**Chapter 3 – Word List**

**Black box design** - A situation in which suppliers are provided with general requirements and are asked to fill in the technical specifications.

**Commercial preparation phase** - The fourth phase of a product development effort. At this stage, firms start to invest heavily in the operations and supply chain resources needed to support the new product or service.

**Concept development phase** - The first phase of a product development effort. Here a company identifies ideas for new or revised products and services.

**Concurrent engineering** - An alternative to sequential development in which activities in different development stages are allowed to overlap with one another, thereby shortening the total development time.

**Design and development phase** - The third phase of a product development effort. Here the company starts to invest heavily in the development effort and builds and evaluates prototypes.

**Engineering change** - A revision to a drawing or design released by engineering to modify or correct a part.

**Gray box design** - A situation in which a supplier works with a customer to jointly design the product.

**Launch phase** - The final phase of a product development effort. For physical products, this usually means "filling up" the supply chain with products. For services, it can mean making the service broadly available to the target marketplace.

**Modular architecture (modularity)** - A product architecture in which each functional element maps into its own physical chunk. Different chunks perform different functions; the interactions between the chunks are minimal, and they are generally well defined.

**Parts standardization** - The planned elimination of superficial, accidental, and deliberate differences between similar parts in the interest of reducing part and supplier proliferation.

**Planning phase** - The second phase of a product development effort. Here the company begins to address the feasibility of a product or service.

**Presourcing** - The process of preapproving suppliers for specific commodities or parts.

**Product design** - According to the PDMA, "the overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product."

**Product development process** - According to the PDMA, "the overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product."

**Robust design (repeatability)** - According to the PDMA, "the design of products to be less sensitive to variations, including manufacturing variation and misuse, increasing the probability that they will perform as intended."

**Sequential development process** - A process in which a product or service idea must clear specific hurdles before it can go on to the next development phase.

**Serviceability** - The ease with which parts can be replaced, serviced, or evaluated.

**Target Costing** – The process of designing a product to meet a specific cost objective.

**Testability** - The ease with which critical components or functions can be tested during production.

**Value analysis** - A process that involves examining all elements of a component, an assembly, an end product, or a service to make sure it fulfills its intended function at the lowest total cost.