because this is a very time when extra promotional effort is required to be put in to prop up the product's sales. Reducing the price may soon land the company in a loss situation.

---

## 12.4 OPTIONS IN DECLINE STAGE

---

Having considered the product life cycle and the inevitability of product decline, the question which comes to one's mind is what should be done to avoid or postpone this decline.

Consider some of the following points to avoid decline,

- 1). improve product quality
- 2). add new product features resulting in extra benefits
- 3). penetrate new market segments



- 4). give incentives to distribution channels
- 5). expand the number of your distribution channels
- 6). improve advertising and sales effort.

Perhaps, the answer lies in the word 'innovation'. That is why it is sometimes said that innovation is the life-blood of marketing. Innovation can be in any of the 4 Ps of marketing. In connection with the product, it would mean quality improvement or improvement in features (e.g. introducing piano key type controls for table fans) or even style improvements like in case of clothes where collars are changed from time to time because of the fashion life cycle. Ultimately a time may come when the product will have to be removed from the product mix.

In practice, there is often a reluctance to do this, particularly from the senior members in the management hierarchy, who may have got very much attached to such products. This emotional approach has to be avoided while taking final decision.

The product life cycle concept, therefore, emphasises that there should be a periodical review of the products. The profitability and financial viability of the product must be assessed constantly. Products which are difficult to sell affect even the morale of the salesmen, as well as the distribution outlets. The only excuse for retaining such products is when the unprofitable product is required to complete the product line to enable distributors to meet competition. Unless there is some strong reason, unprofitable products should be removed from the product mix of the organisation.

Now let us consider the time period of this product life cycle. In case of some products, it is extremely short, whereas in others, it is very long. In case of fads, the life cycle is very brief. For example, in India the 'hoola hoop' completed the cycle within a few months. As against this, the horse carriage is still running in cities like Mumbai and smaller cities, although to a small extent, despite its being substituted with better means of transportation.

#### Activity 4

Identify at least two products in each stage of product life cycle in Indian Market.

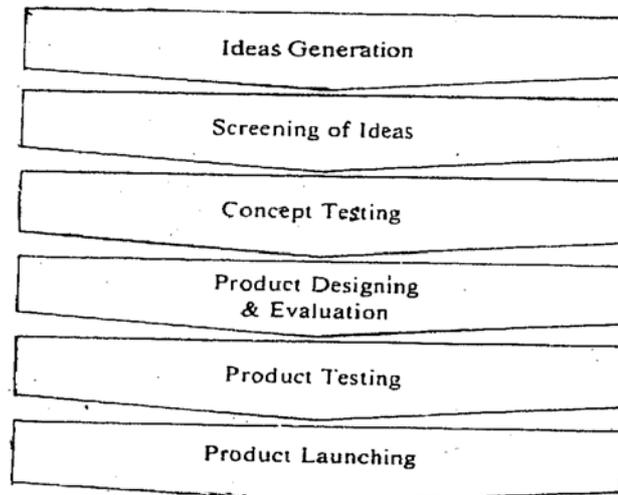
- i) Introductory Stage.  
.....
- ii) Growth Stage:  
.....
- iii) Maturity Stage:  
.....
- iv) Decline Stage:  
.....

### 12.5 NEW PRODUCT DEVELOPMENT STRATEGY

As you must have realised by now, it is very important to have a strategy for developing new products. Many products fail and in order to keep expanding company sales, we must have new products. Some products of Hindustan Lever have failed, but still they remain leading manufacturers because they have continuously added to their lines and added product lines to their product mix. Their 'HIMA' peas introduced in the 60's flopped, because, in the words of the Chairman of Hindustan Lever, 'India is not yet ready for convenience foods, neatly done up in packages.' The product 'concept' requires testing before one goes into product designing and it is very necessary to have an adequate strategy for developing new products and introducing them. Several stages must be defined. Figure III gives the stages in new product development. These will now be discussed in detail.



**Figure III : Stages in New product Development**



### **Generation of New Product Ideas**

The first step obviously is to get ideas with regard to possible new products. think of the sources from which you can get such product ideas? Your answer shown; have been: Customers, Company Salesmen, Competitors, Company Executives, Employees within the organisation including technical people.

As marketing is aimed at satisfaction of consumer needs, an alert marketer can get some ideas from the customers for possible new products by keeping his eyes and ear open and more particularly the mind to perceive even needs which are so far unexpressed. For example, in case of refrigerators, some one conceived the idea of having a 'two-door' refrigerator, another conceived the idea of the ball point which obviated the need for constantly filling fountain pens. Thus, new ideas can come from customer needs or problems requiring solution.

Company salesmen are in an excellent position to help. This is because they are in constant touch with the market, that is, both consumers and competitors. Watching competitors and what they introduce can also be useful for new ideas. Finally company executives and even the lower staff can be brought in for discussions.

The Interesting method here is what is known as **brain storming**. This is basically done to have a flow of ideas-good and bad. A number of people, say executives of the organisation, are called together and asked a question for new ideas or ideas for new products. They are asked to mention it without evaluation. None is criticised. The answers are recorded on a tape recorder so that the flow is not interrupted. Thereafter, the answers generated are evaluated as will be explained in the next stage.

### **Evaluation or Screening of the Ideas**

So far, from the first stage, we have received a number of ideas-good and bad. We have now to screen and evaluate them to reduce their number to what is likely to be useful. This is known as the 'evaluation' or 'screening' of ideas stage in this process. Poor ideas must be dropped immediately because unnecessary cost has to be incurred to process them further. The ideas must be consistent with the company's philosophy; objectives and strategies and be in terms of the resources available in the organisation. In general the ideas are screened in terms of

1. Possible Profitability
2. Good Market Potential (Market size)
3. Availability of Production Facility
4. Availability of Raw Materials for such a product, if selected
5. Availability of Finance
6. Availability of Managerial Ability
7. Uniqueness of Product

### **Product Concept Development and Evaluation**

Particularly when the product idea is rather revolutionary, the concept itself must be tested. For example, people talk about 'battery driven cars' to save <sup>on</sup> petrol. This is a



concept which has to be tested in the environment in which the product is sought to be introduced. As already indicated, Hindustan Lever failed with their Hima peas and Fast Foods. This was a failure of concept testing. The mention of the failure of Hindustan Lever is not to run down the performance of this excellent company but to emphasise that good companies introduce a number of products some of which may fail

The introduction by Parle's of the '**Big Bite**' (the hamburger) did fail in some of the regions in Indian market. Was this due to wrong concept? The answer is probably **in** the negative. The failure was because the customer got 'soggy' hamburgers at the retail end. Thus there was lack of 'quality control' at the level of the retail outlets which did not supply freshly cooked hamburgers. So you can see that even if the concept is accepted, a failure can take place in other areas resulting in the ultimate failure of the product itself. This did not deter the company from going further. Parle's introduced **Frooti** and **Appy** which are fruit based soft beverages. These are offered in tetrapacks. Thus there is an innovation. The question of whether tetrapacks, as packaging material, will succeed in India or not is a question of concept testing of the package.

### Product Designing and Evaluation

If the product idea or the concept passes the test, we then proceed to the engineering or the production or the R&D stage. So far what we had was only a description or an idea. Now this has to be converted into a product. Prototypes are developed and tested. The test can be done under laboratory or field conditions. At this stage of product development, the technical problems, if any, must be solved. This is because the product must not suffer from complaints regarding quality in use. Even a small defect might shorten the life cycle of the product as well as spoil the company's image.

### Product Testing Stage

Apart from mechanical performance, customer acceptance is essential. In fact, the following can be stated as **requirements for the new product**, after it is designed:

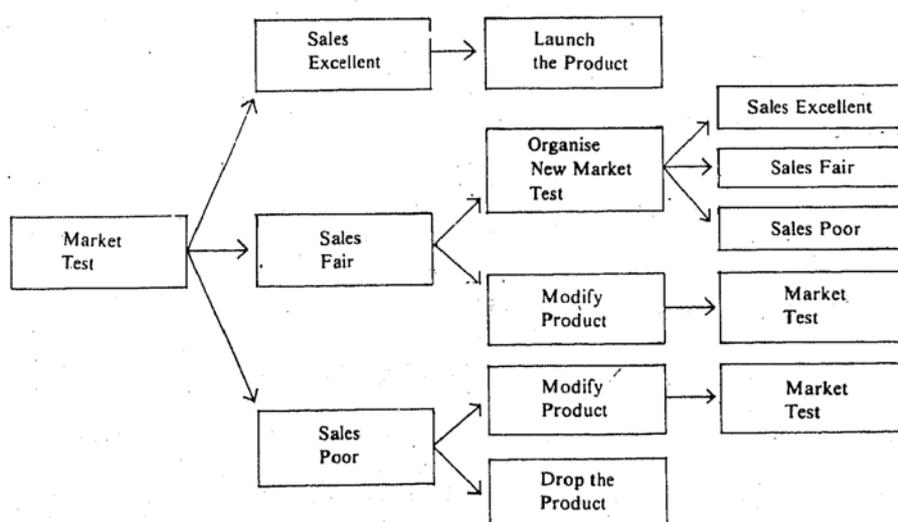
- 1). satisfactory performance
- 2). customer acceptance
- 3). economical production
- 4). adequate distribution
- 5). adequate servicing arrangements where required, and
- 6). effective packaging and branding.

A market test should, therefore, be conducted before launching the new product. This will help us find out whether the product can be launched successfully on a commercial scale or not.

### Launching The New Product

The test marketing may show up something as depicted in Figure IV

**Figure IV: Market Test Decision Tree Alternative Decisions**





It may show that the sales are 'excellent', in which case, our decision is easy and we can proceed to launch the product. As against this, if it shows that the sales are 'poor', there are generally two alternatives available from a practical viewpoint. We can drop the product or modify it and test it again. If the sales are 'fair', we may modify the product or conduct a new market test. The latter is done when we feel that perhaps there is something wrong with the market test just completed.

An alternative, generally available, is to modify the product in terms of the feedback which has been received from the market test, and then test again before the final decision is taken to launch the product commercially or to drop it. One must, however, remember that constant testing involves further costs. A decision must, therefore, be arrived at as early as practicable.

Hence we can say that the introduction of a new product is not an easy decision. It has to be weighed very carefully in terms of possible markets, the costs involved and the potential profits.

The question of **timing**, sometimes, is also relevant. Should the company be the first one to offer a new 'novel' product in the market? In case of small companies, if they do so, they are at a distinct advantage. However, large companies can afford to wait. For example, Philips entered the Stereo Hi-Fi system market relatively later. However, they were able to introduce an attractively priced product, and quickly gained product acceptance because of their long-standing reputation in the market.

---

## 12.6 SUMMARY

---

You must have noticed that the area of product planning, product line decision making and arriving at proper product strategy, is an extremely exciting and interesting field. It is challenging and, if not done properly, can result in losses to the organisation.

The product life cycle concept is an extremely important one which, at times, is neglected by even well known companies.

It is important to note the different marketing mix used in the different stages of the product life cycle. Please remember that the new products have to be introduced much before the decline of existing products, so that the total sales picture may be a stable one.

While one may like to add new products to, the company's product-mix, it should be remembered that it is an expensive process. However, it must be done and one must go through the proper steps. Not only must new ideas be generated but they must also be properly evaluated. Often the 'concept' itself must be tested before the company spends more money on product development.

After the product is properly designed and it is felt that it is appropriate for the market, it must be actually tested in the market before the final decision is made to launch the new product. After the new product is launched it must be watched throughout its life cycle.

---

## 12.7 KEY WORDS

---

**Decline Stage** is the stage in the product life cycle where the sales and profits shoot down.

**Fads** are novelty products that come quickly to the public eye and are lost fast. Here the product life cycle is very brief.

**Fashion** a style which is currently accepted but is likely to change, as fashions Thove in a cycle and change over a period of time to return to the original. For example, a woman's skirt gets longer and longer until it can get longer no more. It then goes upward as fashion moves in a cycle.

**Growth Stage** is the stage in the product life cycle when the sales and profits increase happily for the organisation.



**Introduction Stage** is the stage where the product is just introduced and is at the beginning of the product life cycle. This is evidenced by slow growth and very small profits.

**Market Testing** is the stage where the product is actually tested in the market, that is, introduced in a consumer setting with a view to ascertain the reactions of consumers and dealers before a final decision to market or launch the product is made.

**Maturity Stage** is the stage in the life cycle where the sales stop going up and slow down because competitors have entered the market and it becomes difficult for a continuous increase in the sales.

---

## 12.8 SELF-ASSESSMENT TEST

---

Please answer the following questions. This is meant for self-evaluation to show you how far you have understood or remembered what you have learnt. You can always refresh your memory.

1. Explain briefly the 'product life' cycle concept' in marketing management and state why you feel it is useful to understand this concept.
2. Explain how the marketing mix has to be changed during the different stages of the product life cycle.
3. Selection and development of a new product are very important steps in the Marketing Strategy. Explain briefly the stages through which you would test ideas coming up for new products until the final stage of launching the new product.

If you like, you may take as an illustration a new instant' shoe polish which is to be introduced in India. The novelty of the shoe polish is that it has to be merely sprayed on the shoes to give them an excellent shine. You can of course take any other example and go through the stages.

---

## 12.9 FURTHER READINGS

---

Kotler, Philip, 2002 *Marketing Management* Fifth Edition, Prentice Hall of India Private Limited: New Delhi.

S.A. Chunawalla, *Product Management*, 1999, 2nd edition, Himalaya Publications, New Delhi