Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Business plan

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Competitive advantage

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Competitive analysis

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Core competencies

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Core process

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Corporate culture

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Downstream

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Environmental scanning

The advantage a company has over its rivals in attracting customers and defending against competitors. Sources of the advantage include characteristics that a competitor cannot duplicate without substantial cost and risk, such as a manufacturing technique, brand name, or human skill set.

1) A statement of long-range strategy and revenue, cost, and profit objectives usually accompanied by budgets, a projected balance sheet, and a cash flow (source and application of funds) statement. [It] is usually stated in terms of dollars and grouped by product family. [It] is then translated into synchronized tactical functional plans through the production planning process (or the sales and operations planning process). Although frequently stated in different terms (dollars versus units), these tactical plans should agree with each other and with [this concept]. See: long-term planning, strategic plan. 2) A document consisting of the business details (organization, strategy, and financing tactics) prepared by an entrepreneur to plan for a new business.

Bundles of skills or knowledge sets that enable a firm to provide the greatest level of value to its customers in a way that is difficult for competitors to emulate and that provides for future growth.

An analysis of a competitor that includes its strategies, capabilities, prices, and costs.

The set of important assumptions that members of the company share. It is a system of shared values about what is important and shared beliefs about how the company works. These common assumptions influence the ways the company operates.

That unique capability that is central to a company's competitive strategy.

A process used to expose an organization's potential strengths, weaknesses, opportunities, and threats. Many experts emphasize opportunities and threats because the tool is primarily external.

Used as a relative reference within a firm or supply chain to indicate moving in the direction of the end customer.

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Five-forces model of competition

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Functional product

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Key success factors

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Macro environment

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Manufacturing planning and control system (MPC)

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Mission

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Mission statement

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Product life cycle

Mature products that tend to have a low profit margin and a predictable demand.

A methodology for analyzing competitive pressures in a market and assessing the strength and importance of each of those pressures.

The environment external to a business including technological, economic, natural, and regulatory forces that marketing efforts cannot control.

The product attributes, organizational strengths, and accomplishments with the greatest impact on future success in the marketplace.

The overall goal(s) for an organization set within the parameters of the business scope.

A closed-loop information system that includes the planning functions of production planning (sales and operations planning), master production scheduling, material requirements planning, and capacity requirements planning. Once the plan has been accepted as realistic, execution begins. The execution functions include input-output control, detailed scheduling, dispatching, anticipated delay reports (department and supplier), and supplier scheduling. A closed-loop MRP system is one example of a manufacturing planning and control system.

1) The stages a new product goes through from beginning to end (i.e., the stages that a product passes through from introduction through growth, maturity, and decline). 2) The time from initial research and development to the time at which sales and support of the product to customers are withdrawn. 3) The period of time during which a product can be produced and marketed profitably.

The company statement of purpose.

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Product positioning

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Resource

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
SWOT analysis

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Service industry

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Strategic plan

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Strategy

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Supply chain

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Supply chain management

Anything that adds value to a good or service in its creation, production, or delivery.

The marketing effort involved in placing a product in a market to serve a particular niche or function. Syn.: service positioning.

1) In its narrowest sense, an organization that provides an intangible product (e.g., medical or legal advice). 2) In its broadest sense, all organizations except farming, mining, and manufacturing. The service industry includes retail trade; wholesale trade; transportation and utilities; finance, insurance, and real estate; construction; professional, personal, and social services; and local, state, and federal governments.

An analysis of the strengths, weaknesses, opportunities, and threats of and to an organization. Useful in developing strategy.

For an enterprise, identifies how the company will function in its environment. Specifies how to satisfy customers, how to grow the business, how to compete in its environment, how to manage the organization and develop capabilities within the business, and how to achieve financial objectives.

A plan for how to marshal and determine actions to support the mission, goals, and objectives of an organization.

The design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand, and measuring performance globally.

The network of suppliers that deliver products from raw materials to end customers through either an engineered or transactional flow of information, goods, and money.

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Trading partner

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Upstream

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Value chain

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Value chain analysis

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Vision

Module 1
Section A: Supply Chains, the Environment, and Strategy

Term
Vision statement

Module 1
Section B: Strategic Scope and Objectives

Term
Backward integration

Module 1
Section B: Strategic Scope and Objectives

Term
Customer segmentation

Used as a relative reference within a firm or supply chain to indicate moving in the direction of the raw material supplier.

Any organization external to the firm that plays an integral role within the supply chain community and whose business fortune depends on the success of the supply chain community.

An examination of all links a company uses to produce and deliver its products and services, starting from the origination point and continuing through delivery to the final customer.

The functions within a company that add value to the goods or services that the organization sells to customers and for which it receives payment.

An organization's statement of its vision. See: vision.

The shared perception of the organization's future—what the organization will achieve and a supporting philosophy. This shared vision must be supported by strategic objectives, strategies, and action plans to move it in the desired direction. See: vision statement.

The practice of dividing a customer base into groups of individuals who are similar in specific ways relevant to marketing. Traditional segmentation focuses on identifying customer groups based on demographics and attributes such as attitude and psychological profiles.

The process of buying or owning elements of the production cycle and channel of distribution back toward raw material suppliers. See: vertical integration.

Module 1
Section B: Strategic Scope and Objectives

Term
Diversification strategy

Module 1
Section B: Strategic Scope and Objectives

Term
Forward integration

Module 1
Section B: Strategic Scope and Objectives

Term
Horizontally integrated firm

Module 1
Section B: Strategic Scope and Objectives

Term
Market segmentation

Module 1
Section B: Strategic Scope and Objectives

Term
Merger

Module 1
Section B: Strategic Scope and Objectives

Term
Multicountry strategy

Module 1
Section B: Strategic Scope and Objectives

Term
Multinational strategy

Module 1
Section B: Strategic Scope and Objectives

Term
Outsourcing

Process of buying or owning elements of the production cycle; the channel of distribution forward toward the final customer. See: vertical integration.

An expansion of the scope of the product line to exploit new markets. A key objective is to spread the company's risk over several product lines in case there should be a downturn in any one product's market.

A marketing strategy in which the total market is disaggregated into submarkets, or segments, that share some measurable characteristic based on demographics, psychographics, lifestyle, geography, benefits, and so forth.

An organization that produces or sells similar products in various geographical locations.

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

The acquisition of the assets and liabilities of one company by another.

The process of having suppliers provide goods and services that were previously provided internally. [This] involves substitution—the replacement of internal capacity and production by that of the supplier. See: subcontracting.

A strategy to out-compete rivals that focuses on opportunities to achieve cross-business and cross-country coordination, thereby enabling economies of scope and an improved competitive position with regard to reducing costs, cross-country subsidization, and so on.

Module 1
Section B: Strategic Scope and Objectives

Term
Performance objectives

Module 1
Section B: Strategic Scope and Objectives

Term
Product-mix flexibility

Module 1
Section B: Strategic Scope and Objectives

Term
Strategic drivers

Module 1
Section B: Strategic Scope and Objectives

Term
Subcontracting

Module 1
Section B: Strategic Scope and Objectives

Term
Time-based competition (TBC)

Module 1
Section B: Strategic Scope and Objectives

Term
Vertical integration

Module 1
Section B: Strategic Scope and Objectives

Term
Vertically integrated firm

Module 1
Section B: Strategic Scope and Objectives

Term
What-if analysis

The ability to change over quickly to other products produced in a facility, as required by demand shifts in mix.

Measurements that enable the firm to monitor whether or not the firm's strategy is being accomplished. Thus, the measurement should be aligned to strategy. May differ based on the hierarchical level of the firm and should be aligned with the corresponding strategy for that level.

Sending production work outside to another manufacturer. See: outsourcing.

Factors that influence business unit and manufacturing strategies.

The degree to which a firm has decided to directly produce multiple value-adding stages from raw material to the sale of the product to the ultimate consumer. [This increases as the number of steps in the sequence increases.] A manufacturer that decides to begin producing parts, components, and materials that it normally purchases is said to be backward integrated. Likewise, a manufacturer that decides to take over distribution and perhaps sale to the ultimate consumer is said to be forward integrated. See: backward integration, forward integration.

A broad-based corporate strategy that emphasizes time as the vehicle for achieving and maintaining a sustainable competitive edge. Its characteristics are as follows: (1) It deals only with those lead times that are important to customers, (2) the lead-time reductions must involve decreases in both the mean and the variance [from the mean], and (3) the lead-time reductions must be achieved through system or process analysis (the processes must be changed to reduce lead times). Involves design, manufacturing, and logistical processes.

The process of evaluating alternate strategies by answering the consequences of changes to forecasts, manufacturing plans, inventory levels, and so forth.

An organization with functions that were previously performed by suppliers but are now done internally.

Module 1
Section C: Developing and Managing Organizational Strategy

Term
Business strategy

Module 1
Section C: Developing and Managing Organizational Strategy

Term
Order qualifiers

Module 1
Section C: Developing and Managing Organizational Strategy

Term
Order winners

Module 1
Section C: Developing and Managing Organizational Strategy

Term
Product profiling

Module 1
Section C: Developing and Managing Organizational Strategy

Term
Value-driven enterprise

Module 1
Section D: Functional and Operational Strategies

Term
Batch manufacturing

Module 1
Section D: Functional and Operational Strategies

Term
Break-even analysis

Module 1
Section D: Functional and Operational Strategies

Term
Break-even point

Those competitive characteristics that a firm must exhibit to be a viable competitor in the marketplace.

A plan for choosing how to compete. Business strategies can be classified into three general categories: (1) least cost, (2) differentiation, and (3) focus.

A graphical device used to ascertain the level of fit between a manufacturing process and the order-winning criteria of its products. It can be used at the process or company level to compare the manufacturing capabilities with the market requirements to determine areas of mismatch and identify steps needed for realignment.

Those competitive characteristics that cause a firm's customers to choose that firm's goods and services over those of its competitors.

A type of manufacturing process in which sets of items are moved through the different manufacturing steps in a group or batch.

An organization that is designed and managed to add utility from the viewpoint of the customer.

The level of production or the volume of sales at which operations are neither profitable nor unprofitable; the intersection of the total revenue and total cost curves.

A study of the number of units or amount of time required to recoup an investment.

Module 1
Section D: Functional and Operational Strategies

Term
Capacity planning

Module 1
Section D: Functional and Operational Strategies

Term
Capacity strategy

Module 1
Section D: Functional and Operational Strategies

Term
Continuous manufacturing

Module 1
Section D: Functional and Operational Strategies

Term
Contribution margin

Module 1
Section D: Functional and Operational Strategies

Term
Cost-volume-profit analysis

Module 1
Section D: Functional and Operational Strategies

Term
Disintermediation

Module 1
Section D: Functional and Operational Strategies

Term
Fixed cost

Module 1
Section D: Functional and Operational Strategies

Term
Four Ps

One of the strategic choices a firm must make as part of its manufacturing strategy. There are three [of these that are] commonly recognized: lead, lag, and tracking. A lead [...] strategy adds capacity in anticipation of increasing demand. A lag strategy does not add capacity until the firm is operating at or beyond full capacity. A tracking strategy adds capacity in small amounts to attempt to respond to changing demand in the marketplace.

The process of determining the amount of capacity required to produce in the future. This process may be performed at an aggregate or product-line level [...], at the master-scheduling level [...], and at the material requirements planning level [...]. See: capacity requirements planning, resource planning, rough-cut capacity planning.

An amount equal to the difference between sales revenue and variable costs.

A type of manufacturing process that is dedicated to the production of a very narrow range of standard products. The rate of product change and new product information is very low. Significant investment in highly specialized equipment allows for a high volume of production at the lowest manufacturing cost. Thus, unit sales volumes are very large, and price is almost always a key order-winning criterion. Examples of items produced by [this type of] process include gasoline, steel, fertilizer, glass, and paper. Syn.: continuous production.

The process of eliminating an intermediate stage or echelon in a supply chain. Total supply chain operating expense is reduced, total supply chain inventory is reduced, total cycle time is reduced, and profits among the remaining echelons are increased.

The study of how profits change with various levels of output and selling price.

A set of marketing tools to direct the business offering to the customer; include product, price, place, and promotion.

An expenditure that does not vary with the production volume; for example, rent, property tax, and salaries of certain personnel.

Module 1
Section D: Functional and Operational Strategies

Term
Functional strategy

Module 1
Section D: Functional and Operational Strategies

Term
Insourcing

Module 1
Section D: Functional and Operational Strategies

Term
Job shop

Module 1
Section D: Functional and Operational Strategies

Term
Lag capacity strategy

Module 1
Section D: Functional and Operational Strategies

Term
Lead capacity strategy

Module 1
Section D: Functional and Operational Strategies

Term
Licensing

Module 1
Section D: Functional and Operational Strategies

Term
Line manufacturing

Module 1
Section D: Functional and Operational Strategies

Term
Logistics

Using the firm's internal resources to provide goods and services. See: make-or-buy decision.

A strategy that is built from the business strategy for various business functions such as finance, marketing, and production. See: strategic planning.

Not adding capacity until the firm is operating at or beyond full capacity. This keeps unit costs minimized by working at full capacity, but does not satisfy total demand.

1) An organization in which similar equipment is organized by function. Each job follows a distinct routing through the shop. 2) A type of manufacturing process used to produce items to each customer's specifications. Production operations are designed to handle a wide range of product designs and are performed at fixed plant locations using general-purpose equipment. Syn.: jobbing. See: intermittent production, project manufacturing.

Paying a fee for permission to manufacture and sell a product created by another.

Adding capacity to a resource in anticipation of increased future demand. This is done to ensure the ability to satisfy market demand when increase occurs.

1) In a supply chain management context, it is the subset of supply chain management that controls the forward and reverse movement, handling, and storage of goods between origin and distribution points. 2) In an industrial context, the art and science of obtaining, producing, and distributing material and product in the proper place and in proper quantities. 3) In a military sense (where it has greater usage), its meaning can also include the movement of personnel.

Repetitive manufacturing performed by specialized equipment in a fixed sequence.

Module 1
Section D: Functional and Operational Strategies

Term
Make-or-buy decision

Module 1
Section D: Functional and Operational Strategies

Term
Marketing strategy

Module 1
Section D: Functional and Operational Strategies

Term
Operational plan(s)

Module 1
Section D: Functional and Operational Strategies

Term
Operations strategy

Module 1
Section D: Functional and Operational Strategies

Term
Project manufacturing

Module 1
Section D: Functional and Operational Strategies

Term
Sales mix

Module 1
Section D: Functional and Operational Strategies

Term
Surge capacity

Module 1
Section D: Functional and Operational Strategies

Term
Total cost curve

The basic plan the marketing function expects to use to achieve its business and marketing objectives in a particular market. Includes marketing expenditures, marketing mix, and marketing allocation.

The act of deciding whether to produce an item internally or buy it from an outside supplier. Factors to consider in the decision include costs, capacity availability, proprietary and/or specialized knowledge, quality considerations, skill requirements, volume, and timing.

The total pattern of decisions that shape the long-term capabilities of an operation and their contribution to overall strategy. [This] should be consistent with overall strategy. See: strategic plan.

The set of short-range plans and schedules detailing specific actions. Operational plans are more detailed than strategic and tactical plans and cover a shorter time horizon. See: operational planning, strategic plan, tactical plan.

The proportion of individual product-type sales volumes that make up the total sales volume.

A type of manufacturing process used for large, often unique, items or structures that require a custom design capability (engineer-to-order). This type of process is highly flexible and can cope with a broad range of product designs and design changes. Usually uses a fixed-position type layout. See: batch (fourth definition), continuous production, job shop (second definition), process manufacturing, project, repetitive manufacturing.

1) In cost-volume-profit (breakeven) analysis, [this] is composed of total fixed and variable costs per unit multiplied by the number of units provided. Breakeven quantity occurs where [this] and total sales revenue curve intersect. See: break-even chart, break-even point. 2) In inventory theory [and for an inventory item, this] is the sum of the costs of acquiring and carrying the item. See: economic order quantity.

The ability to meet sudden, unexpected increases in demand by expanding production with existing personnel and equipment.

Module 1
Section D: Functional and Operational Strategies

Term
Tracking capacity strategy

Module 1
Section D: Functional and Operational Strategies

Term
Variable cost

Module 1
Section E: Environments, Types, and Layouts

Term
Assemble-to-order (ATO)

Module 1
Section E: Environments, Types, and Layouts

Term
Assembly line

Module 1
Section E: Environments, Types, and Layouts

Term
Cell

Module 1
Section E: Environments, Types, and Layouts

Term
Cellular layout

Module 1
Section E: Environments, Types, and Layouts

Term
Cellular manufacturing

Module 1
Section E: Environments, Types, and Layouts

Term
Component

An operating cost that varies directly with a change of one unit in the production volume (e.g., direct materials consumed, sales commissions).

Adding capacity in small amounts to attempt to respond to changing demand in real time in the marketplace. This approach may satisfy total demand and help minimize unit costs, but it can be difficult in some situations to add incremental amounts of capacity, especially if the facility has no more space available.

An assembly process in which equipment and work centers are laid out to follow the sequence in which raw materials and parts are assembled. See: line, production line.

A production environment where a good or service can be assembled after receipt of a customer's order. The key components (bulk, semi-finished, intermediate, subassembly, fabricated, purchased, packing, and so on) used in the assembly or finishing process are planned and usually stocked in anticipation of a customer order. Receipt of an order initiates assembly of the customized product. This strategy is useful where a large number of end products (based on the selection of options and accessories) can be assembled from common components. Syn.: finish-to-order. See: make-to-order, make-to-stock.

An equipment configuration to support cellular manufacturing.

A manufacturing or service unit consisting of a number of workstations and the materials transport mechanisms and storage buffers that interconnect them.

The raw material, part, or subassembly that goes into a higher-level assembly, compound, or other item. This term may also include packaging materials for finished items. See: ingredient, intermediate part.

A manufacturing process that produces families of parts within a single line or cell of machines controlled by operators who work only within the line or cell.

Module 1
Section E: Environments, Types, and Layouts

Term
Continuous production

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Module 1
Section E: Environments, Types, and Layouts

Term
Customer tolerance time

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Module 1
Section E: Environments, Types, and Layouts

Term
Decoupling points

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Module 1
Section E: Environments, Types, and Layouts

Term
Delivery lead time

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Module 1
Section E: Environments, Types, and Layouts

Term
Demand-driven material requirements planning (DDMRP)

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Module 1
Section E: Environments, Types, and Layouts

Term
Demand-driven supply network

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Module 1
Section E: Environments, Types, and Layouts

Term
Discrete manufacturing

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Module 1
Section E: Environments, Types, and Layouts

Term
Engineer-to-order (ETO)

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The amount of time potential customers are willing to wait for the delivery of a good or a service. Syn.: demand lead time.

A production system in which the productive equipment is organized and sequenced according to the steps involved to produce the product. This term denotes that material flow is continuous during the production process. The routing of the jobs is fixed and setups are seldom changed. Syn.: continuous flow (production), continuous process, continuous manufacturing. See: mass production, project manufacturing.

The time from the receipt of a customer order to the delivery of the product. Syn.: delivery cycle.

The locations in the product structure or distribution network where inventory is placed to create independence between processes or entities. Selection of decoupling points is a strategic decision that determines customer lead times and inventory investment. See: control points.

A situation in which a customer purchase initiates real-time information flows through the supply chain that consequently cause movement of product through the network.

A method for planning material needs that enables a company to build more closely to actual market requirements.

Products whose customer specifications require unique engineering design, significant customization, or new purchased materials. Each customer order results in a unique set of part numbers, bills of material, and routings. Syn.: design-to-order.

The production of distinct items such as automobiles, appliances, or computers.

Module 1
Section E: Environments, Types, and Layouts

Term
Facility layout

Module 1
Section E: Environments, Types, and Layouts

Term
Fixed-position layout

Module 1
Section E: Environments, Types, and Layouts

Term
Flow processing

Module 1
Section E: Environments, Types, and Layouts

Term
Flow shop

Module 1
Section E: Environments, Types, and Layouts

Term
Focused factory

Module 1
Section E: Environments, Types, and Layouts

Term
Functional layout

Module 1
Section E: Environments, Types, and Layouts

Term
Gantt chart

Module 1
Section E: Environments, Types, and Layouts

Term
Group technology (GT)

A factory layout that plans for the product to be in a set place; the people, machines, and tools are brought to and from the product.

Describes where machines and utilities will be located in a facility, as well as the arrangement of processes.

A form of manufacturing organization in which machines and operators handle a standard, usually uninterrupted, material flow. The operators generally perform the same operations for each production run. [This] is often referred to as a mass production shop or is said to have a continuous manufacturing layout. The plant layout (arrangement of machines, benches, assembly lines, etc.) is designed to facilitate a product "flow." Some process industries (chemicals, oil, paint, etc.) are extreme examples of [this]. Each product, though variable in material specifications, uses the same flow pattern through the shop. Production is set at a given rate, and the products are generally manufactured in bulk. Syn.: flow line, flow manufacturing, flow plant.

In process systems development, work flows from one workstation to another at a nearly constant rate and with no delays. When producing discrete (geometric) units, the process is called repetitive manufacturing; when producing non-geometric units over time, the process is called continuous manufacturing. A physical-chemical reaction takes place [when this process is continuous.]

A facility configuration in which operations of a similar nature or function are grouped together; an organizational structure based on departmental specialty (e.g., saw, lathe, mill, heat treat, press). Syn.: job shop layout, process layout.

A plant established to focus the entire manufacturing system on a limited, concise, manageable set of products, technologies, volumes, and markets precisely defined by the company's competitive strategy, technology, and economics. See: cellular manufacturing.

An engineering and manufacturing philosophy that identifies the physical similarity of parts (common routing) and establishes their effective production. It provides for rapid retrieval of existing designs and facilitates a cellular layout.

The earliest and best-known type of planning and control chart. It is especially designed to show graphically the relationship between planned performance and actual performance over time. Used for (1) machine loading, in which one horizontal line is used to represent capacity and another to represent load against that capacity, or (2) monitoring job progress, in which one horizontal line represents the production schedule and another parallel line represents the actual progress of the job against the schedule in time.

Module 1
Section E: Environments, Types, and Layouts

Term
Intermittent production

Module 1
Section E: Environments, Types, and Layouts

Term
Make-to-order (MTO)

Module 1
Section E: Environments, Types, and Layouts

Term
Make-to-stock (MTS)

Module 1
Section E: Environments, Types, and Layouts

Term
Manufacturing environment

Module 1
Section E: Environments, Types, and Layouts

Term
Manufacturing lead time

Module 1
Section E: Environments, Types, and Layouts

Term
Manufacturing philosophy

Module 1
Section E: Environments, Types, and Layouts

Term
Manufacturing process

Module 1
Section E: Environments, Types, and Layouts

Term
Manufacturing strategy

A production environment where a good or service can be made after receipt of a customer's order. The final product is usually a combination of standard items and items custom-designed to meet the special needs of the customer. Where options or accessories are stocked before customer orders arrive, the term assemble-to-order is frequently used. Syn.: build-to-order. See: assemble-to-order, make-to-stock.

A form of manufacturing in which the jobs pass through the functional departments in lots, and each lot may have a different routing. See: job shop.

The framework in which manufacturing strategy is developed and implemented. [Elements... include] external environmental forces; corporate strategy; business unit strategy; other functional strategies (marketing, engineering, finance, etc.); product selection; product/process design; product/process technology; and management competencies. Often refers to whether a company, plant, product, or service is make-to-stock, make-to-order, or assemble-to-order. Syn.: production environment.

A production environment where products can be and usually are finished before receipt of a customer order. Customer orders are typically filled from existing stocks, and production orders are used to replenish those stocks. Syn.: produce-to-stock. See: assemble-to-order, make-to-order.

The set of guiding principles, driving forces, and ingrained attitudes that helps communicate goals, plans, and policies to all employees and that is reinforced through conscious and subconscious behavior within the manufacturing organization.

The total time required to manufacture an item, exclusive of lower-level purchasing lead time. For make-to-order products, it is the length of time between the release of an order to the production process and shipment to the final customer. For make-to-stock products, it is the length of time between the release of an order to the production process and receipt into inventory. Included are order preparation time, queue time, setup time, run time, move time, inspection time, and put-away time. Syn.: manufacturing cycle, production cycle, production lead time. See: lead time.

A collective pattern of decisions that acts upon the formulation and deployment of manufacturing resources. To be most effective, [it] should act in support of the overall strategic direction of the business and provide for competitive advantages (edges).

The series of operations performed upon material to convert it from the raw material or a semifinished state to a state of further completion. [It] can be arranged in a process layout, product layout, cellular layout, or fixed-position layout. [It also] can be planned to support make-to-stock, make-to-order, assemble-to-order, and so forth, based on the strategic use and placement of inventories. See: production process, transformation process.

Module 1
Section E: Environments, Types, and Layouts

Term
Mass customization

Module 1
Section E: Environments, Types, and Layouts

Term
Modular design strategy

Module 1
Section E: Environments, Types, and Layouts

Term
Modularization

Module 1
Section E: Environments, Types, and Layouts

Term
Nesting

Module 1
Section E: Environments, Types, and Layouts

Term
Option

Module 1
Section E: Environments, Types, and Layouts

Term
Package to order

Module 1
Section E: Environments, Types, and Layouts

Term
Postponement

Module 1
Section E: Environments, Types, and Layouts

Term
Process flexibility

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. [...].

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.

The act of combining several small processes to form one larger process.

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.

A production environment in which a good or service can be packaged after receipt of a customer order. The item is common across many different customers; packaging determines the end product.

A choice that must be made by the customer or company when customizing the end product. In many companies, [it] means a mandatory choice from a limited selection. See: feature.

The design of the manufacturing system, including operators and machinery, that allows quick changeovers to respond to near-term changes in product volume and mix. A necessary tool in lean and just in time.

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.

Module 1
Section E: Environments, Types, and Layouts

Term
Procurement lead time

Module 1
Section E: Environments, Types, and Layouts

Term
Product layout

Module 1
Section E: Environments, Types, and Layouts

Term
Product-based layout

Module 1
Section E: Environments, Types, and Layouts

Term
Production line

Module 1
Section E: Environments, Types, and Layouts

Term
Project management

Module 1
Section E: Environments, Types, and Layouts

Term
Pull system

Module 1
Section E: Environments, Types, and Layouts

Term
Purchasing lead time

Module 1
Section E: Environments, Types, and Layouts

Term
Push system

Another name for flow process layout. A system that is set up for a limited range of similar products. Focused-factory production is also considered to be in this category. See: flow processing, focused factory.

The time required to design a product, modify or design equipment, conduct market research, and obtain all necessary materials. Lead time begins when a decision has been made to accept an order to produce a new product and ends when production commences. Syn.: procurement cycle, total procurement lead time. See: time-to-market.

A series of pieces of equipment dedicated to the manufacture of a specific number of products or families.

A type of layout where resources are arranged sequentially according to the steps required to make a particular complex product.

1) In production, the production of items only as demanded for use or to replace those taken for use. See: pull signal. 2) In material control, the withdrawal of inventory as demanded by the using operations. Material is not issued until a signal comes from the user. 3) In distribution, a system for replenishing field warehouse inventories where replenishment decisions are made at the field warehouse itself, not at the central warehouse or plant.

The use of skills and knowledge in coordinating the organizing, planning, scheduling, directing, controlling, monitoring, and evaluating of prescribed activities to ensure that the stated objectives of a project, manufactured good, or service are achieved. See: project.

1) In production, the production of items at times required by a given schedule planned in advance. 2) In material control, the issuing of material according to a given schedule or issuing material to a job order at its start time. 3) In distribution, a system for replenishing field warehouse inventories where replenishment decision making is centralized, usually at the manufacturing site or central supply facility. See: pull system.

The total lead time required to obtain a purchased item. Included here are order preparation and release time; supplier lead time; transportation time; and receiving, inspection, and put-away time. See: lead time, supplier lead time, time-to-product.

Module 1
Section E: Environments, Types, and Layouts

Term
Remanufacturing

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Module 1
Section E: Environments, Types, and Layouts

Term
Repetitive manufacturing

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Module 1
Section E: Environments, Types, and Layouts

Term
Service

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Module 1
Section E: Environments, Types, and Layouts

Term
Supplier lead time

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Module 1
Section E: Environments, Types, and Layouts

Term
U-lines

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Module 1
Section E: Environments, Types, and Layouts

Term
Work breakdown structure

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Module 1
Section E: Environments, Types, and Layouts

Term
Work cell

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Module 1
Section F: Performance Monitoring and KPIs

Term
Balanced scorecard

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The repeated production of the same discrete products or families of products. Repetitive methodology minimizes setups, inventory, and manufacturing lead times by using production lines, assembly lines, or cells. Work orders are no longer necessary; production scheduling and control are based on production rates. Products may be standard or assembled from modules. Repetitiveness is not a function of speed or volume.

1) An industrial process in which worn-out products are restored to like-new condition. In contrast, a repaired product normally retains its identity, and only those parts that have failed or are badly worn are replaced or serviced. 2) The manufacturing environment where worn-out products are restored to like-new condition.

The amount of time that normally elapses between the time an order is received by a supplier and the time the order is shipped. Syn.: vendor lead time. See: purchasing lead time.

Sometimes used to describe those activities that support the production or distribution functions in any [organization...].

In project management, a hierarchical description of a project in which each lower level is more detailed. See: project summary work breakdown structure.

Production lines shaped like the letter “U.” [This] shape allows workers to easily perform several nonsequential tasks without much walk time. The number of workstations in [this type of production line] is usually determined by line balancing. [These also] promote communication.

A list of financial and operational measurements used to evaluate organizational or supply chain performance. Dimensions might include customer perspective, business process perspective, financial perspective, and innovation and learning perspectives. It formally connects overall objectives, strategies, and measurements. Each dimension has goals and measurements.

Dissimilar machines grouped together into a production unit to produce a family of parts having similar routings.

Module 1
Section F: Performance Monitoring and KPIs

Term
Cash conversion cycle

Module 1
Section F: Performance Monitoring and KPIs

Term
Cash-to-cash cycle time

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Section F: Performance Monitoring and KPIs

Term
Cost center

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Section F: Performance Monitoring and KPIs

Term
Current ratio

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Section F: Performance Monitoring and KPIs

Term
Global measurements

Module 1
Section F: Performance Monitoring and KPIs

Term
Inventory turnover

Module 1
Section F: Performance Monitoring and KPIs

Term
Key performance indicator (KPI)

Module 1
Section F: Performance Monitoring and KPIs

Term
Labor standard

An indicator of how efficiently a company manages its assets to improve cash flow. Calculated as inventory days plus accounts receivable days minus accounts payable days. See: cash conversion cycle.

1) In retailing, the length of time between the sale of products and the cash payments for a company's resources. 2) In manufacturing, the length of time from the purchase of raw materials to the collection of accounts receivable from customers for the sale of products or services.

Current assets divided by current liabilities.

The smallest segment of an organization, typically a department, for which costs are collected and formally reported. The criteria in defining [this] are that the cost be significant and that the area of responsibility be clearly defined. [It] is not necessarily identical to a work center; normally, [this] encompasses more than one work center, but this may not always be the case.

The number of times that an inventory cycles, or "turns over," during the year. A frequently used method to compute inventory turnover is to divide the annual cost of sales by the average inventory level. For example, an annual cost of sales of $21 million divided by an average inventory of $3 million means that inventory turned over seven times. Syn.: inventory turns, turnover. See: inventory velocity.

Measurements used to judge the performance of the system as a whole.

Under normal conditions, the quantity of worker minutes necessary to finish a product or process.

1) A financial or nonfinancial measure that is used to define and assess progress toward specific organizational goals and that typically is tied to an organization's strategy and business stakeholders. Should not be contradictory to other departmental or strategic business unit performance measures. 2) A metric used to measure the overall performance or state of affairs. SCOR level 1 metrics are an example.

Module 1
Section F: Performance Monitoring and KPIs

Term
Local measures

Module 1
Section F: Performance Monitoring and KPIs

Term
Net operating cash flow

Module 1
Section F: Performance Monitoring and KPIs

Term
Operational performance measurements

Module 1
Section F: Performance Monitoring and KPIs

Term
Performance measurement system

Module 1
Section F: Performance Monitoring and KPIs

Term
Quality control

Module 1
Section F: Performance Monitoring and KPIs

Term
Quick asset ratio

Module 1
Section F: Performance Monitoring and KPIs

Term
SCOR metrics

Module 1
Section F: Performance Monitoring and KPIs

Term
Standard

In finance management, the difference between cash inflow and cash outflow for a given period. It is found by taking the change in net operating profit after taxes and adding the change in depreciation then subtracting the increase in net working capital requirements.

The set of measurements that relates to a resource, operation, process, or part and usually has low correlation to global organization measures. Examples are errors per printed page, departmental efficiency, and volume discounts.

A system for collecting, measuring, and comparing a measure to a standard for a specific criterion for an operation, item, good, service, business, etc. [It] consists of a criterion, a standard, and a measure. Syn.: metrics. See: performance criterion, performance measure, performance standard.

1) In traditional management, performance measurements related to machine, worker, or department efficiency or utilization. These performance measurements are usually poorly correlated with organizational performance. 2) In theory of constraints, performance measurements that link causally to organizational performance measurements. Throughput, inventory, and operating expense are examples. See: global performance measurements, local performance measurements, strategic performance measurements.

A measure of a firm's financial stability. It is defined as (current assets minus inventory) divided by current liabilities. A value greater than 1 is desirable. Syn.: quick ratio, acid test, acid test ratio.

The process of measuring quality conformance by comparing the actual with a standard for the characteristic and taking corrective actions on the difference. See: quality assurance/contol.

1) An established norm against which measurements are compared. 2) An established norm of productivity defined in terms of units of output per set time (units/hour) or in standard time (minutes per unit). 3) The time allowed to perform a specific job including quantity of work to be produced. See: standard time.

In SCOR, metrics measure the ability of processes to achieve the strategic objectives associated with performance attributes. SCOR recognizes three levels of predefined metrics: Level 1 metrics are diagnostics for the overall health of the supply chain. Level 2 metrics serve as diagnostics for the level 1 metrics. Level 3 metrics serve as diagnostics for level 2 metrics.

Module 1
Section F: Performance Monitoring and KPIs

Term
Strategic performance measurements

Module 1
Section F: Performance Monitoring and KPIs

Term
Supply Chain Operations Reference (SCOR) model

Module 1
Section F: Performance Monitoring and KPIs

Term
Tactical plan

Module 1
Section F: Performance Monitoring and KPIs

Term
Total factor productivity

Module 1
Section G: Risk Management

Term
Contingency planning

Module 1
Section G: Risk Management

Term
Failsafe work methods

Module 1
Section G: Risk Management

Term
Redundancy

Module 1
Section G: Risk Management

Term
Resilience

A process reference model developed by the Supply Chain Council and endorsed by the Association for Supply Chain Management (ASCM) as the standard cross-industry diagnostic tool for supply chain management. [It] describes the business activities associated with satisfying a customer's demand, which include plan, source, make, deliver, return, and enable. Use of [this] includes analyzing the current state of a company's processes and goals, quantifying operational performance, and comparing company performance to benchmark data. [It] has developed a set of metrics for supply chain performance, and ASCM members have formed industry groups to collect best practices information that companies can use to evaluate their supply chain performance.

Measurements that relate to the long-term goals of a business. Examples include profitability, market share, growth, and productivity. See: global performance measurements, operational performance measurements.

A measure of productivity (of a department, plant, strategic business unit, firm, etc.) that combines the individual productivities of all its resources, including labor, capital, energy, material, and equipment. These [individual... productivities] are often combined by weighting each according to its monetary value and then adding them. For example, if material accounts for 40 percent of the total cost of sales, labor 10 percent of the total cost of sales, and other resources 60 percent, [this] = .4 (material productivity) + .1 (labor productivity) + .6 (other resource productivity).

The set of functional plans (e.g., production plan, sales plan, marketing plan) synchronizing activities across functions that specify production levels, capacity levels, staffing levels, funding levels, and so on, for achieving the intermediate goals and objectives to support the organization's strategic plan. See: aggregate planning, operational plan, production planning, sales and operations planning, strategic plan, tactical planning.

Methods of performing operations so that erroneous or faulty actions cannot be completed. For example, a part without holes in the proper place cannot be removed from a jig; a computer system rejects invalid numbers or requires double entry of transaction quantities outside the normal range. Syn.: failsafe techniques, mistake-proofing, poka-yoke.

A process for creating a document that specifies alternative plans to facilitate project success if certain risk events occur.

In the supply chain, the ability to return to a position of equilibrium after experiencing an event that causes operational results to deviate from expectations. [It] is increased by strategically increasing the number of response options and/or decreasing the time to execute those options. [It] is improved by risk monitoring and control.

1) A backup capability, coming either from extra machines or from extra components within a machine, to reduce the effects of breakdowns. 2) The use of one or more extra or duplicating components in a system or equipment (often to increase reliability).

Module 1
Section G: Risk Management

Term
Risk acceptance

Module 1
Section G: Risk Management

Term
Risk avoidance

Module 1
Section G: Risk Management

Term
Risk management

Module 1
Section G: Risk Management

Term
Risk mitigation

Module 1
Section G: Risk Management

Term
Risk register

Module 1
Section G: Risk Management

Term
Risk tolerance

Module 1
Section H: Capital Equipment and Facilities

Term
Business plan

Module 1
Section H: Capital Equipment and Facilities

Term
Capital budgeting

Changing a plan to eliminate a risk or to protect plan objectives from its impact.

A decision to take no action to deal with a risk or an inability to format a plan to deal with the risk.

Reducing exposure to risk in terms of either its likelihood or its impact.

The identification, assessment, and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities.

An organization's or stakeholder's readiness to accept a threat or potential negative outcome in order to achieve its objectives.

A report that has summary information on qualitative risk analysis, quantitative risk analysis, and risk response planning. This register contains all identified risks and associated details.

Actions relating to the planning and financing of capital outlays for such purposes as the purchase of new equipment, the introduction of new product lines, and the modernization of plant facilities.

1) A statement of long-range strategy and revenue, cost, and profit objectives usually accompanied by budgets, a projected balance sheet, and a cash flow (source and application of funds) statement. [It] is usually stated in terms of dollars and grouped by product family. [It] is then translated into synchronized tactical functional plans through the production planning process (or the sales and operations planning process). Although frequently stated in different terms (dollars versus units), these tactical plans should agree with each other and with [this concept]. See: long-term planning, strategic plan. 2) A document consisting of the business details (organization, strategy, and financing tactics) prepared by an entrepreneur to plan for a new business.

Module 1
Section H: Capital Equipment and Facilities

Term
Discounted cash flow

Module 1
Section H: Capital Equipment and Facilities

Term
Economic value added (EVA)

Module 1
Section H: Capital Equipment and Facilities

Term
Environmentally responsible business

Module 1
Section H: Capital Equipment and Facilities

Term
Hazmat

Module 1
Section H: Capital Equipment and Facilities

Term
Hurdle rate

Module 1
Section H: Capital Equipment and Facilities

Term
Internal rate of return

Module 1
Section H: Capital Equipment and Facilities

Term
Net present value (NPV)

Module 1
Section H: Capital Equipment and Facilities

Term
Opportunity cost

In managerial accounting, the net operating profit earned above the cost of capital for a profit center.

A method of investment analysis in which future cash flows are converted or discounted to their value at the present time. The net present value of an item is estimated to be the sum of all discounted future cash flows.

Hazardous material defined by environmental laws and legal precedents. A product has been defined as hazardous by regulations that impose stiff fines if the regulations are ignored.

A firm that operates in such a way as to minimize detrimental impacts on society. See: green manufacturing, green supply chain.

The rate of compound interest at which the company's outstanding investment is repaid by proceeds from the project.

The minimum acceptable rate of return on a project.

1) The return on capital that could have resulted had the capital been used for some purpose other than its present use. 2) The rate of return investors must earn to continue to supply capital to a firm.

The present (discounted) value of future earnings (for which operating expenses have been deducted from net operating revenues) for a given number of time periods.

Module 1
Section H: Capital Equipment and Facilities

Term
Payback

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Module 1
Section H: Capital Equipment and Facilities

Term
Profitability index

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Module 1
Section H: Capital Equipment and Facilities

Term
Residual income

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Module 1
Section H: Capital Equipment and Facilities

Term
Return on investment (ROI)

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Module 1
Section H: Capital Equipment and Facilities

Term
Scheduled downtime

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Module 1
Section H: Capital Equipment and Facilities

Term
Sunk cost

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Module 1
Section H: Capital Equipment and Facilities

Term
Time value of money

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Module 1
Section H: Capital Equipment and Facilities

Term
Total productive maintenance (TPM)

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In financial management, the net present value of a projected stream of income from a project (potential investment) divided by the investment in the project. It is used to select among competing potential investments.

A method of evaluating an investment opportunity that provides a measure of the time required to recover the initial amount invested in a project.

A relative measure of financial performance that provides a means for comparing various investments by calculating the profits returned during a specified time period.

The net operating income that an investment center earns above the minimum required return on its operating assets.

1) The unrecovered balance of an investment. It is a cost, already paid, that is not relevant to the decision being made about the future. 2) Capital already invested that for some reason cannot be retrieved. 3) A past cost that has no relevance with respect to future receipts and disbursements of a facility undergoing an economic study. This concept implies that since a past outlay is the same regardless of the alternative selected, it should not influence the choice between alternatives.

Planned shutdown of equipment or plant to perform maintenance or to adjust to softening demand.

Preventive maintenance plus continuing efforts to adapt, modify, and refine equipment to increase flexibility, reduce material handling, and promote continuous flows. It is operator-oriented maintenance with the involvement of all qualified employees in all maintenance activities. Syn.: total preventive maintenance.

The cumulative effect of elapsed time on the money value of an event, based on the earning power of equivalent invested funds.

Module 1
Section I: Sustainability Strategies

Term
Certification audits

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Module 1
Section I: Sustainability Strategies

Term
Design for the environment (DFE)

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Module 1
Section I: Sustainability Strategies

Term
Global Reporting Initiative (GRI)

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Module 1
Section I: Sustainability Strategies

Term
Global Reporting Initiative (GRI) Reporting Framework

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Module 1
Section I: Sustainability Strategies

Term
Green manufacturing

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Module 1
Section I: Sustainability Strategies

Term
ISO 14000 Series Standards

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Module 1
Section I: Sustainability Strategies

Term
ISO 26000

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Module 1
Section I: Sustainability Strategies

Term
Life cycle assessment (LCA)

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

Audits occurring within registration processes (e.g., for ISO 9000:2000).

The framework that sets out the principles and performance indicators organizations can use to measure and report their human rights, labor, environment, and anticorruption practices and outcomes.

A network-based organization that pioneered the world's most widely used sustainability reporting framework.

A series of generic environmental management standards, developed by the International Organization for Standardization, that provide structure and systems for managing environmental compliance with legislative and regulatory requirements and affect every aspect of a company's environmental operations.

A method of producing a good or service that minimizes external cost and pollution. It includes design for reuse, design for disassembly, and design for remanufacture. See: environmentally responsible business.

Understanding the human and environmental impacts during the life of a product, process, or service, including energy, material, and environmental inputs and outputs. Sometimes called cradle-to-grave analysis, [this] includes raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling.

An international standard adopted by the International Organization for Standardization to assist organizations in contributing to sustainable development beyond legal compliance through a common understanding of social responsibility. [This] is not a management system standard and is not intended or appropriate for certification purposes or regulatory or contractual use.

Module 1
Section I: Sustainability Strategies

Term
Life cycle costing

Module 1
Section I: Sustainability Strategies

Term
Logistics social responsibility

Module 1
Section I: Sustainability Strategies

Term
Social responsibility

Module 1
Section I: Sustainability Strategies

Term
Stakeholder

Module 1
Section I: Sustainability Strategies

Term
Sustainability

Module 1
Section I: Sustainability Strategies

Term
Triple bottom line (TBL)

Module 1
Section I: Sustainability Strategies

Term
UN Global Compact Management Model

Module 1
Section I: Sustainability Strategies

Term
United Nations Global Compact

The subset of corporate social responsibility that relates to logistics, including minimizing negative impacts, monitoring and controlling, reporting, and continuously improving in social responsibility areas that include the environment, health and safety, and labor issues related to warehousing, transportation, and other logistics areas.

In evaluating alternatives, the consideration of all costs —including acquisition, operation, and disposition costs—that will be incurred over the entire time of product ownership.

People with a vested interest in a company, including managers, employees, stockholders, customers, and suppliers.

Commitment by top management to behave ethically and to contribute to community development. This may also entail improving the workforce's quality of life.

An approach that measures the economic, social, and environmental impact of an organization's activities with the intent of creating value for both its shareholders and society.

An organizational focus on activities that provide present benefit without compromising the needs of future generations.

A voluntary initiative whereby companies embrace, support, and enact, within their sphere of influence, a set of core values in the areas of human rights, labor standards, the environment, and anticorruption.

A framework for guiding companies through the process of formally committing to, assessing, defining, implementing, measuring, and communicating the United Nations Global Compact and its principles.