



*AberdeenGroup*

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Developing a GPS for  
the Global Supply Chain

An Executive White Paper

June 2002

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# Developing a GPS for the Global Supply Chain

## Preface

Half of the companies adopting Internet-based tools to manage their supply chains are achieving their initial cost-reduction goals. However, according to a survey reported in a recent *Financial Times* article,<sup>1</sup> only 30% of those companies are satisfied with the overall results. Contrarily, Aberdeen research finds that most pilot projects are successful. Such factors suggest that deployment to the full enterprise is what triggers the cultural and usability issues that inhibit the adoption process.

By now, the use of Supply Chain Management (SCM) technology is pervasive. Users know what can be done and the day-to-day practical aspects of using the systems to do their jobs — having a better handle on what they want and what they do not need. Aberdeen research indicates that the initial SCM offerings were difficult to integrate, were overly complex to use, and frequently failed to deliver the benefits promised though market hype.

Aberdeen has found that the most challenging areas for SCM solutions include the following:

- No single source for supply chain data;
- Lack of integration — between SCM tools, with existing information systems, and with the Internet and Web services;
- Inadequate or non-existent analytical data and tools;
- Hard to use user interface (UI) — slow enterprise-wide adoption;
- Lack of accurate demand and forecast data;
- Insufficient change control management; and
- Implementations taking too long and costing too much.

Now, a second generation of SCM solutions is appearing in the market. Given the recent history, today's buyers are less impressed with "PowerPoint" selling and are more interested in demonstrable products, visionary architecture, and standards-based technology.

This Aberdeen *Executive White Paper* looks into the changes SCM solutions are undergoing as they mature. Real-world experience and Web-based technologies are being applied to re-architect and rebuild a second generation of SCM solutions. This paper examines the Adexa eGPS solution suite based on Aberdeen's view of how supply chain solutions are evolving.

## Executive Summary

Early SCM solutions attacked single dimensions of the supply chain, frequently either inbound or outbound processes. In fact, most were merely more mature ver-

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<sup>1</sup> *Financial Times*, "Survey Raises New IT Leveraging Questions," a study by AT Kearney the management consultancy, May 6, 2002.

sions of the Material Resource Planning (MRP) systems for managing multiple bills of material (BOMs). The initial efforts were also very enterprise-centric, having a lineage-tether of client-server.

These first version offerings eventually compounded users' difficulties by fitfully cobbling together new extensions to their SCM environments. All the same, each installation still required additional integration with other business systems such as ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), and legacy systems — driving out schedules and driving up costs.

Next, portal-based efforts sought to piggyback on the dot.com craze. In attempts to include Internet access and “Web-ize” the solutions, user functionality tradeoffs had to be made. The move from a thick-client to a thin-client had an impact on the usability of the solution. The interactive nature presented in a client/server UI known as active-X controls was dropped in favor of the more universal HTML-based browser UI — temporarily removing most of the interactive nature of the client.

Today's savvy buyers expect SCM solutions to provide business functionality on top of an abstracted layer of technology and data. Those buyers also desire that:

- The Internet be an integral part of the architecture;
- Individual applications within the SCM suite be fully interoperable out of the box;
- Pre-established adapters be available for access to leading enterprise systems; and
- A set of open application programming interfaces (APIs) be ready to connect with older legacy systems.

Now, a new wave of SCM solutions is beginning to crest on the market. Adexa's eGPS is an early example of such a solution that can squarely address these new market demands. The new offerings begin with a Web-native code base designed to exploit the enhanced Web-browser and Internet-base collaboration tools. The new versions provide an architectural framework and establish a single “*system-of-record*” repository for an enterprise's entire supply chain. The repository is provisioned to present multiple layers of abstraction of UI and data access separate from the business logic and tools. This abstraction promotes easier integration, flexibility of configuration (now and later) and non-business-logic disruptive modification to data sources and user presentation themes.

### **The New Wave of SCM Solutions**

It is no longer adequate to use individual applications for supply chain planning, supply chain execution, factory scheduling, event management, and analytics. Combined, these applications are critical to achieving a company's goals of improved cycle times, more frequent inventory turns, and reduced direct materials

costs — to name a few. These are complex and interwoven tasks. As such, the supporting applications need to do the following:

- Work from a common data repository;
- Access a common library of business functions for the supply chain;
- Present a common UI; and
- Facilitate collaboration through firewall boundaries.

Improved UIs make working within the system more straightforward and intuitive due to a common look-and-feel across the application set. The new UIs have fewer GIFs (graphic image files), display data in a crisper and more interactive fashion, use role-based access, and have user-configurable window(s) inside a common frame.

Based on all that has been learned, Supply Chain Management is viewed as a multidimensional environment that can holistically plan, execute, monitor, analyze, and react for the entire enterprise. SCM vendors must provide an architectural framework approach to their supply chain solutions that will improve data consistency, interoperability, and time-to-benefit. The new SCM solutions must blend the planning, execution, and event management areas of the supply chain solution into an integrated whole. The environment provides key supply chain functionality while simultaneously exchanging data with other enterprise information systems.

From Aberdeen's perspective, the new generation of supply chain (SC) solutions must offer a significant reduction in the time and cost of implementation. The interoperability between SC applications must be pre-configured, and integration to other business solutions must have pre-built adapters to streamline and simplify the integration process. These installation and deployment improvements will help to compress the time-to-benefit margin.

#### **A Broad Array of SCM Functions Binds Interrelated Business Processes**

A number of the distinct business processes must share common data and holistically interoperate to provide for complete end-to-end management, analysis, and control of the supply chain. A common architecture and application interoperability make for easier transition between tasks while keeping the business process data in context.

The following sections describe each of the functional areas that Aberdeen considers necessary for a complete SCM solution. They include:

- Demand planning;
- Supply planning;
- Corporate planning;
- Event management and analytics;

- Factory planning and scheduling;
- Order fulfillment;
- Order management;
- Product Lifecycle Management (PLM);
- Sales, operations, and inventory planning;
- Supplier management; and
- Supply chain planning.

### *Demand Planning*

Understanding product demand has always been a challenge. It is on the front line of the battle to keep materials and work in process (WIP) inventory levels as lean as possible while ensuring that customers' orders are fulfilled. Planning for demand has never been easy — even for mature products. As new (or upgraded) products hit the market at ever increasing rates, current products and their constituent components become obsolete at a higher frequency. Understanding demand is geometrically more complicated when there are multiple product lines to consider and multiple plants and distribution centers to manage.

Firms must become more vigilant with inventory planning activities by balancing inventory with sales history, the real demand of customers' orders, forecasted projections, and promotional activities. Additional dimensions of input need to come from outside the enterprise. Customer and supplier input must be woven into the fabric of demand considerations. The stakes are high. Inaccuracy is a double-edge sword. Forecasting too low means shortages and lost sales. Predicting too high means excess finished goods inventory, potentially shutting down assembly lines and, ultimately, forcing inventory write-offs.

Bringing together timely, accurate, and aggregated demand information from sales, marketing, customers, and suppliers can create a comprehensive view of all demand factors and forecasts. Improved demand planning starts by using a broader enterprise constituent base. Data accuracy is additionally improved by collaboratively acquiring data from stakeholders outside the enterprise — including customers, distributors, and field service personnel. And, it is driven by advanced analytics that provide demand insight that is monitored and moderated using corporate key performance indicators (KPIs).

### *Supply Planning*

Keeping the downstream supply chain in “control” is one of the most important aspects of obtaining and maintaining efficient and profitable manufacturing operations. To do so means that a continuous two-way flow of information must be

communicated to keep suppliers informed of long-range forecast intent and short-term demand needs.

Collaborative planning between buyers and sellers means that order quantities are more believable. With more reliable forecasts and with a reduced fear that the order will be withdrawn, suppliers are better equipped to schedule production and reduce lead times by increasing just-as-needed delivery frequency. Reducing lead times has the corresponding effect of lowering safety stock levels. Additionally, frequent joint planning with suppliers improves the ability of the enterprise to get competitive price-points and volume discounts; to keep raw material inventories low; and to have predictable, reliable deliveries from across the supplier base. Staying in constant communication with suppliers ensures better relationships, preferred terms, and streamlined material flows.

### *Corporate Planning*

Manufacturers with multiple product lines, production facilities, or distribution centers are well aware of the challenges to synchronize corporate goals with manufacturing production plans. These challenges are similar for companies enjoying high growth in their product introductions and new customer acquisitions. The difficulties arise from expanding the business by introducing new products more frequently, entering new markets, sourcing from new suppliers, and responding to ongoing competitive threats. The challenges continue to grow; the decisions are more troublesome as the time frames are collapsed. To confidently move forward, companies need careful competitive and market assessment and long-term scenario-based planning to optimize the operational and financial performance of the entire supply chain.

### *Event Management and Analytics*

Financial metrics like cost of goods sold (COGS), days in inventory (DII), day sales outstanding (DSO), and revenue growth are difficult to analyze and correlate along the multiple dimensions of product, customer, and geography. It can be a difficult proposition for any company to identify and track important KPIs — the metrics that help measure, predict, assess, and drive company performance. The system must provide a number of KPI “templates” to aid in establishing a set of corporate performance metrics along with an analysis feedback loop.

Unplanned situations (events) occur, and it is the job of event management to surface the alert and present it for resolution. When an alert occurs, it is important that the SC system recognize and analyze that alert based on corporate KPIs. Then, the system should present pertinent information that assists the person reacting to the situation to take the appropriate corrective-action aligned with corporate goals.

Depending on the business model, numerous KPIs must be tracked in real time to gain insight into future performance. Most importantly, KPIs are the early warning system for problems, shortages, and other disruptive trends that can dramatically affect results.

### *Factory Planning and Scheduling*

Proper allocation of limited equipment resource capacity is critical to the efficient running of the manufacturing facility and to reducing potential resource bottlenecks on the shop floor. For manufacturers in make-to-stock, build-to-order, and build-to-forecast environments, that requires prioritizing work orders and sequencing the schedule for optimal throughput across the factory. It also demands the agility to make real-time manufacturing schedule adjustments induced by unforeseen events such as changes in a customer's order, rush orders, unplanned maintenance, or other disruptions.

Without a proper scheduling solution, WIP inventories pile up, overtime levels climb, shop floor bottlenecks continue to occur, assembly lines are idled, and customer change-orders prove overwhelming. Automated solutions that recalibrate and resynchronize the production schedule optimize this process. Under-utilization of manufacturing capacity can be prevented and scrap and re-worked materials can be blended into the mix.

### *Order Fulfillment*

Component shortages, lengthy supplier lead times, and inappropriate substitutions can all converge to disrupt a manufacturer's ability to offer and deliver products to customers. Maintaining consistently high fill rates is a constant challenge for build-to-order and build-to-forecast manufacturers, as well as make-to-stock companies with configured products and multiple inventory locations.

In response, many manufacturers/suppliers artificially inflate or use fixed lead times. Sales are frequently lost when quoted delivery dates are too distant — even when the production cycle times potentially permit the product to be shipped much sooner. Every manufacturer's goal is to confidently promise availability with compressed lead times and then allow customers to monitor the status of the order through the production process to its ultimate delivery.

### *Order Management*

When working with a multi-tiered value chain of suppliers and subcontractors, alignment and synchronization of supply capability and expected demand are not options. The potential for supply-chain disruption increases as more suppliers, plants, and inventory locations are added to the equation. A better balance is achieved if trading partners are able to share information and cooperate on order-execution activities. When an order is received, the order management processes

must propagate the demand signal through the supply chain in real time to involved stakeholders — based on the product's BOM, component sourcing rules, and inventory allocation logic.

Timely and accurate data about supplier inventory and capacity are needed to aggressively promise delivery dates and fill orders. Frequent changes to customers' orders means a daily reality of reshuffled plant schedules. The goal is to reduce the time between inbound order, delivery commitment, and ultimate fulfillment. The solution lies in tracking the entire order lifecycle — from supplier inventory and capacity through fulfillment. Furthermore, customers want up-to-the-minute status information on their orders. This requires identifying which production run is tied to a specific customer order.

### *Product Lifecycle Management*

Manufacturing organizations that produce products with short lifecycles need to achieve rapid time-to-market while balancing the uncertain demand between new introductions and existing products with raw materials and capacity requirements. Early notification to suppliers can help manage the “bullwhip effect” and prevent a supply chain overburdened with obsolete inventory. The transition from old to new product must sensibly phase out the older component inventories to minimize obsolescence.

Addressing this multifaceted set of challenges requires streamlined and synchronized processes in design, engineering, sales, marketing, manufacturing, distribution, and customer service. Early identification of component suppliers for initial product design and establishment of a sourcing relationship prior to production can shorten the time to move a new product from engineering to full production. It is important to plan and schedule design resources as part of the overall product lifecycle. Moreover, planning for product end-of-life and service in the field means factoring in inventories for spare parts to best meet optimal service levels.

### *Sales, Operations, and Inventory Planning*

Organizations of any size are challenged to reduce lead times; maintain optimal safety stock while preventing outages; maintain finished goods levels without accumulating obsolete inventory; maintain adequate quantities of raw materials without taking on large inventories of components and supplies; merge sales and production plans without over-investing in capacity; and balance supply and demand across the value chain. The goal is to achieve optimal inventory buffers across the supply chain, reduce customer lead times, increase order fill rates, and avoid capacity and materials shortages.

Large manufacturing organizations with multiple plants and inventory locations and smaller firms coping with high growth have very similar challenges and goals,

especially when making-to-stock or building-to-forecast. Dealing with the uncertainty of demand requires vigilance with regard to inventory levels and resource capacity utilization. A balance must be struck between sales objectives and operational capabilities that are coordinated with the planning inventory levels of components, WIP, and finished goods.

### *Supplier Management*

It has been said many times, but it is worth repeating: *A manufacturer is only as good as its supply chain.* A good product design does not satisfy customers' demand if there are insufficient components available to assemble. Manufacturers must establish and maintain trusted supplier partnerships to ensure a consistent and timely flow of parts into the production process. Companies must regularly communicate supply and demand information with suppliers and monitor their performance.

Sourcing and procurement visibility is needed into direct material purchases and supplier contracts to ensure terms, conditions, specs, and quality are correct and on time. This requirement becomes more problematic when dealing with a multi-tier supply chain. Staying abreast of manufacturing operations means knowing every step of the way what capacity and inventory levels are — often before materials reach the receiving dock. This knowledge is especially true for companies that want to provide vendor managed inventory (VMI) services or are vulnerable to inventory obsolescence. Expedited lead times, shortage avoidance, and quality control are just a few of the essential metrics for evaluating the performance of these supply chains.

### *Supply Chain Planning*

Manufacturers with complex discrete, process, or mixed mode operations know how difficult it can be to synchronize volatile supply and demand factors across the supply chain. Sudden changes in customer demand or supply disruptions can leave well-defined MRP plans in shambles. Overtime must be kept at a minimum, plant utilization must be maximized, parts shortages avoided, and production lines must be optimally routed and scheduled — all while responding to ever-changing demand patterns.

Meeting these strategic challenges and achieving an optimally synchronized multi-tier supply chain facilitates the successful fulfillment of each order, making the most use of current resources, and achieving the greatest level of profitability and customer satisfaction.

### **Navigating the Supply Chain**

Ships and planes have used navigational systems for many years to plot their course through the sky or on the ocean. Recently, this technology has been de-

ployed in passenger vehicles. A navigational system needs two pieces of information. First, it needs to know where the vehicle is located. This information is provided by the satellite technology called a Global Positioning System (GPS). Next, it needs to know the desired destination location, which must be supplied by the user. An initial plan is generated to route the vehicle from current location to destination. GPS navigation is a real-time system that provides continual re-checking of the plan in progress, detects deviations, and provides a corrected plan to compensate for detours.

As manufacturers work more globally with suppliers and customers, traversing the value chain becomes an impossible task to perform with any paper-based or first-generation solution. An enterprise must understand on an ongoing basis where it is: How is the firm executing to its SC plan? Can it be notified when situations change? What is the corrective action to get back on course? In short, effectively managing the business navigation of the value chain requires a GPS to plan, execute, and do mid-course corrections to successfully arrive at the final destination.

### **An Enterprise Global Positioning System: Adexa eGPS**

In essence, that is what Adexa's new Enterprise Global Position System (eGPS) is. Adexa's eGPS solution for the supply chain is all about creating a plan; executing that plan; monitoring the plan as it is executing in real time; and presenting mid-course corrections as necessary to help ensure the plan is completed and corporate goals are satisfied. Adexa's new eGPS solution was designed to better facilitate keeping manufacturing plans and execution schedules on course.

eGPS provides manufacturers with a drill-down, aerial view of their global supply web by monitoring supply and demand requirements against the constrained execution plan that is guided by enterprise KPIs. KPI-driven analytics empowers employees (or the system) to make decisions that are attuned to corporate goals. It is important that the full impact of a supply chain decision be sensed prior to action being taken and that all affected stakeholders are notified.

### **How eGPS Works**

Because communications is at the heart of partnerships, eGPS provides an underlying framework for Internet-based supply chain collaboration. Adexa's eGPS also establishes a supply chain system-of-record and repository of supply-chain-related data. Supply chain plans generated (or re-generated) by eGPS are communicated to all stakeholders using a publish-and-subscribe metaphor. The platform also permits alert information to be acted on along an intervention/control continuum from manual to fully automatic, all while being piloted by business process workflow — tempered by KPI-driven, decision-making guidelines. eGPS can automatically recalibrate and distribute a revised plan (or action request) whenever an event occurs that threatens to send an executing plan down an unmarked dirt road.

A unified data model defines the supply chain system-of-record that acts as a super set of the supply chain data elements. Data is collected by integrating with other enterprise systems (ERP, CRM, Logistics Resource Management [LRM], and PLM), message-passing busses, Web services, legacy systems, and batch feeds. The data is extracted, aggregated, and stored in memory to present a real-time global view of supply and demand, schedules, and material and capacity constraints.

Customers and suppliers are encouraged to participate in exchanging information through the Web-native solution. The unified data model can help automate many of the supplier replenishment activities and provide current order status from a varied array of authorized dimensions. Over commitments to customers can be avoided because the demand side and the supply side share a common language. The unified data model also enables a smooth sales and operations planning process because the impact of forecast demand on the enterprise is instantly visible.

Adexa’s eGPS is scalable and is adaptable to varied vertical markets in both discrete and process manufacturing. Unlike earlier SCM predecessors, eGPS is developed from the ground up as a platform for supply chain solutions that is Web native. Each eGPS component is an “out of the box,” pre-integrated point solution that targets a specific business pain-point.

Each decision that an area of the company makes can potentially impact many others, both inside and outside of the enterprise. The ability to detect and analyze these potential impacts and then communicate (collaborate) with other stakeholders on appropriate solutions is the key. eGPS facilitates more accurate supply chain planning and execution, and, much like the car’s GPS system that charts geographic position, eGPS continually monitors and analyzes execution against manufacturing plans and recalibrates them, whenever necessary, to ensure informed decisions are made on an ongoing basis. Table 1 reflects the business functions supported by Adexa and the benefits from managing those areas.

**Table 1: Adexa eGPS Business Functionality**

Business Function	Derived Abilities and Benefits
<p><b>Collaborative Demand Planning</b> Speed, accuracy, and simplicity of demand planning, enabling increased revenue, organizational agility, and customer service.</p>	<ul style="list-style-type: none"> <li>▪ Accurately forecast revenue and resource requirements</li> <li>▪ Improve reliability in product forecasts and demand plans — including new product introductions</li> <li>▪ Maintain the right inventory levels through seasonal peaks and valleys</li> <li>▪ Maximize spare parts usage and maintenance inventories</li> <li>▪ Simplify promotion planning and cost/benefit analysis</li> </ul>

<p><b>Collaborative Supply Planning</b> Reduce raw material and component prices and inventory, increase organizational agility, improve purchasing lead times, and improve the accuracy of raw material and component forecasting.</p>	<ul style="list-style-type: none"> <li>▪ Aggregate enterprise-wide purchases for improved price-negotiation leverage</li> <li>▪ Communicate production issues in a timely fashion</li> <li>▪ Optimize sourcing of components and raw materials</li> <li>▪ Proactively detect/predict supply shortages of raw material inventory</li> <li>▪ Shorten purchasing lead times</li> </ul>
<p><b>Corporate Planning</b> Integrates supply-chain-focused data with the necessary competitive analyses, peer comparisons, and industry averages.</p>	<ul style="list-style-type: none"> <li>▪ "What-if?" analysis to determine the impact of multiple business decision combinations</li> <li>▪ Analyze the ramifications of M&amp;A opportunities</li> <li>▪ Avoid under-utilized warehouse capacity and equipment</li> <li>▪ Measure and compare performance against competition</li> <li>▪ React faster to market changes</li> </ul>
<p><b>Event Management and Analytics</b> Monitors corporate KPIs in real time and provides relevant impact analysis to decision cycles and direct attention to priority items. Moreover, KPI monitoring helps unmask unexpected positive variances and trends that represent hidden opportunities.</p>	<ul style="list-style-type: none"> <li>▪ Accelerate decision cycles</li> <li>▪ Detect KPIs that fall outside desired levels</li> <li>▪ Evaluate supplier performance</li> <li>▪ Identify unexpected events and trends in time to take corrective action</li> <li>▪ Identify, measure, and monitor corporate KPIs</li> <li>▪ Monitor delivery performance</li> </ul>
<p><b>Order Lifecycle Management</b> By sharing information in a timely and accurate fashion, the velocity and responsiveness of the entire supply chain can be accelerated — in doing so, decisions are faster and more aligned with corporate goals.</p>	<ul style="list-style-type: none"> <li>▪ Enable customers to access order status or delivery information directly</li> <li>▪ Improve on-time shipment performance</li> <li>▪ Improve visibility of third-party logistics activity for inbound consigned inventory</li> <li>▪ Simplify customer change-orders processing by tying production runs directly to customer orders</li> </ul>
<p><b>Factory Planning and Scheduling</b> Can help maximize the use of constrained resources based on accurate plant scheduling. That means cycle times are reduced, which leads to improved customer satisfaction through on-time delivery. Lower cycle times and improved job sequencing means lower WIP inventory levels.</p>	<ul style="list-style-type: none"> <li>▪ Automate detailed shop floor schedule sequencing and dynamically re-sequence based on new information</li> <li>▪ Minimize the impact of MRO (maintenance, repair, and operations) work on production lines</li> <li>▪ Optimize manufacturing utilization by re-routing products for cost or availability optimization</li> <li>▪ Reduce change-over times</li> <li>▪ Reduce production waste from improper revisions</li> <li>▪ Synchronize WIP with demand to lower inventories</li> </ul>
<p><b>Order Fulfillment</b> Available to promise (ATP) order-promising systems evaluate available inventories or WIP. Adexa order fulfillment adds uncommitted capacity, capable to promise (CTP), to the availability equation. That means customer response times are improved by using aggressive delivery dates, without over committing capacity.</p>	<ul style="list-style-type: none"> <li>▪ Manage availability, stock-outs, and returns</li> <li>▪ Reduce partial-order shipments</li> <li>▪ Improve and streamline customer change orders</li> <li>▪ Reduce time needed for sales quotations process</li> <li>▪ Reduce turnaround time for customer inquiries and increase accuracy of ATP information</li> <li>▪ Use substitute components to meet customer orders</li> </ul>

<p><b>Product Lifecycle Management</b>                  Optimization of design resources to end-of-life planning is the functionality needed to address the full product lifecycle. Faster time-to-market is achieved through accelerated design cycles and faster and more accurate product demand forecasts. Planning for end-of-life phases helps burn off remaining inventories before they become obsolete inventory.</p>	<ul style="list-style-type: none"> <li>▪ Bring new products to market faster by shortened product design and validation lead times</li> <li>▪ Ensure product features align with customer needs</li> <li>▪ Get product design changes into production quickly</li> <li>▪ Optimally deploy engineering and CAD (computer-aided design) resources to complete critical projects</li> <li>▪ Reduce levels of obsolete component inventory at multiple locations</li> </ul>
<p><b>Supply Chain Planning</b>                  Establishes a detailed model of the supply network for feasible and reliable execution of plans. Inventory and capacity can be exploited to a maximized potential for filling more orders more quickly, thereby reducing inventories by optimizing all supply chain activities.</p>	<ul style="list-style-type: none"> <li>▪ Allocate equitable inventory across customers</li> <li>▪ Choose the right alternate supply sources</li> <li>▪ Easily handle changes in customer demands</li> <li>▪ Gain full visibility into production capacity</li> <li>▪ Maximize fixed-asset usage and throughput</li> <li>▪ Quickly create accurate constraint-based plan</li> <li>▪ Reduce excess inventory, overtime, and work orders</li> </ul>
<p><b>Sales, Operations, and Inventory Planning</b>                  Combines inventory optimization with sales and operations planning for optimized plans. Moreover, the solutions take into account demand and supply variability using stochastic probability to push inventory levels, lead times, and fill rates to optimal levels.</p>	<ul style="list-style-type: none"> <li>▪ Accommodate demand spikes</li> <li>▪ Improve asset utilization</li> <li>▪ Improve service levels</li> <li>▪ Integrate production and sales planning</li> <li>▪ Optimize safety-stock and raw-material levels</li> <li>▪ Reduce obsolete inventory and management costs</li> <li>▪ Reduce lead times</li> </ul>
<p><b>Supplier Management</b>                  A unified environment in which demand signals automatically propagate through multiple supply-chain tiers based on customized sourcing rules and BOMs. Consolidated buys and volume discounts help keep costs in-step while shortened delivery cycles keep inventories level low and help reduce parts obsolescence.</p>	<ul style="list-style-type: none"> <li>▪ Control the procurement process in an outsourced manufacturing environment</li> <li>▪ Improve visibility into purchase order status and create real-time visibility into supplier availability and capacity</li> <li>▪ Integrate procurement functions with other systems</li> <li>▪ Optimize sourcing of components and raw materials and reduce raw material inventory levels</li> <li>▪ Shorten purchasing lead times as a result of clearer and faster communications</li> </ul>

Source: Aberdeen Group, June 2002

**Aberdeen Conclusions**

The SCM applications market is in the midst of a transition. A second wave of solutions is overcoming many of the shortcomings of its predecessors. This new wave (or version) of supply chain solutions is leveraging an architectural foundation built to enable rapid and accurate information exchange between buyers and suppliers, establishing a supply chain *system-of-record*, a centralized repository of all supply chain data. The Web-native application stack provides layers of abstraction between the UI and data access and the modularized business logic.

Collectively, Adexa solutions for SCM enable manufacturers to identify imbalances, capacity bottlenecks, and material shortages and quickly adapt their schedules when unexpected events arise anywhere in the supply chain. Adexa's eGPS provides a comprehensive collaboration platform that integrates business processes, accelerates product development, and drastically increases production yields and customer satisfaction. A pure Web browser-based solution — no plug-ins or add-on software — simplifies deployment, operation, and maintenance.

Now, more than ever, manufacturers must exhibit finely tuned and real-time control of their supply chains and associated processes — using an end-to-end holistic SCM solution. Adexa is one of the first SCM vendors to step up to the plate. Adexa has re-architected its solution to directly address the overwhelming challenges faced by the initial SCM solution's installation, deployment, and use.

From Aberdeen observations and analysis of the “new” wave of SCM solutions, Adexa's eGPS is pioneering the automated navigation of the supply chain. The value proposition Adexa exhibits is the ability to plan, execute, monitor, and analyze SC activities in real time. eGPS proactively alerts manufacturers to unanticipated supply chain events and enables them to make mid-course corrections while the “plan” is in execution. Such comprehensive functionality enables these changes to be reflected quickly across the supply chain — from suppliers or customers to the shop floor. Moreover, mid-course corrections are tempered by analytics that embed corporate KPIs to ensure alert-driven decisions are made that are in alignment with corporate goals.

To provide us with your feedback on this research, please go to [www.aberdeen.com/feedback](http://www.aberdeen.com/feedback).

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