Supply Chain Management (SCM) Applications: Perspective

Summary

SCM functionality continues to enhance supply chain business relationships, transactions and communication. More recent SCM advances are available due to increased maturity and use of the Web.

Table of Contents

- Technology Basics
- Technology Analysis
- Business Use
- Benefits and Risks
- Standards
- Selection Guidelines
- Technology Leaders
- Recommended Gartner Research
- Insight

List Of Tables

- Table 1: Features and Functions: SCM Business Processes
Supply Chain Management (SCM) Applications: Perspective

Technology Basics

SCM is defined as a business strategy to improve shareholder and customer value by optimizing the flow of products, services and related information from source to customer. SCM encompasses the processes of creating and fulfilling the market’s demand for goods and services. It is a set of business processes encompassing a trading partner community engaged in the common goal of satisfying the end customer. Thus, a supply chain process can stretch from a supplier’s supplier to a customer’s customer. Functionally, SCM encompasses both transactional execution systems, such as enterprise resource planning (ERP), warehouse management system (WMS), manufacturing execution system (MES), transportation management system (TMS), and international trade system (ITS), and supply chain analytics, such as data warehousing.

SCM software solutions consist of a series of integrated applications designed to automate supply chain processes. As the Web continues to stabilize as a computing platform, SCM technology is embracing the “extended” supply chain, using related technologies and standards to link supply chains with other supply chains. Collaboration, transaction processing and information among supply chain participants are also key elements of SCM.

At a high level, SCM software is segmented into planning components and execution components. Planning deals with activities such as developing demand forecasts, establishing relations with suppliers, planning and scheduling manufacturing operations, and developing metrics to ensure efficient and cost-effective operations. Execution functions manage the processes and activities to ensure completion of the plans, including creating purchase orders, taking customer orders, updating inventory, managing movement of products in the warehouse and delivering goods to the customer. Supplier relationship management (SRM) provides a systematic approach to supplier evaluation, selection and ongoing relationship management, with the goal of cutting the costs of goods and services and boosting profits. SRM spans functional areas and enterprise boundaries, providing important decision support processes and functions to purchasing departments and key decision makers within the supply chain. It uses an extended-enterprise approach to eliminate waste from the supply chain and to re-engineer the processes linking buyers and suppliers.

Use of integrated SCM applications includes resulting data collection on many activities occurring within the chain. Pulling this data from the collection mechanisms and analyzing it enables enterprises to identify operational trends and make informed decisions about supply chain processes, such as how to adjust the processes to better meet customer demand at a lower overall operating cost. The analysis of supply chain data can help enterprises find raw materials, find and evaluate suppliers, manufacture products efficiently, evaluate customer demand and deliver products on time at a competitive price. As SCM matures as a primary focal point tied to business strategies, managers must respond by improving supply chain performance within the enterprise and also across a network of suppliers and distribution channels. This will become increasingly important as SCM involves the management of multicompany channels, as well as cross-functional processes within the enterprise.

Standard SCM Processes

• The Plan function crosses all other supply chain processes and focuses on developing a strategy to balance resources, including supply and demand, to meet customer demand. Part of the planning function establishes processes to satisfy sourcing, manufacturing, production, and delivery requirements, and to define metrics to monitor the supply chain. The planning process also attempts to ensure effective management of enterprise business rules and adherence of the supply chain plan with a financial plan. Planning applications support each of the major supply chain steps. Demand
Supply Chain Management (SCM) Applications: Perspective

planning applications help users determine how much product an enterprise will have to make to satisfy variant customer demand. As part of the planning software, constraint-based optimization engines consider multiple resource constraints (associated with capacity, labor, demand satisfaction, inventory replenishment and shipping) in developing a plan and allow planners to determine the level of planning detail and the extent to which constraints are enforced.

- The Source function helps enterprises choose the suppliers providing components and services for the manufacturing process. In choosing suppliers, the logic can balance price, quality, service levels, delivery time and other factors while simultaneously maximizing purchasing power. As part of the sourcing function, a set of pricing guidelines, delivery and payment processes are defined for the suppliers. Metrics and processes can also be defined for measuring supplier performance, receiving and verifying shipments, and transferring shipments to manufacturing sites.

- The Make function addresses engineer-to-order and make-to-stock/order manufacturing processes and includes functions such as scheduling activities for production, quality control, packaging and releasing the product for delivery. It contributes to the process of finalizing the engineering process for engineer-to-order products, and manages equipment and facilities, transportation, and regulatory compliance for the manufacturing process.

- The Deliver process represents the execution phase of supply chain processes. It includes managing the customer order process; creating the warehouse infrastructure, including inbound logistics, product picking and product loading; choosing and managing transportation to deliver the products; and establishing an invoicing system for payments and management of import/export regulations, as appropriate.

Table 1: Features and Functions: SCM Business Processes

<table>
<thead>
<tr>
<th>Plan</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Advanced Planning and Scheduling (APS)</td>
<td>A subcomponent of supply chain planning (SCP) typically contextually describing manufacturing planning and scheduling.</td>
</tr>
<tr>
<td>Demand Planning</td>
<td>Includes statistical forecasting methods and demand planning tools for developing product forecasts and plans. Considers forecasts from sales, customers or partners with historical information (such as customer orders, shipments or point-of-sale [POS] data) as the industry adopts such technology (no one is currently live on collaboration). The software provides analytical algorithms and forecast techniques. Workflow engines route information from various sources, helping users manage processes and monitor performance.</td>
</tr>
<tr>
<td>Supply Planning</td>
<td>Supports the identification of where to make or buy products, and evaluation of production, storage, and transportation options and constraints. Supports optimization, planning and scheduling to simultaneously plan, schedule and optimize all facilities across all time horizons and across the supply chain.</td>
</tr>
<tr>
<td>Manufacturing Planning</td>
<td>The definition of the weekly or daily production and machine schedules across multiple plants or lines to meet orders and forecast demand. Some manufacturing planning modules also incorporate materials planning.</td>
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<tr>
<td>Distribution Planning</td>
<td>The ability to assess where products and services should be deployed and determine the stock-keeping unit/location-level replenishment plan. Helps organizations maintain a balance between inventory costs and customer service levels, using enterprise-defined guidelines to determine the optimal inventory investment over time. Simulations can help users understand the impact of policy changes on inventory investment, turns and customer service levels. Strategic components help optimize strategic inventory investment decisions, using stochastic optimization technology, which considers the variation in supply and demand in the supply chain. This allows users to specify target customer service levels.</td>
</tr>
<tr>
<td>Transportation Planning</td>
<td>Enables users to balance logistic strategies, customer service policies, carriers, costs, transit time and other logistic functions. Covers enterprisewide shipping planning, consolidation and receiving activities. Some applications analyze shipping requirements and use rate and carrier databases for all transportation modes to choose the most economical shipping mode and carriers.</td>
</tr>
<tr>
<td>Supply Chain Design</td>
<td>Some applications can plan the location of plants, distribution centers and suppliers to minimize costs. As part of the process, some also balance desired customer service levels with cost.</td>
</tr>
<tr>
<td>Source</td>
<td></td>
</tr>
<tr>
<td>Product Life Cycle</td>
<td>Attempts to dynamically manage product introduction-to-change processes, from design through deployment. Supports creation, maintenance and sharing of engineering data and product content outside of the production environment. Allows collaboration with suppliers on Engineering Change Requests, Engineering Change Orders and Bill of Material (BOM) changes.</td>
</tr>
<tr>
<td>Sourcing</td>
<td>Supports real-time and collaborative negotiations with suppliers. Attempts to streamline RFx processes, including formulating requirements, selecting bidders, receiving bids, negotiating terms and awarding contracts. Can be integrated with procurement, planning and design execution systems to support the sourcing process — from supplier identification through contracting. Attempts to help users optimize products by choosing the best components and suppliers, based on supply and cost, to match sourcing strategies with project-specific priorities.</td>
</tr>
<tr>
<td>Strategic Sourcing</td>
<td>Attempts to develop an optimal sourcing strategy per commodity and supplier, and helps users negotiate the best terms with suppliers and execute on its sourcing strategies. Can identify a supplier’s financial, capacity and performance risks potentially affecting customer service. Considers strategic sourcing processes, such as spend and demand, inventory, supplier performance measures, supplier risk and allocations, contract compliance, outsourced spend data and item-level details.</td>
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<tr>
<td><strong>Purchasing</strong></td>
<td>Designed to help reduce purchasing spend. Manages indirect material, direct goods and strategic multiple region option (MRO) purchases. Manages the purchase of raw material, goods and services. It can load purchase requests from Inventory, Order Management, Projects, Production Planning and Production Management applications. Some applications automate the process of managing contract services, including requisition- and project-based resources and aggregating service suppliers online.</td>
</tr>
<tr>
<td><strong>Trading Partner Management</strong></td>
<td>Designed to help users identify target partners, register them and facilitate collaboration among them. Handles operational management of collaborative trading relationships. Considers defined rules of the business regarding how the enterprise deals with trading partners.</td>
</tr>
<tr>
<td>Make</td>
<td></td>
</tr>
<tr>
<td><strong>Manufacturing Scheduling/Production Planning</strong></td>
<td>Helps manufacturers generate executable plans while optimizing available resources. Production planning logic manages the production process, including production planning, material requirements planning, capacity planning, production control and costs. Assemble-to-Order jobs can be created with pending scheduling status. The scheduler normally reorganizes the job schedule with optimal dates based on overall resource and component constraints. Planners can choose a scheduling strategy and run it in simulation mode to arrive at optimized plans and schedule based on predetermined objectives. Final resource assignment and sequencing of operations can be done manually or via optimization algorithms to create executable plans based on applicable constraints. Scheduling strategies can include infinite scheduling, finite scheduling with forward scheduling only, finite scheduling with backward scheduling only, finite scheduling with backward and forward scheduling, fixed or dynamic pegging and sequencing.</td>
</tr>
<tr>
<td><strong>Production Management</strong></td>
<td>Synchronizes planning and execution of production processes, enabling manufacturers to respond to customer requests or other changes. Employs back flushing, shift reporting, subcontracting and Just-in-Time to match customer demand.</td>
</tr>
<tr>
<td><strong>Flow Manufacturing Control</strong></td>
<td>Flow manufacturing, supported by some vendors, streamlines the material movement process and controls work in process (WIP) by using bar coded Kanban cards or pull lists/tickets. Manufacturers can collaborate with vendors on supplier schedules and shipment requests while considering generated schedules.</td>
</tr>
<tr>
<td><strong>Quality Control</strong></td>
<td>Enables organizations to secure quality goods and information from their manufacturing processes and also from suppliers. Many applications integrate with production, inspection and test equipment through enterprise integration points that use standard Web-based messaging to collect inspection data.</td>
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<tr>
<td><strong>Capable- or Available-to-Promise (CTP or ATP)</strong></td>
<td>Determines the available material and capacity in the supply chain during order entry (before establishing a promise date for customer orders). Provides CTP order validation and reserves the material and capacity if the order is confirmed. Reviews sourcing solutions to determine the optimal location and timing for producing and delivering finished goods. Some applications can automatically source across the supply chain or search the supply chain for available stock, purchases, transfers, production and capacity. Some applications integrate with a Product Configurator to check key components of configured item orders, as well as items, quantities and business units, while the user is configuring the customer order.</td>
</tr>
<tr>
<td><strong>Warehouse Management</strong></td>
<td>Typically supports warehouse resource management and configuration, task dispatching, flexible pick methodologies, advanced material handling and control, material status, advanced lot and serial control, and automated material handling environments. Some applications provide real-time materials management, via wireless mobile RF devices. An inbound logistics function can receive standard purchase orders, blanket purchase order agreements, internal requisitions, internal organizational transfers and record management applications (RMAs). Some applications manage the handling of hazardous materials.</td>
</tr>
<tr>
<td><strong>Transportation Management</strong></td>
<td>Attempts to automate all processes associated with movement of goods, so transportation plans are efficiently scheduled and tracked. Can integrate optimized plans from a transportation planning function with the execution of real-time shipment, and for shipment tracking. Can select carriers based on costs and can also use the integrated tendering process to manage shipments in conjunction with logistic partners. Synchronizes transportation plans with warehouse processes.</td>
</tr>
<tr>
<td><strong>Vehicle Scheduling</strong></td>
<td>Schedules and routes vehicles and optimizes loads for the transportation carrier. Attempts to calculate the best route to follow and minimizes time or distance components to reduce costs. Addresses pickup and delivery issues, such as round trip and multidrop management. Manages constraints, such as vehicle capacity, handling capacity and time windows.</td>
</tr>
<tr>
<td><strong>Returns Management</strong></td>
<td>The Return process enables enterprises to receive products back from customers and return products to suppliers. Specific functions can include return authorizations and scheduling, receiving returned goods, returning replacement products or issuing credits.</td>
</tr>
<tr>
<td><strong>ITS</strong></td>
<td>An execution system designed to automate the import and export of business processes. The basic functional components are trade documentation generation and transmission, and regulatory compliance validation.</td>
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<tr>
<td><strong>Inventory Management</strong></td>
<td>Supports the visibility, monitoring, adjustment and overall control of inventory stock levels to achieve a sufficient amount of each item in stock in relation to demand. Inventory can be managed by the standard supply levels (supply managed inventory, or SMI) of the enterprise or shop floor (that is, maintaining the standard supply levels as outlined by company goals and inventory policy and ordering from suppliers as required). Vendors supplying the stock to the enterprise can also manage inventory (that is, vendor-managed inventory, or VMI), in which the supplier assumes responsibility for maintaining and replenishing the stock when the item’s stock level moves below a given threshold.</td>
</tr>
<tr>
<td><strong>Order Management</strong></td>
<td>Provides the order-taking capability within the supply chain environment. An order management system typically provides the orders to a WMS for execution, such as picking, packing and shipping.</td>
</tr>
<tr>
<td><strong>Supply Chain Inventory Visibility (SCIV)</strong></td>
<td>Allows monitoring and management of events across the supply chain to plan activities more effectively and pre-empt problems. Users can track and trace inventory globally on a line-item level. Users can submit plans and receive alerts when events deviate from expectations. Visibility into orders and shipments on a real-time basis provides advance knowledge of when goods will arrive.</td>
</tr>
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**Technology Analysis**

Process integration, event management and performance measurement are among the most prominent evolutions of SCM software applications and technology.

**Business Process Integration**

Business process integration is playing an increasingly important role in SCM software selection. SCM applications are being extended beyond mere transaction processing functions to support data sharing and process integration within and across enterprise boundaries, allowing SCM applications to connect and execute processes based on interactions with trading partners, as appropriate, to complete a specific business function. For example, in a business process spanning customer order through payment, the processes should seamlessly integrate and execute, covering order taking, inventory search, product configuration, invoicing and electronic payment (if applicable).

**Performance Measurement**

SCM software systems collect supply chain activity data. Open architectures enable integration with third-party and legacy applications, and collaborative environments can support (theoretically — most enterprises are not live with collaboration) data sharing among multiple members of the supply chain both inside and outside the enterprise. Using collected SCM data for analysis is a goal for the vendors competing in the SCM software market. Today, many SCM vendors and niche software providers offer performance measurement tools for collecting, storing and aggregating data from multiple sources — including data from other enterprise software suites (for example, Finance, customer relationship management [CRM], HR) and from participants in the supply chain. Supply chain-specific analytics can pull data from supply chain applications to measure a supplier’s on-time payments, procurement costs, inventory turns and percentage of on-time delivery. SCM software vendors are providing pre-defined supply chain-specific metrics to help users evaluate its tactical and strategic goals. These metrics account
Supply Chain Management (SCM) Applications: Perspective

for contract compliance, shipment accuracy and customer satisfaction. Some vendors offer a balanced scorecard — a strategic management tool translating strategy into action items. A balanced scorecard considers the financial and nonfinancial aspects of operations to help enterprises understand the cause-and-effect relationships between elements of a strategy. It can also indicate an enterprise’s progress toward strategic objectives and show how well an enterprise is performing against pre-defined performance indicators.

Business Use

Integrated supply chain applications provide visibility into supply chain activities both within the enterprise and with trading partners, such as suppliers, distributors and customers. This visibility, in combination with business intelligence capabilities, allows businesses to enhance supply chain operations in ways maximizing revenue and profits and reducing costs. SCM systems can alert managers to business process problems affecting revenue and costs, such as forecast accuracy, fulfillment rates, supplier capacity, inventory holding costs, new component prices, and customer retention and satisfaction. Prepackaged key performance indicators (KPIs) are designed to measure performance of the supply chain and provide real-time feedback to suppliers and other supply chain participants. Specific performance can be tracked against multiple targets, competitors and corporate goals. Performance management tools can provide data to optimize supply chain resources, reduce operational cycle times and monitor forecast accuracy. Real-time visibility into the supply chain gives managers the ability to see changes in demand as reported by customers or changes in supply or supply costs as reported by suppliers or distributors. With this information, businesses can respond more quickly to changes in the supply chain and take appropriate and, at times, preventive action by increasing production, re-allocating inventory to meet new demand, changing suppliers or renegotiating supplier prices. Portal technology provides role-based access to SCM data and analysis. It also provides an infrastructure for application execution, allowing suppliers, customers and manufacturers to engage in self-service interactions, and allowing them to share data and gain role-based visibility into activities within the supply chain of importance to them.

Benefits and Risks

SCM solutions can contribute to increased revenue and reduced cost, as well as increased communication and collaboration among supply chain participants, by providing, among other things, visibility of activities along the extended supply chain. Portal technology provides access to integrated business processes among suppliers, customers and manufacturers, as well as an infrastructure for self-service and role-based analytics. Supply chain visibility allows suppliers to determine the raw materials to order based on a manufacturer's inventory. Manufacturers can minimize inventory by ordering components in smaller quantities from suppliers. Retailers can share sales data with manufacturers to prevent over- or under-stocking of store shelves.

To achieve SCM benefits, however, enterprises must be willing to share operational data with suppliers, customers and other manufacturers — each of which could potentially expose the company to risk. Issues of security risk must be minimized or eliminated, ensuring only appropriate data is released to trading partners. Methods of internal operations should be reviewed and redesigned, when appropriate, to encourage cooperation between suppliers and manufacturers, and between manufacturers and retail customers. For example, closer cooperation between a manufacturer and a retailer may require that the manufacturer take over some inventory management responsibility from the retailer, thus exposing data on the retailer’s demand. The retailer may consider this a risk that its demand data could fall into the hands of a competitor also served by the manufacturer. This risk is attributed to the very slow progress and adoption of collaboration in the marketplace. It also explains why any emerging collaborative SCM environments will likely consist of a manufacturer and its most trusted partners and suppliers.
Standards

Technology Standards

SCM technology standards include, but are not limited to, the following:

- **Extensible Markup Language (XML)** — an interoperability standard supporting application-to-application communications. It is used for business-to-business (B2B) commerce and is the primary format for exchanging data via the Web. It is also an integral component for Simple Object Access Protocol (SOAP) and Universal Description, Discovery and Integration (UDDI). XML was developed by the Standard Generalized Markup Language (SGML) Editorial Board and gained World Wide Web Consortium Recommendation status in early 1998.

- **SOAP** — an XML-based protocol designed to pass messages between systems via the Web. It is typically used to execute remote procedure calls, letting nodes remotely invoke application objects and return results. An “envelope” defines a framework for describing what is in a message and how to process it. A set of encoding rules expresses instances of application-defined data types. A convention represents the remote procedure calls and responses.

- **Web Services Description Language (WSDL)** — an XML format describing network services as a set of endpoint operations on messages containing either document-oriented or procedure-oriented information. The operations and messages are described abstractly and then bound to a concrete network protocol and message format to define an endpoint. Related concrete end points are combined into abstract endpoints.

- **UDDI** — an emerging standard representing a set of protocols, based on XML and HTTP, and directories for the registration and discovery of Web services. It can be used to catalog and publish integration points with business processes both inside and outside the firewall.

- **Electronic Data Interchange (EDI)** — a protocol supporting computer-to-computer exchange of business documents between buyers and sellers, including purchase orders, invoices and advance ship notices. Although EDI is an older version of electronic commerce, it is still widely used.

Process and Nomenclature Standards

SCM process and nomenclature standards include, but are not limited to, the following:

- **RosettaNet** — a community of IT, electronic components and semiconductor manufacturing companies working to create and use open process industry standards to promote universal e-business language aligning processes between supply chain partners. RosettaNet’s Partner Interface Processes (PIPs) define business processes between trading partners.

- **Petroleum Industry Data Exchange (PIDX)** — a committee of the American Petroleum Institute (API). Recognizing the benefits of electronic commerce achievable via use of EDI and XML, the PIDX launched and delegated a task group, called Complex Products and Services Task Group (Com.Pro.Serv.) to promote standard processes for non-catalog, configurable products and services using e-business technology. Another group under the direction of PIDX and API defines a set of industry-specific XML standards supporting such processes.

- **Chemical Industry Data Exchange (CIDX)** — a trade association and standards community focused on defining and promoting universal transactional processes and standards for chemical industry supply chains. CIDX is traditionally focused on improving the overall efficiency of electronic business transactions between chemical companies and their trading partners. CIDX produces standards, guidelines, support materials and communications designed to help users implement chemical
industry standards related to electronic commerce. The group also organizes forums to network and share knowledge between chemical companies and their trading partners.

- The Uniform Code Council, Inc. (UCC) & UCCnet — the UCC is focused on defining and promoting standards for product identification and related electronic communications. UCCnet, the UCC’s subsidiary, uses industry standards to synchronize item information and automate and enhance the transfer of data between trading partners. UCCnet is focused on allowing trading partners served by the UCC to synchronize item information and access compliant business applications and services. The UCCnet delivers standards-compliance verification, synchronization of product data, and registry and life cycle management of synchronized products, user locations and user trade capabilities. UCCnet also provides an implementation methodology.

- The Collaborative Planning, Forecasting and Replenishment Committee (CPFR) — a committee formed by the Voluntary Inter-Industry Commerce Standards (VICS) Association and composed of retailers, manufacturers and software/solution providers. The CPFR develops business processes for use in a supply chain promoting collaboration in buyer/seller functions and efficiency of supply chains. CPFR Voluntary Guidelines are designed to explain business processes, support technology promoting the use of the defined processes and engineer change management when implementing the processes.

- The Global Standards Management Process (GSMP) — European Article Numbering (EAN) International and the UCC created the GSMP to support standards creation for the EAN.UCC System. The GSMP maintains standards-based solutions for global trade using EAN.UCC System technologies. Based on member consensus, input and business needs, the GSMP develops supply chain standards. The UCC manages a numbering system for the U.S. and Canada. EAN International manages the interests of its membership and coordinates activities related to the development, management and promotion of the EAN.UCC System. The EAN.UCC created a data dictionary for storing, reusing and sharing precise core component and business definitions in EDI, XML Auto-ID Center (AIDC) formats. Efforts of the EAN.UCC and GSMP include standardization of specific processes within the supply chain, such as the standardization of international radio frequency identification (RFID) practices, known as global tag (GTAG).

- Global Commerce Initiative (GCI) — a voluntary group formed to promote efficient performance of international supply chains in consumer goods’ verticals via standards definition, promotion and implementation. The GCI created and supports the GCI Intelligent Tagging Initiative (GCI-ITAG), which explores how RFID tags and systems can be used in ways supporting efficiencies in production processes, logistics SCM, store operations, product authentication and shrinkage control.

- Supply Chain Operations Reference model (SCOR) — The Supply Chain Council (SCC) supports a standard process reference model, known as SCOR, for communicating standard SCM practices across companies. SCOR includes a common supply chain framework, terminology, common metrics and benchmarks, and best practices. It can be used as a model for evaluating, positioning and implementing SCM software.

- Auto-ID Center — a community of global companies and research universities, including the Massachusetts Institute of Technology, the University of Cambridge in the U.K. and the University of Adelaide in Australia. The community’s common goal is to create a network featuring a universal infrastructure, systems and standards supporting the cataloging and identification of products, parts, items and components used in a number of industries. The Auto-ID Center designs elements supporting the network, including electronic product code (EPC), specification for inexpensive tags and inexpensive agile readers, Object Naming Service (ONS), Product Markup Language (PML) and
Supply Chain Management (SCM) Applications: Perspective

Savant software. An Auto-ID Center goal is to allow and promote universal identification of RFID-tagged items, regardless of what manufacturer is tagging them.

Selection Guidelines

- Evaluate functional capabilities of the SCM solution, matching the offered functions to identified technology needs of the business’ supply chain. Enterprises should also ensure that the applications support process integration, including intraenterprise processes and interactions with suppliers and customers.
- The software vendor should be able to provide a number of reference accounts that potential customers can contact as part of a software investment evaluation.
- Does the software vendor’s architecture support Web services supporting collaboration among supply chain participants? Does the technical infrastructure support existing functions, such as EDI, as well as XML-based messaging services?
- Does the software vendor offer an open architectural framework supporting integration with third-party software systems, collaboration via the Web and the ability to accept structured and unstructured data?
- Does the vendor support event management capabilities monitoring supply chain events within the enterprise and events related to interaction with suppliers and customers? If the vendor does not yet support event management, determine if and how the vendor plans to support event management in the future.
- Does the vendor offer supply chain-specific analytic tools, with pre-integrated supply chain-specific KPIs? Are the KPIs proprietary? Are they based on standardized industry metrics? Both? Will the KPIs provide accurate and applicable measurements for the specific business? Can they be customized to support company-specific metrics?
- What kind of analytic capabilities are offered? Are they provided natively or via third-party partnership?
- What is the service and support policy and track record of the vendor?
- The SCM marketplace is still volatile, with little or no clear leaders. What is the long-term viability of the vendor? How likely is it that the vendor will continue in the market? Evaluate financial condition and organizational viability, considering factors such as management, organizational structure, and R&D efforts and budget.

Technology Leaders

Currently, there are no clear SCM software leaders, but there are a number of players, with different software market backgrounds and foundations, competing in this market space and offering some, but not all, of the following SCM functional subsets: SCP, System Control Element (SCE), WMS, TMS, SCIV and SRM.

The following vendors support one or more of the aforementioned functional SCM subsets:

- Adexa
- Aldata
- Ariba
Supply Chain Management (SCM) Applications: Perspective

- Arzoon
- Aspen
- Baan
- Demand Solutions
- Descartes
- DL Consultants
- Elogex
- EXE Technologies
- G-Log
- GT Nexus
- Highjump Software
- i2 Technologies
- IBS
- IFS
- Intentia
- Irista
- J.D. Edwards (JDE)
- Leanlogistics
- Logility
- MARC Global Systems
- Manhattan Associates
- Manugistics
- Microsoft
- Nistevo
- NTE
- OMI
- Optum
- Oracle
- PeopleSoft
- Prescient Systems
- RedPrairie (formerly McHugh Software)
Supply Chain Management (SCM) Applications: Perspective

- Retek
- Robocom
- SAP
- SAS
- Schneider Logistics
- SupplyWorks
- Swisslog
- SynQuest
- webplan
- WebWise
- Yantra

Recommended Gartner Research

Multienterprise SCM Solutions Will Come of Age by 2012. SPA-19-1009

Management Update: 2003 SCM Predictions Focus on How to Benefit From Market Chaos. IGG-01082003-03

SCM5 Will Drive the Next Wave of Supply Chain Advantage. SPA-17-4799

2Q02 SCP Magic Quadrant: Out of the Trough. M-17-0635

WMS Magic Quadrant: It's Still a Changing Market. M-16-1463

Insight

Supply chains have been an integral component of any business that buys, makes or sells products. SCM software provides tools to plan and execute the processes necessary to complete specific buy, sell and make functions. However, current competitive pressures and recent technology changes have coalesced so that supply chain management software is becoming more than a static tool used to manage linear processes along the supply chain. SCM software is serving a strategic function in enterprises by making the effective use of the supply chain a competitive differentiator. As a result of an Internet-based infrastructure supporting application integration, data sharing and collaboration among all supply chain trading partners and the use of supply chain-specific analytic software, enterprises can optimize supply chain processes and more effectively meet customer demand at lower, competitive prices.