

Fold each printed sheet in half lengthwise. The left side of the document will list the term and the right side will list the definition. Tape or staple the open edges of your flashcards. Cut out your flashcards on the solid lines indicated and fold them on the dotted lines.

**Module 1**

*Section A: Supply Chains, the Environment, and Strategy*

**Term**

Supply chain

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The global network used to deliver products and services from raw materials to end customers through an engineered flow of information, physical distribution, and cash.

**Module 1**

*Section A: Supply Chains, the Environment, and Strategy*

**Term**

Service industry

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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. 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.

**Module 1**

*Section A: Supply Chains, the Environment, and Strategy*

**Term**

Supply chain management

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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.

**Module 1**

*Section A: Supply Chains, the Environment, and Strategy*

**Term**

Upstream

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

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

Downstream

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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**

Manufacturing planning and control system (MPC)

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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.

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

Competitive advantage

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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. Syn: competitive edge.

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

Key success factors

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

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

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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. See: strategic plan.

**Module 1***Section A: Supply Chains, the Environment, and Strategy***Term**  
Strategic plan

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The plan for how to marshal and determine actions to support the mission, goals, and objectives of an organization. Generally includes an organization's explicit mission, goals, and objectives and the specific actions needed to achieve those goals and objectives. See: business plan, operational plan, strategic planning, strategy, tactical plan.

**Module 1***Section A: Supply Chains, the Environment, and Strategy***Term**  
Business plan

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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 A: Supply Chains, the Environment, and Strategy***Term**  
Mission

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

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

Mission statement

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The company statement of purpose.

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

Vision

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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.

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

Vision statement

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

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

Corporate culture

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

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

Environmental scanning

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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.

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

Competitive analysis

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

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

Macro environment

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

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

Five-forces model of competition

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

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

Resource

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

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SWOT analysis

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An analysis of the strengths, weaknesses, opportunities, and threats of and to an organization. [It] is useful in developing strategy.

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

Core process

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

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

Core competencies

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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. [These] are embodied in the skills of the workers and in the organization. They are developed through collective learning, communication, and commitment to work across levels and functions in the organization and with the customers and suppliers. For example, [one of these] could be the capability of a firm to coordinate and harmonize diverse production skills and multiple technologies.

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

Value chain

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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.

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

Trading partner

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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.

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

Value chain analysis

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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.

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

Product life cycle

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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.

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

Product positioning

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

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

Functional product

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

**Module 1***Section B: Strategic Scope and Objectives***Term**

Diversification strategy

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

**Module 1***Section B: Strategic Scope and Objectives***Term**

Multinational strategy

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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. See: global strategy.



**Module 1***Section B: Strategic Scope and Objectives***Term**

Multicountry strategy

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

**Module 1***Section B: Strategic Scope and Objectives***Term**

Horizontally integrated firm

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An organization that seeks to produce or sell a type of product in numerous markets. [This] exists when an organization produces or sells similar products in various geographical locations. [This occurs more frequently in marketing than in production.] See: vertically integrated firm.

**Module 1***Section B: Strategic Scope and Objectives***Term**

Vertically integrated firm

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An organization with functions that were previously performed by suppliers but are now done internally. See: horizontally integrated firm.

**Module 1***Section B: Strategic Scope and Objectives***Term**

Merger

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

**Module 1***Section B: Strategic Scope and Objectives***Term**

Vertical integration

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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.

**Module 1***Section B: Strategic Scope and Objectives***Term**

Backward integration

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

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Forward integration

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

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Outsourcing

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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.

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Subcontracting

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

**Module 1***Section B: Strategic Scope and Objectives***Term**

Strategic drivers

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Factors that influence business unit and manufacturing strategies.

**Module 1***Section B: Strategic Scope and Objectives***Term**

Market segmentation

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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.

**Module 1***Section B: Strategic Scope and Objectives***Term**

Customer segmentation

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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.

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Performance objectives

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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. [These] may differ based on the hierarchical level of the firm (e.g., department, business unit, corporation) and should be aligned with the corresponding strategy for that level.

**Module 1***Section B: Strategic Scope and Objectives***Term**

What-if analysis

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

**Module 1***Section B: Strategic Scope and Objectives***Term**

Time-based competition (TBC)

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A broad-based corporate strategy that emphasizes time as the vehicle for achieving and maintaining a sustainable competitive edge. Its characteristics are: (1) it deals only with those lead times that are important to the customers; (2) the lead-time reductions must involve decreases in both the mean and the variance; and (3) the lead-time reductions must be achieved through system/process analysis (the processes must be changed to reduce lead times). Reductions in lead times are achieved by changing the processes and the decision structures used to design, produce, and deliver products to the customers. Involves design, manufacturing, and logistical processes.

**Module 1***Section B: Strategic Scope and Objectives***Term**

Product-mix flexibility

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

**Module 1***Section C: Developing and Managing Organizational Strategy***Term**

Business strategy

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

**Module 1***Section C: Developing and Managing Organizational Strategy***Term**

Order qualifiers

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Those competitive characteristics that a firm must exhibit to be a viable competitor in the marketplace. For example, a firm may seek to compete on characteristics other than price, but in order to “qualify” to compete, its costs and the related price must be within a certain range to be considered by its customers. Syn: qualifiers. See: order losers, order winners.

**Module 1***Section C: Developing and Managing Organizational Strategy***Term**

Order winners

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Those competitive characteristics that cause a firm’s customers to choose that firm’s goods and services over those of its competitors. [These can be considered to be competitive advantages for the firm. They also] usually focus on one (rarely more than two) of the following strategic initiatives: price/cost, quality, delivery speed, delivery reliability, product design, flexibility, after-market service, and image. See: order losers, order qualifiers.

**Module 1***Section C: Developing and Managing Organizational Strategy***Term**

Product profiling

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1) A graphical device used to ascertain the level of fit between a manufacturing process and the order-winning criteria of its products. 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. 2) Removing material around a predetermined boundary by means of numerically controlled machining. The numerically controlled tool path is automatically generated on the system.

**Module 1***Section C: Developing and Managing Organizational Strategy***Term**

Value-driven enterprise

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An organization that is designed and managed to add utility from the viewpoint of the customer in the transformation of raw materials into a finished good or service.

**Module 1***Section D: Functional and Operational Strategies***Term**

Functional strategy

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

**Module 1***Section D: Functional and Operational Strategies***Term**

Operations strategy

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Project

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An endeavor with a specific objective to be met within predetermined time and dollar limitations and that has been assigned for definition or execution. See: project manufacturing, project management.

**Module 1***Section D: Functional and Operational Strategies***Term**

Job shop

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Line

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1) A specific physical space for the manufacture of a product that in a flow shop layout is represented by a straight [one of these]. In actuality, this may be a series of pieces of equipment connected by piping or conveyor systems. 2) A type of manufacturing process used to produce a narrow range of standard items with identical or highly similar designs. Production volumes are high, production and material handling equipment is specialized, and all products typically pass through the same sequence of operations. See: assembly line.

**Module 1***Section D: Functional and Operational Strategies***Term**

Continuous manufacturing

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Cost-volume-profit analysis

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

**Module 1***Section D: Functional and Operational Strategies***Term**

Fixed cost

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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**

Variable cost

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

**Module 1***Section D: Functional and Operational Strategies***Term**

Total cost curve

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Break-even point

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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. See: total cost curve.



**Module 1***Section D: Functional and Operational Strategies***Term**

Contribution margin

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

**Module 1***Section D: Functional and Operational Strategies***Term**

Break-even analysis

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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**

Sales mix

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

**Module 1***Section D: Functional and Operational Strategies***Term**

Capacity strategy

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Capacity planning

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Surge capacity

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

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Lead capacity strategy

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Lag capacity strategy

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Tracking capacity strategy

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Marketing strategy

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Four Ps

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A set of marketing tools to direct the business offering to the customer. [This includes] product, price, place, and promotion.

**Module 1***Section D: Functional and Operational Strategies***Term**

Logistics

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Disintermediation

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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 increase among the remaining echelons. See: echelon.

**Module 1***Section D: Functional and Operational Strategies***Term**

Operational plan(s)

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Make-or-buy decision

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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.

**Module 1***Section D: Functional and Operational Strategies***Term**

Insourcing

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

**Module 1***Section D: Functional and Operational Strategies***Term**

Licensing

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Push system

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Demand-driven material requirements planning (DDMRP)

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Demand-driven supply network

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Pull system

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Decoupling points

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Engineer-to-order

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Make-to-order

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Option

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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.

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Assemble-to-order (ATO)

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Component

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Make-to-stock

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Mass customization

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Postponement

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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. Sometimes referred to as delayed differentiation.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Modular design strategy

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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. [...].

**Module 1***Section E: Environments, Types, and Layouts***Term**

Modularization

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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.



**Module 1***Section E: Environments, Types, and Layouts***Term**

Group technology (GT)

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Package to order

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Remanufacturing

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Manufacturing strategy

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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).

**Module 1***Section E: Environments, Types, and Layouts***Term**

Manufacturing philosophy

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Manufacturing environment

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Manufacturing process

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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**

Facility layout

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Delivery lead time

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Customer tolerance time

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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.

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Supplier lead time

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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.

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Procurement lead time

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Purchasing lead time

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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.

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Manufacturing lead time

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Project management

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Gantt chart

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The earliest and best-known type of planning and control chart, especially designed to show graphically the relationship between planned performance and actual performance over time. [This] chart is 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. Syn: job progress chart, milestone chart.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Intermittent production

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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.

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Flow processing

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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.]

**Module 1***Section E: Environments, Types, and Layouts***Term**

Flow shop

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Discrete manufacturing

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Repetitive manufacturing

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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. Syn: repetitive process, repetitive production. See: project manufacturing.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Assembly line

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Production line

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

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Continuous production

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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.

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Fixed-position layout

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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.

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Functional layout

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Cellular layout

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An equipment configuration to support cellular manufacturing.

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Cellular manufacturing

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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**

Product-based layout

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

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Product layout

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Focused factory

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Process flexibility

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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.



**Module 1***Section E: Environments, Types, and Layouts***Term**

Cell

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Work cell

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

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Nesting

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

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U-lines

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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.

**Module 1***Section E: Environments, Types, and Layouts***Term**

Service

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

**Module 1***Section E: Environments, Types, and Layouts***Term**

Work breakdown structure

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

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Performance measurement system

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Standard

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Tactical plan

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Key performance indicator (KPI)

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

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Global measurements

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

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Local measures

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Supply Chain Operations  
Reference (SCOR) model

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Upside supply chain flexibility

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A discrete measurement of the amount of time it takes a supply chain to respond to an unplanned 20 percent increase in demand without service or cost penalty.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

SCOR metrics

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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**

Balanced scorecard

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A list of financial and operational measurements used to evaluate organizational or supply chain performance. The dimensions of [this] 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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Net operating cash flow

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Current ratio

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Current assets divided by current liabilities.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Quick asset ratio

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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.

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Inventory turnover

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Cash conversion cycle

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Cash-to-cash cycle time

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Operational performance measurements

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Quality control

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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/control.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Cost center

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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.

**Module 1***Section F: Performance Monitoring and KPIs***Term**

Labor standard

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

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Total factor productivity

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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).

**Module 1***Section G: Risk Management***Term**

Resiliency

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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.

**Module 1***Section G: Risk Management***Term**

Risk management

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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.

**Module 1***Section G: Risk Management***Term**

Risk tolerance

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

**Module 1***Section G: Risk Management***Term**

Risk register

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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.

**Module 1***Section G: Risk Management***Term**

Failsafe work methods

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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.



**Module 1***Section G: Risk Management***Term**

Risk acceptance

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

**Module 1***Section G: Risk Management***Term**

Risk avoidance

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

**Module 1***Section G: Risk Management***Term**

Risk mitigation

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

**Module 1***Section G: Risk Management***Term**

Redundancy

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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**

Contingency planning

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Capital budgeting

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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.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Opportunity cost

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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.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Sunk cost

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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. Capital already invested that for some reason cannot be retrieved. 2) 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.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Return on investment (ROI)

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A relative measure of financial performance that provides a means for comparing various investments by calculating the profits returned during a specified time period. In the theory of constraints, [this] is calculated as throughput minus operating expense divided by investment.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Residual income

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Economic value added

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Payback

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Time value of money

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1) The cumulative effect of elapsed time on the money value of an event, based on the earning power of equivalent invested funds. See: future worth, present value. 2) The interest rate that capital is expected to earn.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Discounted cash flow

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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.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Net present value (NPV)

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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.

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Internal rate of return

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Hurdle rate

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The minimum acceptable rate of return on a project.

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Profitability index

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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.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Total productive maintenance (TPM)

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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.

**Module 1***Section H: Capital Equipment and Facilities***Term**

Scheduled downtime

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Environmentally responsible business

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

**Module 1***Section H: Capital Equipment and Facilities***Term**

Hazmat

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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.

**Module 1***Section I: Sustainability Strategies***Term**

Sustainability

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

**Module 1***Section I: Sustainability Strategies***Term**

Social responsibility

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

**Module 1***Section I: Sustainability Strategies***Term**

Logistics social responsibility

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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.

**Module 1***Section I: Sustainability Strategies***Term**

Stakeholders

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

**Module 1***Section I: Sustainability Strategies***Term**

Triple bottom line (TBL)

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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.

**Module 1***Section I: Sustainability Strategies***Term**

Life cycle costing

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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.

**Module 1***Section I: Sustainability Strategies***Term**

ISO 14000 Series Standards

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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.

**Module 1***Section I: Sustainability Strategies***Term**

Life cycle assessment (LCA)

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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.

**Module 1***Section I: Sustainability Strategies***Term**

ISO 26000

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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**

United Nations Global Compact

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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.



**Module 1***Section I: Sustainability Strategies***Term**

UN Global Compact Management Model

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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.

**Module 1***Section I: Sustainability Strategies***Term**

Green manufacturing

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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.

**Module 1***Section I: Sustainability Strategies***Term**

Design for the environment (DFE)

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

**Module 1***Section I: Sustainability Strategies***Term**

Certification audits

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

**Module 1***Section I: Sustainability Strategies***Term**

Global Reporting Initiative (GRI)

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

**Module 1***Section I: Sustainability Strategies***Term**Global Reporting Initiative  
(GRI) Reporting Framework

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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.