Module 8
Section A: Optimizing Supply Chain Strategy and Tactics

Term
Bullwhip effect

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Term
Business plan

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Term
Business strategy

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Term
Capacity

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Term
Competitive analysis

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Term
Customer service

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Term
Demand-driven material requirements planning (DDMRP)

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Term
Demand-driven supply network

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.

An extreme change in the supply position upstream in a supply chain generated by a small change in demand downstream in the supply chain. Inventory can quickly move from being backordered to being excess. This is caused by the serial nature of communicating orders up the chain with the inherent transportation delays of moving product down the chain. [This] can be eliminated by synchronizing the supply chain.

1) The capability of a system to perform its expected function. 2) The capability of a worker, machine, work center, plant, or organization to produce output per time period. Capacity required represents the system capability needed to make a given product mix (assuming technology, product specification, etc.). As a planning function, both capacity available and capacity required can be measured in the short term (capacity requirements plan), intermediate term (rough-cut capacity plan), and long term (resource requirements plan). Capacity control is the execution through the I/O control report of the short-term plan. Capacity can be classified as budgeted, dedicated, demonstrated, productive, protective, rated, safety, standing, or theoretical. See: capacity available, capacity required. 3) Required mental ability to enter into a contract.

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

1) The ability of a company to address the needs, inquiries, and requests of customers. 2) A measure of the delivery of a product to the customer at the time the customer specified.

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

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.

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Term
Economic value added (EVA)

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Term
Efficiency

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Term
Functional product

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Term
Global strategy

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Term
Inventory optimization

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Term
Mass marketing

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Term
Multicountry strategy

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Term
Operations research

A measurement (usually expressed as a percentage) of the actual output relative to the standard output expected. [This] measures how well something is performing relative to existing standards; in contrast, productivity measures output relative to a specific input (e.g., tons/labor hour). [It] is the ratio of (1) actual units produced to the standard rate of production expected in a time period, or (2) standard hours produced to actual hours worked (taking longer means less [of this]), or (3) actual dollar volume of output to a standard dollar volume in a time period. For example: (1) There is a standard of 100 pieces per hour and 780 units are produced in one eight-hour shift; [this] is 780 ÷ 800 converted to a percentage, or 97.5 percent. (2) The work is measured in hours and took 8.21 hours to produce 8 standard hours; [this] is 8 ÷ 8.21 converted to a percentage, or 97.5 percent. (3) The work is measured in dollars and produces $780 with a standard of $800; [this] is $780 ÷ $800 converted to a percentage, or 97.5 percent.

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

A strategy that focuses on improving worldwide performance through the sales and marketing of common goods and services with minimum product variation by country. Its competitive advantage grows through selecting the best locations for operations in other countries. See: multinational strategy.

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

The strategy of sending the same message to all potential customers.

A computer application that can find optimal inventory strategies and policies related to customer service and return on investment over several echelons of a supply chain.

1) The development and application of quantitative techniques to the solution of problems. More specifically, theory and methodology in mathematics, statistics, and computing are adapted and applied to the identification, formulation, solution, validation, implementation, and control of decision-making problems. 2) An academic field of study concerned with the development and application of quantitative analysis to the solution of problems faced by management in public and private organizations. Syn.: management science.

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

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Term
Organizational design

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Term
Postponement

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Term
Product differentiation

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Term
Pull system

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Section A: Optimizing Supply Chain Strategy and Tactics

Term
Push system

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Term
Return on assets (ROA)

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Term
Return on investment (ROI)

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Term
Spend management

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.

The creation of an organizational structure to support the strategic business plans and goals of an enterprise (e.g., for-profit versus not-for-profit companies). Given the mission and business strategy, the organizational structure design provides the framework within which the business operational and management activities will be performed.

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.

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

Net income for the previous 12 months divided by total assets. See: return on owner's equity (ROE).

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.

Managing the outflow of funds in order to buy goods and services. The term is intended to encompass such processes as outsourcing, procurement, e-procurement, and supply chain management.

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

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Term
Strategic plan

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Term
Strategy

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Term
Target costing

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Term
Value

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Term
Value added

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Term
Value chain

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Term
Value stream

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Term
Value stream mapping

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 worth of an item, good, or service.

The process of designing a product to meet a specific cost objective. Target costing involves setting the planned selling price and subtracting the desired profit as well as marketing and distribution costs, thus leaving the required manufacturing or target cost.

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.

1) In accounting, the addition of direct labor, direct material, and allocated overhead assigned at an operation. It is the cost roll-up as a part goes through a manufacturing process to finished inventory. 2) In current manufacturing terms, the actual increase of utility from the viewpoint of the customer as a part is transformed from raw material to finished inventory; the contribution made by an operation or a plant to the final usefulness and value of a product, as seen by the customer. The objective is to eliminate all non-value-added activities in producing and providing a good or service.

A lean production tool to visually understand the flow of materials from supplier to customer that includes the current process and flow as well as the value-added and non-value-added time of all the process steps. It is used to help reduce waste, decrease flow time, and make the process flow more efficient and effective.

The processes of creating, producing, and delivering a good or service to the market. For a good, [this] encompasses the raw material supplier, the manufacture and assembly of the good, and the distribution network. For a service, [this] consists of suppliers, support personnel and technology, the service “producer,” and the distribution channel. May be controlled by a single business or a network of several businesses.

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Term
Velocity

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Term
Visibility

Module 8
Section B: Sustainability

Term
ANSI Z.10

Module 8
Section B: Sustainability

Term
Accreditation

Module 8
Section B: Sustainability

Term
Certification

Module 8
Section B: Sustainability

Term
Conflict minerals

Module 8
Section B: Sustainability

Term
Environmentally responsible business

Module 8
Section B: Sustainability

Term
Environmentally responsible manufacturing

The ability to view important information throughout a facility or supply chain no matter where in the facility or supply chain the information is located.

1) The rate of change of an item with respect to time. See: inventory turnover, lead time. 2) In supply chain management, a term used to indicate the relative speed of all transactions, collectively, within a supply chain community. [The maximum of this] is most desirable because it indicates higher asset turnover for stockholders and faster order-to-delivery response for customers.

Certification by a recognized body of the facilities, capability, objectivity, competence, and integrity of an agency, service, operational group, or individual to provide the specific service or operation needed. For example, the Registrar Accreditation Board accredits those organizations that register companies to the ISO 9000 Series Standards.

A voluntary consensus standard on occupational health and safety management systems. It uses recognized management system principles in order to be compatible with quality and environmental management system standards such as the ISO 9000 and ISO 14000 Series.

Minerals mined in conditions of armed conflict and human rights abuses, and that are sold or traded by armed groups.

Documentation of competency by a supplier or by an organization, such as ISO 9000 certification. See: supplier certification, ISO 9000.

A collection of manufacturing activities that includes design of the product, facility, manufacturing processes, logistics, and supplier relationships that reduce or eliminate environmental waste through innovation and improvements.

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

Module 8
Section B: Sustainability

Term
Environmentally sensitive engineering

Module 8
Section B: Sustainability

Term
Global Reporting Initiative (GRI)

Module 8
Section B: Sustainability

Term
Global Reporting Initiative (GRI) Reporting Framework

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Term
ISO 14000 Series Standards

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Term
ISO 26000

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Section B: Sustainability

Term
ISO 9000

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Section B: Sustainability

Term
Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises

Module 8
Section B: Sustainability

Term
SA8000

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

Designing with consideration of how a product or its packaging will ultimately be disposed.

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.

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 set of international standards about quality management and quality assurance developed to help companies effectively document the quality system elements to be implemented to maintain an efficient quality system. The standards, initially published in 1987, are not specific to any particular industry, product, or service. The standards were developed by the International Organization for Standardization, known as ISO, a specialized international agency for standardization composed of the national standards bodies of 91 countries. The standards underwent major revision in 2015 and now include ISO 9000:2015 (definitions), ISO 9001:2015 (requirements), and ISO 9004:2015 (guidance).

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.

A widely recognized international standard for managing human rights in the workplace. It provides an auditable framework for assuring that social accountability is being stewarded by an organization.

A set of recommendations about responsible business conduct addressed by governments to multinational enterprises (MNEs) operating in or from adhering countries that encourage and maximize the positive impact MNEs can make to sustainable development and enduring social progress. See: multinational corporation.

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Section B: Sustainability

Term
Sustainability

Module 8
Section C: Technology Trends

Term
3D printing

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Section C: Technology Trends

Term
Analytics

Module 8
Section C: Technology Trends

Term
Artificial intelligence (AI)

Module 8
Section C: Technology Trends

Term
Automated guided vehicle system (AGVS)

Module 8
Section C: Technology Trends

Term
Blockchain

Module 8
Section C: Technology Trends

Term
Cloud computing

Module 8
Section C: Technology Trends

Term
Digital twin

The process of layering materials to make products and components using computer data. Syn.: additive manufacturing. See: rapid prototyping.

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

Computer programs that can learn and reason in a manner similar to humans. The problem is defined in terms of states and operators to generate a search space that is examined for the best solution.

The review of typically large sets of business data using mathematics, statistics, and computer software to identify meaningful patterns in the data to help in decision-making.

A continuously growing list of records, called blocks, which are linked and secured using cryptography. Each block typically contains a cryptographic hash of the previous block, a timestamp, and transaction data. The data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, inherently making it resistant to modification.

A transportation network that automatically routes one or more material handling devices, such as carts or pallet trucks, and positions them at predetermined destinations without operator intervention.

An exact virtual replica or model of a real-world process, product, or service used to digitally simulate, test, model, and monitor it.

An emerging way of computing in which data is stored in massive data centers that can be accessed from any computer connected to the internet.

Module 8
Section C: Technology Trends

Term
Expert system

Module 8
Section C: Technology Trends

Term
Gap analysis

Module 8
Section C: Technology Trends

Term
Heuristics

Module 8
Section C: Technology Trends

Term
Information system architecture

Module 8
Section C: Technology Trends

Term
Internet of things (IOT)

Module 8
Section C: Technology Trends

Term
Learning curve

Module 8
Section C: Technology Trends

Term
Machine learning

Module 8
Section C: Technology Trends

Term
Project management

A tool designed to assess the differences between a service that is offered and customer expectations.

A type of artificial intelligence computer system that mimics human experts by using rules and heuristics rather than deterministic algorithms.

A model of how the organization operates regarding information. The model considers four factors: (1) organizational functions; (2) communication of coordination requirements; (3) data modeling needs; and (4) management and control structures. [This] should be aligned with and match the architecture of the organization.

A form of problem solving in which the results or rules have been determined by experience or intuition instead of by optimization. Heuristics can be used in such areas as forecasting, lot sizing, or determining production, staff, or inventory levels.

A curve reflecting the rate of improvement in time per piece as more units of an item are made. A planning technique, [this] is particularly useful in project-oriented industries in which new products are frequently phased in. The basis for the [this] calculation is that workers will be able to produce the product more quickly after they get used to making it. Syn.: experience curve, manufacturing progress curve.

An environment in which objects, animals or people are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. This allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration between the physical world and computer-based systems.

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.

Artificial intelligence software that is capable of analysis, self-training, and observation to improve its own performance. It is often used to assist with planning and forecasting.

Module 8
Section C: Technology Trends

Term
Robotic process automation (RPA)

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Section C: Technology Trends

Term
Sensors

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Term
Supply chain control towers

Module 8
Section C: Technology Trends

Term
Wearable

Module 8
Section C: Technology Trends

Term
Work breakdown structure

Module 8
Section C: Technology Trends

Term
augmented reality (AR)

Devices that can monitor differences in conditions to control equipment on a dynamic basis.

The use of software robots (also referred to as “bots”) to emulate human execution of repetitive, pre-defined business processes.

A form of technology worn on the body that allows hands-free work by being voice and/or gesture activated. Wearables can be used for a wide variety of activities within a supply chain, including tracking activity levels, distances moved to execute transactions, and even the exact location of workers in the warehouse. Syn.: wearables.

A centralized hub that provides an integrated, complete view of data across the end-to-end supply chain. The system allows the supplier to see the requirements and inventory levels at the customer’s site, enhances the ability to get accurate information about supply location and availability, and highlights any potential excess inventory. Similarly, it helps the customer easily identify supply and demand variations and take necessary actions to return excess inventory.

Using holographic imagery alongside the physical environment to provide additional information or guidance about how to carry out a task. For example, warehouse employees can wear AR-enabled smart glasses to see information about the locations of items as well as instructions about what items and quantities to pick when pulling material to fill an order.

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