

## PRODUCT LIFE CYCLE (PLC) (Compiled by Deep Banerjee, Marketingpundit.com)

**Product Life Cycle (PLC)** is based upon the biological life cycle. For example, a seed is planted (introduction); it begins to sprout (growth); it shoots out leaves and puts down roots as it becomes an adult (maturity); after a long period as an adult the plant begins to shrink and die out (decline).

The conditions under which a product is sold will also change over time. The **Product Life Cycle** refers to the succession of stages a product goes through. **Product Life Cycle Management** is the succession of strategies used by management as a product goes through its life cycle

After a period of development, a product:

- which is introduced or launched into the market gains more and more customers as it grows;
- eventually the market stabilizes and the product becomes mature;
- then after a period of time the product is overtaken by development and
- with the introduction of superior competitors, it goes into decline and is eventually withdrawn.

However, most products fail in the introduction phase. Others have very cyclical maturity phases where declines see the product promoted to regain customers.

### Characteristics/ Strategies for the differing stages of the Product Life Cycle

#### 1. Market **introduction** stage

- Need for immediate profit is not a pressure.
- Product is promoted to create awareness.
- Demand has to be created.
- Customers have to be prompted to try the product.
- Costs high.
- Sales volume low.
- No/ little competition - competitive manufacturers watch for acceptance/ segment growth.
- Limited numbers of product are available in few channels of distribution.
- Losses.

#### 2. **Growth** stage

- Competitors are attracted into the market with very similar offerings.
- Products become more profitable and companies form alliances, joint ventures and take each other over.
- Sales volume increases significantly.
- Costs reduced due to economies of scale.
- Public awareness is high.
- Advertising spend is high and focuses upon building brand.
- Market share tends to be at its peak.

#### 3. **Maturity** stage

- Those products that survive the earlier stages tend to spend longest in this phase.
- Sales grow at a decreasing rate and then stabilise.
- Producers attempt to differentiate products and brands are key to this.
- Prices tend to drop due to the proliferation of competing product.
- Market reaches saturation.
- Producers begin to leave the market due to poor margins.
- Promotion becomes more widespread and use a greater variety of media.

#### 4. Decline stage

- There is a downturn in the market. For example more innovative products are introduced or consumer tastes have changed.
- There is intense price-cutting.
- Many more products are withdrawn from the market.
- Profits can be improved by reducing marketing spend and all round cost cutting.
- Consumer demand for spare parts, maintenance and or product servicing.

### Lessons of the Product Life Cycle (PLC)

It is claimed that every product has a life cycle. A product gets launched, it grows, and at some point, may die. A fair comment is that - at least in the short term - not all products or services die. Jeans may die, but clothes probably will not. Legal services or medical services may die, but depending on the social and political climate, probably will not.

Even though its validity is questionable, it can offer a useful 'model' for managers to keep at the back of their mind. Indeed, if their products are in the introductory or growth phases, or in that of decline, it perhaps should be at the front of their mind; for the predominant features of these phases may be those revolving around such life and death. Between these two extremes, it is salutary for them to have that vision of mortality in front of them.

Thus, the life cycle may be useful as a description, but not as a predictor; and usually should be firmly under the control of the marketer. The important point is that in many markets the product or brand life cycle is significantly longer than the planning cycle of the organisations involved. Thus, it offers little practical value for most marketers. Even if the PLC exists for them, their plans will be based just upon that piece of the curve where they currently reside (most probably in the 'mature' stage); and their view of that part of it will almost certainly be 'linear' (and limited), and will not encompass the whole range from growth to decline

### Problems with Product Life Cycle

In reality very few products follow such a prescriptive cycle. The length of each stage varies enormously. The decisions of marketers can change the stage, for example from maturity to decline by price-cutting. Not all products go through each stage. Some go from introduction to decline. It is not easy to tell which stage the product is in. Remember that PLC is like all other tools. Use it to inform your gut feeling.

### Extending the Product Life Cycle

When a product reaches the maturity stage of the Product Life Cycle, a company may choose to operate strategies to extend the life of the product. If the product is predicted to continue to be successful the company can use various methods to maintain sales. Otherwise the product will be left as it is to continue to the **decline stage**.

**Extension Strategies:** Examples of extension strategies are

- Discounted price.
- Increased advertising.
- Added value.

**Added Value:** This is a widely used extension strategy. Large companies, in particular food producers, will slightly alter a product to make it seem new and attract new attention to the product. An example being a soft drink company producing a limited edition flavour of the product (eg. Pepsi Blue). This renews sales levels and gives the product continuing interest.

## Market Evolution

Market Evolution is a process that parallels the product life cycle. As a product category matures, the industry goes through stages that mirror the five stages of a product life cycle.

1. Market Crystallization - latent demand for a product category is awakened with the introduction of the new product.
2. Market Expansion - additional companies enter the market and more consumers become aware of the product category.
3. Market Fragmentation - the industry is subdivided into numerous well populated competitive groupings as too many firms enter.
4. Market Consolidation - firms start to leave the industry due to stiff competition, falling prices, and falling profits.
5. Market Termination - consumers no longer demand the product and companies stop producing it.

## Technology Life Cycle

The Technology Life Cycle is closely associated with the economic potential of obtaining gain through the exploitation of a process or manufacturing system, taking into consideration such attributes of the product or process as its patents, knowhow, trademarks, and/or trade-secrets, the reputation of the proprietor of the technology and other associated intangibles.

## Industry Lifecycle

The lifecycle passes through 5 distinct stages:

- I – "Dormant Stage" with low numbers of competitors enjoying high monopoly profits.
- II - "Take off Stage" with soaring entry and virtually non-existent exit from the market.
- III – "High Turnover Stage" with many firms entering the market and leaving it.
- IV - "Shakeout Stage" with mass exit via mergers, bankruptcies, etc.
- V - stabilization stage during which a stable oligopoly emerges.

Industry lifecycle is commonly correlated with Product lifecycle and process innovation. Other factors that may launch industry lifecycle include:

- government intervention (e.g., deregulation)
- liberalization of external trade
- lower transportation costs

## Planned obsolescence

It is the decision on the part of a manufacturer to produce a consumer product that will become obsolete and/or non-functional in a defined time frame. Planned obsolescence has potential benefits for a producer in that it means a consumer cannot just purchase a product once that will last indefinitely - the life of the product's usefulness or functionality is fixed, so that at some point the consumer must purchase again, whether returning to the original manufacturer for a newer model, or buying from the competition. It also has potential benefits for consumers, because they are not forced to spend extra for an over-engineered product, thus becoming unable to afford a more technologically advanced product, with greater functionality, in the future. For an industry, it stimulates demand in the marketplace by ensuring a customer must come back into a buying mode sooner than had the product been built to last longer or

indefinitely. It exists in many different products from vehicles to light bulbs, from buildings to software. There is, however, the potential backlash of consumers that become aware of such obsolescence; such consumers can shed their loyalty and buy from a company that caters to their desire for a more durable product.

Estimates of planned obsolescence can influence a company's decisions about product engineering. Therefore the company can use the least expensive components that satisfy product lifetime projections. Such decisions are part of a broader discipline known as value engineering.

### **Rationale behind the strategy:**

A new product development strategy that seeks to make existing products obsolete may appear counter intuitive, particularly if coming from a leading marketer of the existing products. Why would a firm deliberately endeavour to reduce the value of its existing product portfolio?

The rationale behind the strategy is to generate long-term sales volume by reducing the time between repeat purchases, (referred to as shortening the replacement cycle). Firms that pursue this strategy believe that the additional sales revenue it creates more than offsets the additional costs of research and development and opportunity costs of existing product line cannibalization. However, the rewards are by no means certain: In a competitive industry, this can be a risky strategy because consumers may decide to buy from competitors. Because of this, gaining by this strategy requires fooling the consumers on the actual cost per use of the item in comparison to the competition.

Shortening the replacement cycle has many critics as well as supporters. Critics claim that the process wastes resources and exploits customers. Resources are used up making changes, often cosmetic changes, that are not of great value to the customer. Supporters claim it drives technological advances and contributes to material well-being. They claim that a market structure of planned obsolescence and rapid innovation may be preferred to long-lasting products and slow innovation. In a fast paced competitive industry market success requires that products are made obsolete by actively developing replacements. Waiting for a competitor to make products obsolete is a sure guarantee of future demise.

The main concern of the proponents of planned obsolescence is not the existence of the process, but its possible postponement. They are concerned that technological improvements are not introduced even though they could be. They are worried that marketers will refrain from developing new products, or postpone their introduction because of product cannibalization issues. For example, if the payback period for a product is five years, a firm might refrain from introducing a new product for at least five years even though it may be possible for them to launch in three years. This postponement is only feasible in monopolistic or oligopolistic markets. In more competitive markets rival firms will take advantage of the postponement and launch their own products. The recent US legal proceedings that concluded that Microsoft was acting as a monopolist made reference to this postponement strategy.

## Types of obsolescence

### Technical or functional obsolescence

The design of most consumer products includes an expected average lifetime permeating all stages of development. For instance, no auto-parts maker would run the extra cost of ensuring a part lasts for forty years if few cars spend more than five years on the road. Thus, it must be decided early in the design of a complex product how long it is designed to last so that each component can be made to those specifications.

Planned obsolescence is made more likely by making the cost of repairs comparable to the replacement cost, or by refusing to provide service or parts any longer. A product might even never have been serviceable. Creating new lines of products that do not interoperate with older products can also make an older model quickly obsolete, forcing replacement.

Planned functional obsolescence is a type of technical obsolescence in which companies introduce new technology which replaces the old. The old products do not have the same capabilities or functionality as the new ones. For example a company that sold video tape decks while they were developing DVDs was engaging in planned obsolescence. That is, they were actively planning to make their existing product (video tape) obsolete by developing a substitute product (DVDs) with greater functionality (better quality). Another example is the replacement of telegraphs with telephones.

Associated products that are complements to the old products will also become obsolete with the introduction of new products. For example video tape holders saw the same fate as video tapes and video tape decks. Likewise, buggy whips became obsolete when people started traveling in cars instead of buggies.

### Systemic obsolescence

Planned systemic obsolescence is the deliberate attempt to make a product obsolete by altering the system in which it is used in such a way as to make its continued use difficult. For example new software is frequently introduced that is not compatible with older software. This makes the older software largely obsolete. For example, even though an older version of a word processing program is operating correctly, it might not be able to read data saved by newer versions. The lack of inter operability forces many users to purchase new programs prematurely. The greater the network externalities in the market, the more effective is this strategy.

Another way of introducing systemic obsolescence is to eliminate service and maintenance for a product. If a product fails, the user is forced to purchase a new one. One example of this type of obsolescence is the Microsoft's termination of support for Windows 98 and earlier versions of Windows. This strategy seldom works because there are typically third parties that are prepared to perform the service if parts are still available.

### Style obsolescence

Marketing may be driven primarily by aesthetic design. Product categories where this is the case display a *fashion cycle*. By continually introducing new designs and retargeting or discontinuing others, a manufacturer can "ride the fashion cycle." Examples of such product categories include automobiles (style obsolescence), with a strict yearly schedule of new models, and the almost

entirely style-driven clothing industry (riding the fashion cycle) and the mobile phone industries with constant minor feature 'enhancements' and restyling.

Planned style obsolescence occurs when marketers change the styling of products so customers will purchase products more frequently. The style changes are designed to make owners of the old model feel 'out of date'. It is also designed to differentiate the product from the competition, thereby reducing price competition. Marketers also claim that style changes relieve peoples' boredom and allows for both self-expression and conformity at the same time. One example of style obsolescence is the automobile industry in which manufacturers typically make style changes every year or two.

Some marketers go one step further: they attempt to initiate fashions or fads. A *fashion* is any style that is popularly accepted by groups of people over a period of time. A *fad* is a short term fashion. Examples of successfully created fashions or fads include Rubik's Cubes, acid wash jeans, and tank tops. Obsolescence is built into these products in the sense that marketers are aware of the shortness of their product life cycles so they work within that constraint. For example, when sales revenue of a car model starts to decline, the company goes for one last marketing push and then drops the product.

Another strategy is to take advantage of fashion changes, often called the fashion cycle. The *fashion cycle* is the repeated introduction, rise, popular culmination, and decline of a style as it progresses through various social strata. Marketers can *ride the fashion cycle* by changing the mix of products that they direct at various market segments. This is very common in the clothing industry. A certain style of dress, for example, will initially be aimed at a very high income segment, then gradually be re-targeted to lower income segments. The fashion cycle can repeat itself, in which case a stylistically obsolete product may regain popularity and cease to be obsolete.

### **Notification obsolescence**

Some companies have developed a very sophisticated version of obsolescence in which the product informs the user when it is time to buy a replacement. Examples of this include water filters that display a replacement notice after a predefined time and disposable razors that have a strip that changes colour. If the user is notified before the product has actually deteriorated, planned obsolescence is the result. In this way obsolescence can be introduced without going to the expense of developing a new replacement product.

## **Economics of planned obsolescence**

Planned obsolescence tends to work best when a producer has at least an oligopoly.

*(An oligopoly is a market form in which a market or industry is dominated by a small number of sellers or oligopolists. Because there are few participants in this type of market, each oligopolist is aware of the actions of the others. The decisions of one firm influence, and are influenced by the decisions of other firms. Strategic planning by oligopolists always involves taking into account the likely responses of the other market participants. This causes oligopolistic markets and industries to be at the highest risk for collusion. Oligopolistic competition can give rise to a wide range of different outcomes. In some situations, the firms may collude to raise prices and restrict production in the same way as a monopoly. Where there is a formal agreement for such collusion, this is known as a cartel. Firms often collude in an attempt to stabilise unstable markets, so as to reduce the risks inherent in these markets for investment and product development. There are legal restrictions on such collusion in most*

*countries. There does not have to be a formal agreement for collusion to take place, although for the act to be illegal there must be a real communication between companies - for example, in some industries, there may be an acknowledged market leader which informally sets prices to which other producers respond, known as price leadership. In other situations, competition between sellers in an oligopoly can be fierce, with relatively low prices and high production. This could lead to an efficient outcome approaching perfect competition. The competition in an oligopoly can be greater than when there are more firms in an industry if, for example, the firms were only regionally based and didn't compete directly with each other).*

Before introducing a planned obsolescence the producer has to know that the consumer is at least somewhat likely to buy a replacement from them. In these cases of planned obsolescence, there is an information asymmetry between the producer, who knows how long the product was designed to last, and the consumer, who does not. When a market becomes more competitive, product lifespans tend to increase.

However, there are some industries where there is significant competition and consumers have chosen to go for products that will fail more quickly anyway. Some consumers are also perfectly content with planned obsolescence.

Even in a situation where planned obsolescence is appealing to both producer and consumer there can also be significant harm to society in the form of negative externalities. Continuously replacing, rather than repairing products, creates more waste, pollution, and uses more natural resources.

Others have defended planned obsolescence as a necessary driving force behind innovation and economic growth. Many products, such as DVDs, become both cheaper and more useful the more people have them. Planned obsolescence will also tend to benefit those companies with the most modern and up-to-date products, thus encouraging extra investment in research and development that often has large positive externalities.

### **Obsolescence and durability**

If marketers expect a product to become obsolete they can design it to last for a specific lifetime. For example, if a product will be technically or stylistically obsolete in five years, many marketers will design the product so it will only last for that time. This is done through a technical process called value engineering. An example is home entertainment electronics which tend to be designed and built with moving components like motors and gears that last until technical or stylistic innovations make them obsolete.

These products could be built with military spec components, but they are not because it is felt that this imposes an unnecessary cost on the purchaser. Value engineering will reduce the cost of making the product, and lower the price to consumers (unless there is a lack of competition in the industry). A company will typically use the least expensive components that satisfy product's lifetime projections.

The use of value engineering techniques have led to planned obsolescence being associated with product deterioration and inferior quality. Vance Packard claimed that this could give engineering a bad name, because it directed creative engineering energies toward short-term market ends rather than more lofty and ambitious engineering goals. As with all these planned obsolescence issues, the marketer and product engineer must determine for themselves if any of these criticisms are warranted.