



## SUPPLY CHAIN MANAGEMENT

AN APPROACH TO UNDERSTANDING

# A White Paper

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About SSP:

**Strategic Solutions Partners, LLC** provides consulting services in business planning, marketing, sales process, research and analysis, supply chain management, process design and implementation, customer satisfaction management and skills training in sales and negotiating. These services are available to clients on an engagement basis, to meet peak workload or specific project demands.

As the outsourcing of project work and core competencies continues to grow, companies increasingly require seasoned professionals able to “hit the ground running” and deliver solutions to time-sensitive projects or business problems. Strategic Solutions Partners offers the services of experienced and talented consultants to meet this need.

About the author:

**Roger W. Lowther**

Roger Lowther has thirty-five years of experience in all aspects of global logistics management including supply chain management, eCommerce, strategic planning, logistics operations, systems integration, business process analysis, financial measurement, customer service and sales & marketing.

Roger began his career with Consolidated Freightways, where he rose to Director of Operations of their airfreight division. He has held senior management positions with Novo Air Freight, WTC Air Freight, Document Express, Distribution Concepts International, MSAS Cargo International, Ernst & Young, Professional Logistics Management and USCO Logistics. Most recently, as Vice President and General Manager of USCO's Transportation Services division, Roger was a key senior executive team member in helping USCO Logistics deliver the “Integrated Logistics Solution” to a wide range of clients.

Roger has designed and implemented supply chain solutions that have substantially reduced costs and improved service for clients across a broad spectrum of industries. He has significant Third Party logistics and transportation outsourcing experience with the primary focus on:

- Client's requirements analysis - “The Opportunity Assessment”
- Marketplace Request for Proposal
- Development of “Best Practice” solutions
- Implementation planning, support and execution
- Establishment and measurement of “key success metrics”

Roger's experience in international transportation management is especially deep in Europe and Asia where he has developed global vendor consolidation programs to optimize transportation of inbound raw materials and products using multiple modes and carriers.

His extensive background in logistics process engineering includes the development and installation of systems for automated event management and Internet applications to reduce cost and improve the quality and timeliness of information.

## **Supply Chain Management** **An Approach to Understanding**

### **Introduction:**

In the past five years alone, hundreds of white papers and “How To” supply chain management books have been written in an effort to help executives, practitioners, consultants and students learn how to improve the performance of any given entity’s global supply chain. The primary challenge for anyone seriously looking at this complex component of the business landscape is to establish a frame of reference and an approach that is truly meaningful for the initiated.

In this white paper we are focused on offering our client’s management team that truly meaningful entry point. We feel this whitepaper will give you an optimal approach and methodology for moving forward to increase your knowledge of and your ability to better understand your customers’ and prospects’ supply chain performance. We offer a strategic approach combined with a tactical execution methodology, but most importantly a measurement model that is accepted globally across multiple industries. We caution the reader to clearly understand that we have only scratched the surface of the effort it will take to effectively understand how to evaluate supply chain performance.

At Strategic Solution Partners (SSP), we have been consistently drawn toward the approach and discipline that has been adopted by a renowned consulting firm in this field, Patiglio, Rabin, Todd & McGrath (PRTM). In a recent book written by two PRTM partners, Shoshanah Cohen & Joseph Roussel, entitled “Strategic Supply Chain Management” you will find a wealth of information for all types of readers to experience and apply as their particular role relates to the supply chain management environment.

Jim Miller, Vice President, Operations, Cisco Systems states: “This book will serve as a timeless tool for those looking to transform their organization’s supply chain into a sustainable competitive advantage.” Many other prominent executives, academics and consultants have added their critical acclaim as well.

This book is about the future, not the past. It structures current emerging best practices into *five core disciplines*:

1. View your supply chain as a strategic asset.
2. Develop an end-to-end process architecture.
3. Design your organization for performance.
4. Build the right collaborative model.
5. Use metrics to drive business success.

“Supply chain management is among the top initiatives for businesses of all sizes. Yet most purchasing, operations and finance managers feel they don’t have good control over their supply chains. Even the most well-informed are saddled with questions about establishing organizational buy-in, defining metrics and benchmarks, optimizing material and transactional flow, and conducting relevant competitive analysis to define business opportunities. The challenges involved in optimizing a company’s supply chain are substantial. But an answer does exist.”

In another prominent reference publication, “Supply Chain Excellence” the authors provide a handbook for dramatic improvement using the SCOR model. The SCOR (Supply Chain Operations Reference) model is a proven methodology developed by the Supply Chain Council (SCC), a nonprofit organization comprised of 700+ companies dedicated to developing and sharing best practices in supply chain management.

Widely accepted as the only cross-industry supply chain standard, SCOR was designed to facilitate the blending of business objectives, strategy, process and technology. But until recently, no good book has been available to engineer improvement using SCC best practices and the SCOR model. This publication is a complete handbook for achieving total supply chain success. It is a concise, practical instruction manual to effectively managing any supply chain. The next few paragraphs, taken directly from the book are designed to give the reader a flavor of what SCOR is and is not.

## The Score Framework

SCOR combines elements of business process engineering, benchmarking and leading practices into a single framework. Under SCOR supply chain management is defined as these integrated processes:

- **PLAN** – Assess supply resources; aggregate and prioritize demand requirements; plan inventory for distribution, production and material requirements and plan rough-cut capacity for all products and all channels.
- **SOURCE** – Obtain, receive, inspect, hold, issue and authorize payment for raw materials and purchased finished goods.
- **MAKE** – Request and receive material; manufacture and test product; package, hold and/or release product.
- **DELIVER** – Execute order management processes; generate quotations; configure product; create and maintain customer database; maintain product/price database; manage accounts receivable, credits, collections and invoicing; execute warehouse processes including pick, pack and configure; create customer-specific packaging/labeling; consolidate orders; ship products; manage transportation processes and import/export and verify performance.
- **RETURN** – Defective, warranty and excess return processing, including authorization, scheduling, inspection, transfer, warranty administration, receiving and verifying defective products, disposition and replacement.

In addition, SCOR version 5.0 includes a series of enable elements for each of the processes. Enable elements focus on information policy and relationships to enable the planning and execution of supply chain activities.

SCOR spans all customer, product and market interactions surrounding sales orders, purchase orders, work orders, return authorizations, forecasts and replenishment orders. It also encompasses material movements of raw material, work-in-process, finished goods and return goods. In version 5.0, SCOR specifically does not address sales processes, product development and customer relationship management processes.

The SCOR model includes three levels of process detail. In practice, Level One defines the number of supply chains and how their performance is measured. Level Two defines the configuration of planning and execution processes in material flow, using standard categories like stock, to-order and engineer-to-order. Level Three defines the business process used to transact sales orders, purchase orders, work orders, return authorizations, replenishment orders and forecasts.

## The SCOR Roadmap

While the framework seems simple, there are multiple levels of detail integrating more than sixty process steps, 200 metrics, fifty leading practices and a hundred potential material flow configurations.

Simply having the dictionary does nothing to save money. You need to do something with it. That's what the SCOR Project Roadmap is about. In four distinct segments, the roadmap addresses operational strategy, material flow and work and information flow. The segments are:

1. Analyze your basis of competition, which focuses on supply chain metrics and operations strategy.
2. Configure supply chain material flow.
3. Align performance levels, practices and systems – the information and work flow.
4. Implement the supply chain changes to improve performance.

In order to truly appreciate the value of utilizing the SCOR model, one must apply it to all eleven scenarios outlined in this handbook for dramatic improvement of supply chain performance.

Much of the material in this whitepaper contains excerpts from these two especially, well written books, along with additional information selected from the many, many other sources available in the marketplace. Both of these publications can be ordered at Amazon.com.

Managing global logistics processes requires the ability to communicate with all the participants involved in bringing product to market. In a recent publication, AMR Research indicated the importance of such a unified platform. "For a lean logistics organization, the inability to track and trace goods has a major impact on production, inventory, and sales plans. Real-time visibility to inventory and shipments and connectivity to trading partners requires an open, secure global network that can integrate different systems, protocols and processes." The right software application enables community members to leverage shared infrastructure, services, and information in a secure environment. A significant opportunity exists for those that do – potential for a 10-30% reduction in inventory and 10-15% decline in shipping costs.

**Helping to solve these communication challenges in the extended supply chain appears to be the "sweet spot" for our client to clearly demonstrate your value proposition. This incredibly increasing need for supply chain visibility in an environment where the customer, inventory and a field force converge is when the value proposition for mobile task automation is the highest.**

## What Is Supply Chain Management?

Supply Chain Management (SCM) is the planning and execution of supply chain activities, ensuring a coordinated flow within the enterprise and among integrated companies. These activities include purchasing and procurement, the sourcing of raw materials and parts, sales forecasting, manufacturing and assembly, inventory management, warehousing and inventory tracking, order entry and order management, distribution across all channels and, ultimately, delivery to the customer. The primary objectives of SCM are to reduce supply costs, improve product margins, increase manufacturing throughput, and improve return on investment while providing a high level of customer satisfaction.

## Brief History of Supply Chain Management

The post-World War II supply chain was a set of linear, individualized processes that linked manufacturers, warehouses, wholesalers, retailers and consumers together in the form of a human/paper chain. "People and paper physically connected all of the tiers of the chain together," which often created miscommunication between the front and back-end processes. The synching of procurement, demand planning and forecasting, inventory management, shipping and tracking was far from a definitive science. However, as manufacturing and economic growth flourished during the 1950s, there developed a greater interest in the need for SCM.

The 1960s saw the birth of the first inventory management software systems, which were typically customized, to aid inventory control in the manufacturing sector. In the 1970s, SCM innovations brought forth Material Requirements Planning (MRP) – a system that phases out the release of production and purchase orders to ensure that the flow of raw materials and in-process inventories matches the manufacturer's production schedules for finished products. By the 1980s, Manufacturing Resources Planning (MRP-II) was developed, bringing with it systems that could be used for planning all manufacturing resources, including those related to operational planning, financial planning, business planning, capacity requirements planning, and master production scheduling. It was MRP-II's extension into the business enterprise that evolved into an entirely new information technology sector: Enterprise Resource Planning, or ERP.

In 1988, SCM took a significant leap of its own. Sanjiv Sidhu, founder of Dallas, Texas-based i2 Technologies and a former artificial intelligence expert with Texas Instruments, developed a new breed of software that was based upon the "theory of constraints." Sidhu's product would allow a company's factories to communicate internally, with each other, and with headquarters to improve the flow of materials and orders. By 1997, this software had become Internet-enabled. Other firms have since developed expertise in either specific industries, such as consumer goods and process industries, or very specific niches of the supply chain, such as execution and tracking.

SCM has taken on additional names, such as business-to-business or B2B. Its processes and capabilities have also allowed for more focused, "one-on-one" extensions – namely exchanges. An exchange is a two-sided marketplace where buyers and suppliers negotiate prices and fulfill online transactions between one another and are either private or public. For example, a private exchange would involve Company A selling widgets to Company B, meeting together on a secure web site to place and fulfill orders exclusively and by invitation only; a public exchange is more of an auction or bidding place for pre-qualified subscribers or members.

## ERP and SCM: The Fuzzy Line

ERP has its roots in the supply chain, but as each market has grown, both the interdependence and distinction between the two have also grown. ERP software was originally developed to support transaction processing, data collection and data reporting, but these systems lack real-time analysis and reporting tools to support multiple, highly complex business decisions. Large ERP systems also lack business process flexibility. Lastly, ERP systems only provide narrow, one-dimensional planning and are incapable of presenting "multiple constraints simultaneously." Comparatively, SCM systems were designed to be dynamic – to provide data analysis and planning, business process flexibility and real-time visibility.

## SCM Technologies

SCM has grown exponentially as a result of the growth of information technology and the Internet; however, two of the most crucial elements of an effective supply chain are communication and the transmission of data – within departments, throughout the company, with customers and with trading partners. One such technology that is used to allow unrelated companies to communicate and process business transactions electronically is Electronic Data Interchange (EDI), which is also an ANSI X.12 standard. The data exchanged can include anything from purchase orders to invoices to shipping and receiving information. Another technology is the Extensible Markup Language, or XML, which has been a recommendation of the World Wide Web Consortium since February 1998. XML is a flexible format for providing data through the Internet, intranets, and other information distribution channels where no common platform is shared. Other advances in supply chain communication technology include RosettaNet, a private, industry funded consortium working to create and implement Partner Interface Processes, or an industry wide, open e-business process standard.

## The Future of Supply Chain Management

The supply chain of the 21st century is fast becoming a fully automated supply chain "network;" it will be as much about technology and communication as it will be about trust. Allowing supply chain customers and manufacturers direct access to sales forecasts and cost structures as well as manufacturing and inventory management processes. Though making the technology changes will be difficult, getting suppliers and manufacturers – traditional adversaries – to trust each other enough to share their most sensitive supply chain information in real-time over the Internet will demand heroics. The supply chain has also become a more collaborative environment in that it has emerged from internal personnel, business partners and the trading community as an opportunity to discover "new, innovative ways of solving business problems and capturing new business.

***How do you construct a supply chain that will yield a competitive advantage? Measuring and analyzing performance to clearly established goals are key success metrics.***

### ***The Business Issue***

Global markets, multi-tier distribution networks, overseas manufacturing, third party logistics (3PL) service providers, carriers, customs, international trade and of course suppliers and customers all have to be integrated and managed effectively.

In a global economy, companies simply do not enjoy direct control over their supply chains. The average international logistics shipment requires 10 to 20 unique messages across many combinations of partners, as purchase orders are executed, orders allocated and split, Advanced Shipping Notices (ASNs) transmitted, product routed, and financial settlements are executed.

To effectively compete, linear supply chains have transitioned into complex networks. Firms have looked to outsource fundamental operations, often without establishing clear mechanisms for maintaining visibility and inventory control. This gap leaves critical information needed to achieve improvements in operational efficiency in the hands of trade partners. Transportation service providers generate nearly 60% of documentation and messaging, and yet primary responsibility for inventory flow remains with manufacturers and distributors. This creates a significant challenge, as information, documentation and inventory flows all must be coordinated.

As a result, the last 20 years have been awash with concepts, technologies and strategies all aimed at facilitating inter-enterprise logistics processes. Quick Response (QR), Vendor Managed Inventory (VMI), Collaborative Planning Forecasting and Replenishment (CPFR), Collaborative Transportation Management (CTM) are but a sampling of the alphabet soup of initiatives that have led to incremental change, but not to quantum improvements. The resulting gains realized, however, tend to have focused on a very select group of partners. Yet supply chain communities effectively include thousands of companies. Real business value requires widespread adoption, and processes must accommodate the unique rules, policies and practices that define each relationship.

At the same time, many technology solutions look to their customer firms to adopt the role of network facilitator and systems integrator. With heightened expectations from both end customers and financial markets, companies simply cannot dedicate extensive resources to roles that drain effort away from the core business of doing business. Rather, they must drive greater efficiency, responsiveness, and precision from their supply chain. The answer lies in a flexible framework that supports logistics business processes and connects trading partners.

### ***Managing for Global Complexity***

Logistics management often is confused with planning shipments for a single enterprise. As more supply chain moves are made outside of a firm's direct purview and value-added services become a means of competitive survival, logistics must extend its reach across the entire supply chain community. With the advent of Internet technologies, and emphasis on collaborative techniques, why has logistics connectivity remained such a challenge? Because most approaches ignore the need to tightly couple contract management, logistics content and messaging for both the buyers and the sellers of transportation services.

During the 1980s and 1990s, many companies sought to improve operational efficiency by outsourcing logistics functions outside of their core competency. The resulting globally dispersed supply chains — along with more exacting customers — make staying connected a business imperative and flexibility a practical necessity. Geography introduces cross-border complexity that obscures the best course of action. As shipments move from one transportation mode to another, decisions should consider more than direct transportation costs and lead times. They need to incorporate the impact of tariffs, duties, import and export restrictions, regulatory compliance, contract commitments and allocations, asset availability, customs, and delivery variability. As a result, the interchange of information and documentation has become just as important as administering the flow of the inventory itself.

The responsiveness of most companies continues to be slowed – and even crippled – by a common impediment: the need for a common logistics command and control environment that brings together myriad logistics information data sources related to transportation, inventory, and global trade into one place for use in tactical logistics planning and execution as well as strategic decision-making. What is needed then is a platform, a central core of data across trading partners to meet the many needs of logistics management today. To effectively compete, companies must be able to:

- Maintain visibility to inbound and outbound shipments such that inventory is managed not simply within the enterprise but also reflects in-motion and on-order goods.

***Enables business analysts within the corporation to attack safety stock levels and make more informed assessments of replenishment cycles.***

- Calculate accurate promise dates at time of order. This includes cross border and intermodal costs.

***Gain greater insight into ultimate cost of sourcing, incorporating the complexities of doing business across international borders. Also enables more profitable customer commitments.***

- Provide the basis for a comprehensive analysis of transportation needs in order to optimize routing, consolidate shipments, and reduce expediting.

***Improves asset utilization and reduce non-value-added costs, while simultaneously improving customer service due to more proactive decisions.***

- Enable rate discovery and support carrier selection, rate negotiation, and contract management.

***Provides for process automation. Streamline end-to-end process and relationship management.***

- Receive real-time notification of changes and shipping milestones attained. Issues can be resolved and plans adapted without jeopardizing service or incurring unnecessary costs.

***Facilitates exception-based management so firms can more flexibly respond to a dynamic demand environment. Reduces the need for costly expediting.***

- Manage shipments as they transition across modes (e.g. rail, air, road, ocean and overnight).

***Maintains a holistic view of inventory and operations such that order movement is not sub-optimized. Also, enhances ability to manage contracts, information, and documentation as goods transfer hands and cross borders.***

- Track orders and other shipping documents at the line-item level. Achieve greater visibility throughout the supply chain, especially during at-risk moves.

***Facilitates customer service and the ability to proactively respond to emerging opportunities and risks. Enables implementation of contingency plans.***

So what prevents this from being the day-to-day reality? One critical issue is that shipments, especially in a global business environment, seldom involve a single carrier. Consequently, relying on traditional means of communication exacerbates problems when the shipment requires using multiple service providers; or even worse, multiple modes of transportation. In addition, both throughout the enterprise and across trading partners, multiple sources of and uses for logistics data coexist. Each participant will have a unique perspective on 'important' information contained in documents, and how it should be interpreted. Further, many sources critical to maintaining holistic real-time visibility use different means of communication based on their technology strategy, or lack thereof. This means that a global repository must be able to easily interface with Internet-based technologies, XML, wireless and wired devices, EDI transmissions, and even fax through EDI conversion services.

These distinctions are not easily resolved because successful widespread process implementation means technology cannot be dictated. Nor can documentation format, connection mechanism, or communication medium. Instead, a network must incorporate participants using their preferred business practices and message formats, providing seamless translation as a communication bridge. The rewards: enhanced customer service, better use of inventory, increased asset utilization, and improved efficiency.

### ***Binding Supply Chain Communities***

Contracted product lifecycles. Downward pricing pressure. Heightened customer expectations. Compressed lead times. Extended supply chain partnerships. In practice, responsibility for planning and executing logistics is often shared across a chain of related orders, a variety of modes of transportation, international borders, and multiple participants. Complex interdependencies quickly emerge, and inter-enterprise coordination becomes critical. Some companies have developed technology in-house to attempt to address these issues. But infrastructure based on the premise that business rules are stable cannot respond to the complexity of inter-enterprise processes or changing business relationships. Applications must meet the challenges of global visibility and connectivity. This requires scale, support for all standard communication protocols including Internet conventions, harmonization of semantic differences during information exchange, repositories for order fulfillment information, and integration to a variety of end-user interfaces including mobile applications.

Other firms have deployed third-party enterprise and Internet-based applications to improve coordination. While some offerings provide sound functionality for active participants, they do not address responsibility for managing the network and extended relationships. Consider the telephone: a caller assumes they will pick up the phone, get a dial tone, place their call and be put into contact with the desired party. To make that happen, a range of activities occur behind the scenes — sound wave translation, complex parsing and routing of information, etc. — all supported by significant infrastructure. The user simply assumes this will all be managed. There is no need to monitor the quality of the connection, or data input and delivery. The caller does not resolve differences in semantics caused by incompatible service providers. Moreover, there is a general assumption that the other person also has access. Even though the call target may be in a different continent or use a wide variety of connection mechanisms (e.g. traditional and cellular phones, wireless, PDAs, phone services, or even reroute their calls), the transmission of information will occur.

Similarly, companies seeking to optimize logistic operations should not worry about translation, integration, or transmission. Connectivity is a means to an end, not an end in and of itself. Many solutions simply do not manage the network. Nor have many providers taken responsibility for attracting a critical mass of users to make the initial investment of participation palatable. Many technology companies simply dismiss such issues. XML (eXtensible Markup Language) is painted as a panacea, a means of translating all transmissions into a common language.

But this still requires management — publishing the standards, ensuring standards are published to, and providing the translation layer. And it assumes active XML participation throughout the network – in an industry where faxed transmittal of critical documents is still common. In fact, within the transportation community less than 5% of communication occurs via XML. Similarly, while EDI offer some relief, these standards differ by transportation mode and industry. Therefore, it is unlikely that the entire supply chain will share this common denominator. And both EDI and XML only attack messaging. We must address the process flow of contract management & service level agreement (SLA) monitoring so critical to operational improvement.

Similarly, Value-Added Networks (VANs) address messaging without touching on logistics process issues. Without this framework, inventory flow cannot be synchronized with content, limiting the optimization of shipment decision-making. VANs also do not support proactive messaging, directing participants to issues that can be managed in time to avoid a logistics service failure.

A true platform must not only provide conformance maps, validating inbound messages based on established standards, but it must also translate between such standards (e.g. Cargo IMP, Cargo 2000, ANSI X.12, UN/EDIFACT, XML, and proprietary formats) and resolve semantic differences, interpreting to manage real-world usage. For example, a system should recognize the various user protocols for designating Hong Kong (e.g. Hong Kong; HK; Hong Kong, China) as reflecting the same port. Further, VAN services focus on point-to-point connections between trading partners. Only with a many-to-many network can reusable connections be established, with the accompanying decrease in cost and time to activation. VANs do not have the processes and domain knowledge to monitor data quality and timeliness of logistics messages to facilitate the flow of accurate data to trading partners and logistics applications. They focus on pushing data to other parties, not on improving logistics business networks.

Others have turned to Enterprise Application Integration (EAI) tools to tackle inter-enterprise complexity. However, such solutions force the operating company to effectively become a System Integrator, dedicating resources to the implementation and ongoing maintenance of the integration. A supply chain community conservatively encompasses 500 to 1,000 trading partners. Firms should consider whether an EAI tool is designed to scale to support such a network; and whether it contains the network monitoring and data quality tools to manage hundreds of millions of transactions and ensure that lines and connections are working properly across those trading partners on a global 24 x 7 x 365 basis. They should also consider whether this approach that requires such a physical infrastructure and people investment is the best use of a company's funds, or whether competitive advantage is better achieved by focusing on the core competencies of the business and leveraging a pre-existing network.

A more recent approach proffered by the industry has been public or private exchanges. While such marketplaces provide a mechanism for content management, they have not achieved critical mass as they typically have failed to offer an adequate value proposition to all trading partners in the community. Governance issues have also led to a conflict of interest and slow adoption. Companies recognize the need to communicate with trading partners and integrate their processes. However, no single 'standard' applies across the supply chain community, types of logistics data, transportation modes, operational processes, and shipping documents that need to be transformed and translated. Further, messaging is only one piece of the puzzle. Enabling each stakeholder to participate using their chosen technology protocol and semantic point of view enables more effective and efficient business relationships. This requires a network that simplifies connections and resolves trading partner differences.

### ***Operating globally — where you do business.***

Connectivity is about relationships, and relationships require networks and process management. A Global Logistics Services Network (GLSN) provides technology to ensure consistency and integrity of communication throughout supply chain communities. It is an information platform encompassing thousands of transportation carriers, logistics intermediaries, and users of transportation services around the globe. The network securely registers, connects, and manages participants. In addition to providing a standard for interenterprise business connectivity, it acts as a logistics process framework for end-to-end shipping management.

The GLSN enables organizations to build high-performance supply chains, providing real-time visibility and decision support. Its open architecture allows trading partner systems to seamlessly integrate with logistics-critical data and business rules, wherever and however they reside.

It enables organizations to connect with a single, simple mechanism that incorporates security so only preauthorized users access information, applications and documents. The GLSN manages the integration of the hundreds of data communication standards, and maintains responsibility for data monitoring, quality and integrity. And recognizing that each participant may have different technological abilities and needs, it supports all common communication protocols, leveraging comprehensive embedded dictionaries for translation.

### **TRANSACTIONS EDI/WEB FORMS**

In order to enable the business connectivity and visibility that companies need to compete in today's dynamic environment, the GLSN features:

- Internet-based access to real-time order status and related service information including full genealogy of product, lot and order movement;
- Dynamic repositories to coherently store all logistics information exchanged and ensure secure access based on user-level permission. Interacts between systems, users and other users' systems;
- Document partitioning to provide access to applicable information packets for each participant's needs, providing visibility as shipments cross geographies, orders intermix, transportation modes transition, and shipments are rerouted;
- Scenario modeling functionality, providing for event-driven monitoring of critical steps. A trigger mechanism automatically informs users about problems and milestones that fail to be achieved on schedule;
- Integrated message brokering and transaction monitoring. Provides syntactic and semantic translation, and data scrubbing and data timeliness services;
- Formalized approaches for negotiated data agreements, negotiated interfaces, and negotiated business processes between trading partners;
- Time zone localization, latitude/longitude reconciliation;
- User-customizable performance measurement, analytics and reporting;
- Real-time event propagation such that as shipments are re-scheduled or are otherwise re-directed, SKU-level detail is still linked to orders and related documents. Ensures that applicable associations are made and visibility remains;
- Support for real-world logistics with automated load balancing and flow control, hot fail-over support and business continuity processes on a global information backbone to ensure 24 x 7 access. Provides internationalization of currency, metrics, and language. The GLSN concept is already in use across six continents;
- Seamless integration to proprietary application suites, including Global Visibility and Inventory Control, Routing and Scheduling, Carrier Contract and Shipment Management, and Multimodal Transportation Management;
- 100% community on-boarding, using the widest possible range of techniques, from XML and EDI connections to wireless devices and Web forms to fax-to-electronic conversion services;
- An extensive, pre-existing network of manufacturers, distributors, retailers, carriers, 3PLs and other logistics services intermediaries.

GLSN also has a proven ability to work with companies to incent activation by trading partners by offering a sound value proposition to manufacturers and distributors as well as transportation service providers. And since connections are uniquely reusable, new members tap a pre-existing network of thousands of carriers that use a GLSN backbone. This means access to nearly 70% of North America's air cargo and less than truckload (LTL) electronic messaging traffic, as well as 85 of the top 100 LTL carriers, 11 of the top 20 ocean carriers, all of the top 50 air cargo carriers and all of the top 6 integrated carriers.

## **Conclusion**

The business imperative to address global logistics continues to escalate. In his annual survey for the Council of Logistics Management since 1977, Herbert Davis noted that total logistics costs as a percentage of sales in 2004 are down slightly (.4%) across all companies surveyed compared to 2003 tracking at 7.4%. This is a continuation of a downward trend since 2001 when total logistics costs peaked at 8.4% of total sales. This is unusual and has only happened once previously from 1992-1995.

The survey reported that the most pressing issues in managing logistics are:

- **Visibility**
- **Integrating supply chain components**
- **Meeting service requirements**
- **Managing personnel**
- **Costs and service**
- **Selling the value of logistics**
- **Express capacity in manufacturing and distribution**
- **Decentralized company and logistics functions**

Clearly, the need to effectively participate in a global market has continued to rise. According to analyst Gartner, Inc., "The need for visibility of supply chain capabilities through monitoring, alerts and promise mechanisms will increase through 2005 and beyond. Real-time status of inventory, shipment and order standing will increase in importance as enterprises assemble agile supply chain technologies."

By using a global, open network built for reusability and reliability, organizations can rapidly get beyond the challenges of communicating electronically with their trading partners and monitoring the flow of goods across their extended supply chains. They can turn their attention to the more intelligent management of these multi-party processes, knowing that the fundamentals of connectivity and visibility are provided.



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