



Product Life-Cycle Management : Concept and Stages

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ABSTRACT

Product life-cycle management (PLM) is the succession of strategies used by business management as a product goes through its life-cycle. The conditions in which a product is sold (advertising, saturation) changes over time and must be managed as it moves through its succession of stages. In this paper different stages of product life cycle and its limitations are explained.

KEYWORDS

Product life cycle, growth, maturity ,decline

Introduction

Product life-cycle management (PLM) is the succession of strategies used by business management as a product goes through its life-cycle. The conditions in which a product is sold (advertising, saturation) changes over time and must be managed as it moves through its succession of stages.

Goals

The goals of Product Life Cycle management (PLM) are to reduce time to market, improve product quality, reduce prototyping costs, identify potential sales opportunities and revenue contributions, and reduce environmental impacts at end-of-life. To create successful new products the company must understand its customers, markets and competitors. Product Lifecycle Management (PLM) integrates people, data, processes and business systems. It provides product information for companies and their extended supply chain enterprise. PLM solutions help organizations overcome the increased complexity and engineering challenges of developing new products for the global competitive markets

Product life cycle

The concept of product life cycle (PLC) concerns the life of a product in the market with respect to business/commercial costs and sales measures. The product life cycle proceeds through multiple phases, involves many professional disciplines, and requires many skills, tools and processes. PLC management makes the following three assumptions

- Products have a limited life and thus every product has a life cycle.
- 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.

Product Life Cycle Stages :-

The product life cycle has 4 very clearly defined stages, each with its own characteristics that mean different things for business that are trying to manage the life cycle of their particular products.

Introduction Stage – This stage of the cycle could be the most expensive for a company launching a new product. The size of the market for the product is small, which means sales are low, although they will be increasing. On the other hand, the cost of things like research and development, consumer testing, and the marketing needed to launch the product can be very high, especially if it's a competitive sector.

Growth Stage – The growth stage is typically characterized by a strong growth in sales and profits, and because the company can start to benefit from economies of scale in production, the profit margins, as well as the overall amount of profit, will increase. This makes it possible for businesses to invest more money in the promotional activity to maximize the potential of this growth stage.

Maturity Stage – During the maturity stage, the product is established and the aim for the manufacturer is now to maintain the market share they have built up. This is probably the most competitive time for most products and businesses need to invest wisely in any marketing they undertake. They also need to consider any product modifications or improvements to the production process which might give them a competitive advantage.

Decline Stage – Eventually, the market for a product will start to shrink, and this is what's known as the decline stage. This shrinkage could be due to the market becoming saturated (i.e. all the customers who will buy the product have already purchased it), or because the consumers are switching to a different type of product. While this decline may be inevitable, it may still be possible for companies to make some profit by switching to less-expensive production methods and cheaper markets.

The idea of the product life cycle has been around for some time, and it is an important principle manufacturers need to understand in order to make a profit and stay in business.

However, the key to successful manufacturing is not just understanding this life cycle, but also proactively managing products throughout their lifetime, applying the appropriate resources and sales and marketing strategies, depending on what stage products are at in the cycle.

Characteristics of PLC stages

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

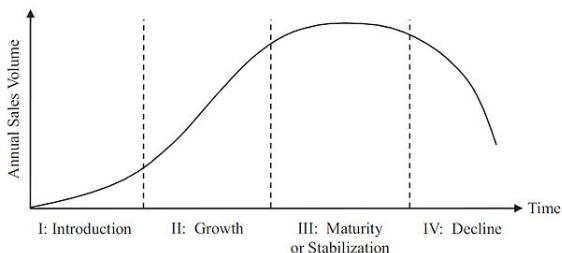
Stage	Characteristics
1. Market introduction stage	costs are very high slow sales volumes to start little or no competition demand has to be created customers have to be prompted to try the product makes little money at this stage
2. Growth stage	costs reduced due to economies of scale sales volume increases significantly profitability begins to rise public awareness increases competition begins to increase with a few new players in establishing market increased competition leads to price decreases

3. Maturity stage	costs are decreased as a result of production volumes increasing and experience curve effects sales volume peaks and market saturation is reached increase in competitors entering the market prices tend to drop due to the proliferation of competing products brand differentiation and feature diversification is emphasized to maintain or increase market share industrial profits go down
4. Saturation and decline stage	costs become counter-optimal sales volume decline prices, profitability diminish profit becomes more a challenge of production/distribution efficiency than increased sales Note: Product termination is usually not the end of the business cycle, only the end of a single entrant within the larger scope of an ongoing business program.

Identifying PLC stages

Identifying the stage of a product is an art more than a science, but it's possible to find patterns in some of the general product features at each stage. Identifying product stages when the product is in transition is very difficult.

Identifying features	Stages			
	Introduction	Growth	Maturity	Decline
Sales	Low	High	High	Low
Investment cost	Very high	High (lower than intro stage)	Low	Low
Competition	Low or no competition	High	Very high	Very High
Profit	Low	High	High	Low



Product life cycle at different stages

Product Life Cycle Examples

It's possible to provide examples of various products to illustrate the different stages of the product life cycle more clearly. Here is the example of watching recorded television and the various stages of each method:

- Introduction – 3D TVs
- Growth – Blu-ray discs/DVR
- Maturity – DVD
- Decline – Video cassette

Limitations

It is important for marketing managers to understand the limitations of the PLC model. It is difficult for marketing management to gauge accurately where a product is on its life cycle. A rise in sales *per se* is not necessarily evidence of growth, a fall in sales *per se* does not typify decline and some products, e.g. Coca-Cola and Pepsi, may not experience a decline.

Differing products possess different PLC "shapes". A fad product develops as a steep sloped growth stage, a short maturity stage, and a steep sloped decline stage. Products such as Coca-Cola and Pepsi experience growth, but also a constant level of sales over a number of decades. A given product (or products collectively within an industry) may hold a unique PLC shape such that use of typical PLC models are only useful as a rough guide for marketing management.

For specific products, the duration of each PLC stage is unpredictable and it's difficult to detect when maturity or decline has begun.

Because of these limitations, strict adherence to PLC can lead a company to misleading objectives and strategy prescriptions.

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