

Life Cycle

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All products progress through stages of existence that roughly correspond to birth, life, and death. For example, a new type of electronic device is envisioned and developed; its popularity grows; after a while its sales plateau; and then finally, the sales decline. Understanding the implications of each of the stages allows designers to prepare for the unique and evolving requirements of a product over its lifetime. There are four basic stages of life for all products: introduction, growth, maturity, and decline.¹

¹ The seminal work on the product life cycle is “International Investment and International Trade in the Product Cycle” by Raymond Vernon, *Quarterly Journal of Economics*, 1966, vol. 80, p. 190–207. A contemporary review of the product life cycle is found in *Marketing Management* by Philip Kotler, Prentice-Hall, 11th ed., 2002.

Introduction

The introduction stage is the official birth of a product. It will at times overlap with the late testing stage of the development cycle. The design focus is to monitor early use of the design to ensure proper performance, working closely with customers to tune or patch the design as necessary.

Growth

The growth stage is the most challenging stage, where most products fail. The design focus is to scale the supply and performance of the product to meet the growing demand, and provide the level of support necessary to maintain customer satisfaction and growth. Efforts to gather requirements for the next-generation product should be underway at this stage.

Maturity

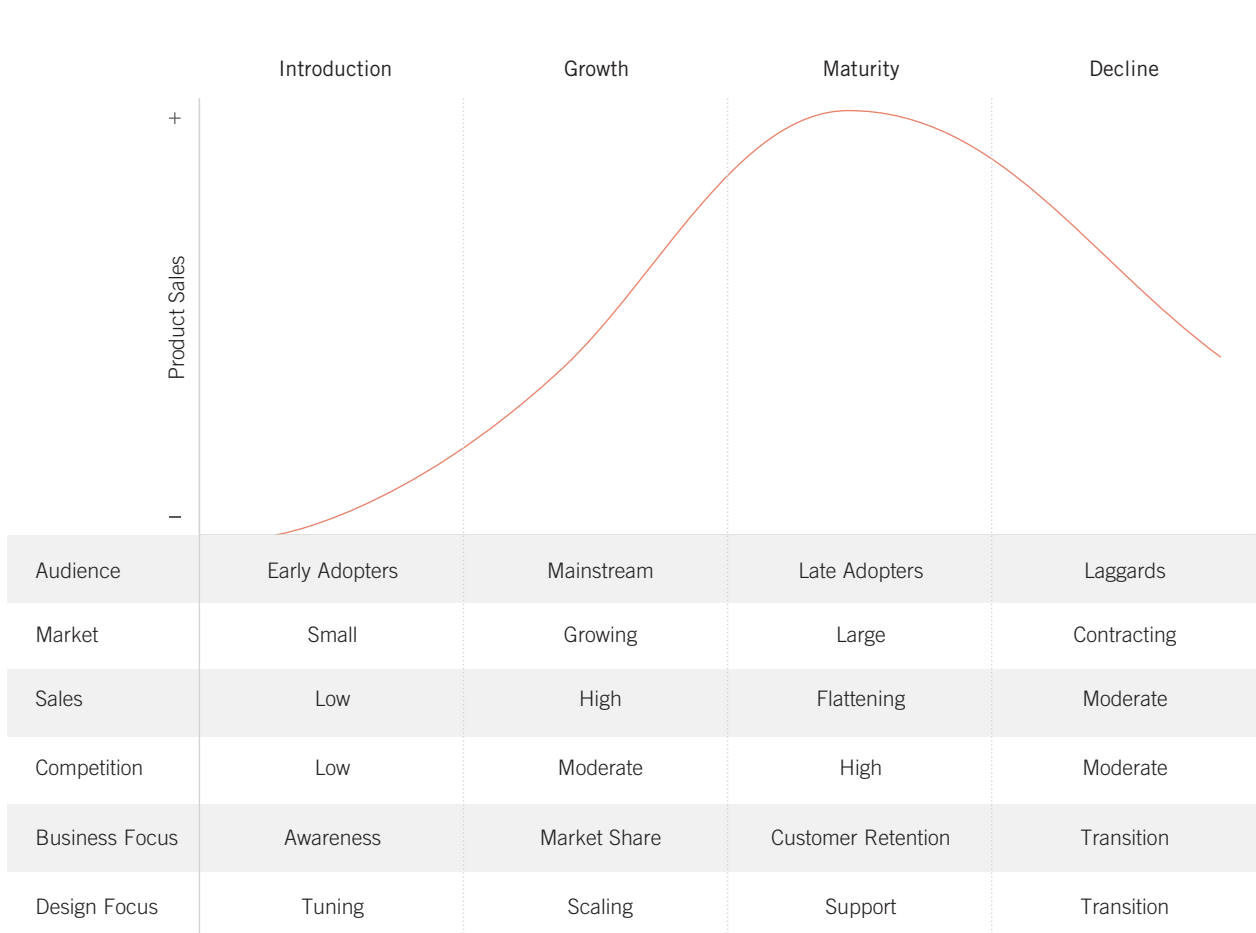
The maturity stage is the peak of the product life cycle. Product sales have begun to diminish and competition from competitors is strong. The design focus at this stage is to enhance and refine the product to maximize customer satisfaction and retention. Design and development of the next generation product should be well underway at this stage.

Decline

The decline stage is the end of the life cycle. Product sales continue to decline and core market share is at risk. The design focus is to minimize maintenance costs and develop transition strategies to migrate customers to new products. Testing of the next generation product should begin at this stage.

Consider the life cycle of a product when planning and preparing for the future. During the introduction phase, work closely with early adopters to refine and tune products. During the growth stage, focus on scaling product supply and performance. During the maturity stage, focus on customer satisfaction through performance enhancements and improved support. During decline, focus on facilitating the transition to next generation products. Note that the development cycle for the next-generation product begins during the growth stage of a current-generation product.

See also Development Cycle, Hierarchy of Needs, Iteration, and Prototyping.



The needs of a product change over the course of its life cycle. It is important to understand the dynamics of these changes in order to focus business and design resources accordingly. Failure to do so shortens the life cycle of a product.