Module 8
Section A: Optimizing Supply Chain Strategy and Tactics

Term
Bullwhip effect

Module 8
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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 statement. A business plan is usually stated in terms of dollars and grouped by product family, which is then translated into tactical functional plans through the production planning process or the sales and operations planning (S&OP) process. See: business planning, 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. The bullwhip effect 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 executed through the input/output 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) The required mental ability to enter into a contract.

A plan for choosing how to compete. Business strategies can be classified into four general categories: (1) least cost, (2) differentiation, (3) focus, and (4) best cost.

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 network 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

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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
Key success factors

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Term
Mass marketing

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Term
Multicountry strategy

A measurement (usually expressed as a percentage) of the actual output relative to the standard output expected. Efficiency measures how well something is performing relative to existing standards; in contrast, productivity measures output relative to a specific input (e.g., tons per labor hour). Efficiency is the ratio of (1) actual units produced to the standard rate of production expected in a time period, (2) standard hours produced to actual hours worked (taking longer means less efficiency), or (3) actual dollar volume of output to a standard dollar volume in a time period.

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. The firm's competitive advantage grows through selecting the best locations for operations in other countries. See: multinational strategy.

Mature products that tend to have long product life cycles, low profit margins, and predictable demand. Ant.: innovative product.

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

A computer application that can find optimal inventory strategies and policies related to customer service and return on investment over multiple echelons of a supply chain. The optimization happens simultaneously across all inventory stocking points in the supply chain and accounts for random variability. This practice is traditionally used for the replenish-to-forecast process as an alternative to pull-based replenishment, but it also can be used to calculate reorder points. See: inventory management system.

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.

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

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Term
Operations research

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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)

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's operational and management activities will be performed.

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

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 reduces excess finished goods in the supply chain. Syn.: delayed differentiation.

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 the issuing of material to a job order at its start time. 3) In distribution, a system for replenishing field warehouse inventories in which replenishment decision-making is centralized, usually at the manufacturing site or central supply facility. See: pull system.

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 in which replenishment decisions are made at the field warehouse itself, not at the central warehouse or plant.

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 theory of constraints, ROI is calculated by subtracting operating expenses from throughput and then dividing that amount by the investment. See: payback.

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

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Term
Spend management

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Term
Strategic plan

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Section A: Optimizing Supply Chain Strategy and Tactics

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

A plan for how to marshal and determine actions to support the mission, goals, and objectives of an organization. A strategic plan generally includes an organization's explicit mission, goals, and objectives as well as the specific actions needed to achieve those goals and objectives. See: business plan, strategic planning, strategy, tactical plan(s).

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.

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.

For an enterprise, identifies how the company will function in its environment. The strategy 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.

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 manufacturing, the actual increase of utility from the viewpoint of the customer as a part is transformed from raw material to finished inventory. It also refers to 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.

The worth of an item, good, or service. Value is often determined by what the customer is willing to pay.

The processes of creating, producing, and delivering a good or service to the market. For a good, the value stream encompasses the raw material supplier, the manufacture and assembly of the good, and the distribution network. For a service, the value stream consists of suppliers, support personnel and technology, the service producer, and the distribution channel. A value stream may be controlled by a single business or a network of several businesses.

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.

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Term
Value stream mapping (VSM)

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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

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Section B: Sustainability

Term
Certification

Module 8
Section B: Sustainability

Term
Conflict minerals

Module 8
Section B: Sustainability

Term
Environmentally responsible business

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. A maximum velocity is most desirable because it indicates higher asset turnover for stockholders and faster order-to-delivery response for customers.

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.

A voluntary consensus standard for 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 9000:2015 and ISO 14000 family of standards.

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.

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

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 9000:2015 Series Standards.

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

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

Module 8
Section B: Sustainability

Term
Environmentally responsible manufacturing

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) Standards

Module 8
Section B: Sustainability

Term
ISO 14000 family of standards

Module 8
Section B: Sustainability

Term
ISO 26000:2010

Module 8
Section B: Sustainability

Term
ISO 9000:2015

Module 8
Section B: Sustainability

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

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

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.

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

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

An international standard developed by the International Organization for Standardization (ISO) to assist organizations in contributing to sustainable development beyond legal compliance through a common understanding of social responsibility.

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

A 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.

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 (ISO).

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Section B: Sustainability

Term
SA8000

Module 8
Section B: Sustainability

Term
Sustainability

Module 8
Section C: Technology Trends

Term
3D printing

Module 8
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

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

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.

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.

The capability of constructing three-dimensional objects through the use of a digital model. See: additive manufacturing, rapid prototyping.

A material handling network that automatically routes devices, such as carts or pallet trucks, from one location to another through the use of guided paths or electronic navigation systems.

1) Machines or computer programs that can learn, reason, and take action, similar to humans. 2) An area of computer science that attempts to develop AI computer programs. See: artificial general intelligence (AGI), artificial superintelligence (ASI), expert system.

The use of computer resources, such as data storage and applications, which are accessed by any computer through the internet. See: hybrid cloud, private cloud, public cloud.

A technology using a distributed ledger that stores information about transactions that can be viewed by many entities within the supply chain. A blockchain cannot be altered, thereby creating a permanent record of the transaction and facilitating more effective visibility and transparency of product movement throughout the supply chain. See: cryptocurrency, decentralized computer network, lot control.

Module 8
Section C: Technology Trends

Term
Digital twin

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
Heuristic

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 (ML)

A type of artificial intelligence that mimics human experts by using rules and heuristics rather than deterministic algorithms. See: artificial intelligence (AI).

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

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.

The assessment of the differences between the actual performance of a product or service and customer expectations.

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.

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. The architecture of the information system should be aligned with and match the architecture of the organization.

Artificial intelligence (AI) tools that allow machines to learn from experience and be capable of analysis, self-training, and observation to improve their performance.

A graph depicting the relationship between the number of times workers repeat tasks and the amount of time it takes them to complete each task. As workers perform a task more often, their performance improves and they take less time to complete subsequent iterations of the task. Syn.: experience curve.

Module 8
Section C: Technology Trends

Term
Project management

Module 8
Section C: Technology Trends

Term
Robotic process automation (RPA)

Module 8
Section C: Technology Trends

Term
Sensors

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Section C: Technology Trends

Term
Supply chain control tower

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)

The use of automated robotic equipment or technology to perform standard, repetitive, rule-based tasks in place of human effort in order to improve speed, efficiency, and accuracy.

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.

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. See: digital twin.

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

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

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.

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.