Module 3
Section C: Product Design Influence

Term
Design

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Term
Design for X (DFX)

Module 3
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Term
Design for manufacturability

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Section C: Product Design Influence

Term
Design for manufacture and assembly (DFMA)

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Term
Design for quality

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Term
Design for remanufacture

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Term
Design for service

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Term
Design for six sigma

Also referred to as design for excellence. A design process that ensures the outcome is manufacturable, maintainable, cost-effective, and of high quality.

The conversion of a need or innovation into a product, process, or service that meets both enterprise and customer expectations. The design process consists of translating a set of functional requirements into an operational product, process, or service.

A product development approach that involves the manufacturing function in the initial stages of product design to ensure ease of manufacturing and assembly. See: early manufacturing involvement.

Simplification of parts, products, and processes to improve quality and reduce manufacturing costs.

Products developed in a manner that allows components to be used in other products. This process is associated with green manufacturing.

A product design approach that uses quality measures to capture the extent to which the design meets the needs of the target market (customer attributes), as well as its actual performance, aesthetics, and cost. See: total quality engineering.

An approach to designing products and processes that attempts to ensure the firm can provide products or services that meet six sigma quality levels. These quality levels correspond to approximately 3.4 defects per million opportunities.

Simplification of parts and processes to improve the after-sale service of a product. Syn.: design for maintainability.

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Design for the environment (DFE)

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Design for the supply chain

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Term
Glocalization

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Term
Mass customization

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Term
Modular design strategy

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Term
Modularization

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Term
Multicountry strategy

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Term
Postponement

Enhancement of a firm's product design in consideration of the issues that will arise in the supply chain, from raw materials to the final stage of the product's life cycle.

Considering health, safety, and environmental aspects of a product during the design and development phase of product development.

The use of mass production techniques to create large volume of products in a wide variety keeping production costs low while enabling customized output primarily utilizing postponement or delayed differentiation.

A combination of "globalization" and "localization." In a supply chain context, [this] is a form of postponement where a product or service is developed for distribution globally but is modified to meet the needs of a local market. The modifications are made to conform with local laws, customs, cultures, and preferences.

In product development, the use of standardized parts for flexibility and variety. Permits product development cost reductions by using the same item(s) to build a variety of finished goods. This is the first step in developing a planning bill of material process.

The strategy of planning and designing products so that components or subassemblies can be used in current and future products or assembled to produce multiple configurations of a product. [...].

A product design or supply chain strategy that deliberately delays final differentiation of a product (assembly, production, packaging, tagging, etc.) until the latest possible time in the process. This shifts product differentiation closer to the consumer to reduce the anticipatory risk of producing the wrong product. The practice eliminates excess finished goods in the supply chain. This strategy is sometimes referred to as delayed differentiation.

A strategy in which each country market is self-contained. Customers have unique product expectations that are addressed by local production capabilities.

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Product differentiation

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Term
Quality

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Term
Quality function deployment (QFD)

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Term
Simplification

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Term
Standardization

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Term
Standardized product

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Term
Universality

Conformance to requirements or fitness for use.

A strategy of making a product distinct from the competition on a nonprice basis such as availability, durability, quality, or reliability.

Improving quality and cutting costs by removing complexity from a product or service.

A methodology designed to ensure that all the major requirements of the customer are identified and subsequently met or exceeded through the resulting product design process and the design and operation of the supporting production management system.

A product that can be made in large quantities, or continuously, because it has very few product designs.

1) The process of designing and altering products, parts, processes, and procedures to establish and use standard specifications for them and their components. 2) Reduction of the total numbers of parts and materials used and products, models, or grades produced. 3) The function of bringing a raw ingredient into standard (acceptable) range per the specification before introduction to the main process.

The strategy of designing a product initially intended for one market in such a way that it can also be sold in other markets. A form of standardization.