

## Supply Chain Infrastructure Technology: New Approaches Driving New ROI

### Key Findings

The fragmented supply chain IT infrastructure present at many companies is no longer capable of supporting the new pressures that corporations are facing today--such as global supply chains, shrinking profit margins, and the need to deliver tailored solutions and consistent service levels to customers. Companies need more flexibility and end-to-end process control from their supply chain infrastructure investments to meet today's requirements. The classic, internally focused serial processes between supply chain planning and execution activities will become outdated in the next generation of supply chain implementations. Best-in-class companies are now seeking enterprise-wide supply chain infrastructure solutions to tie together the point solutions that they already have in place. This strategy has key advantages for both supply chain professionals and corporate IT organizations.

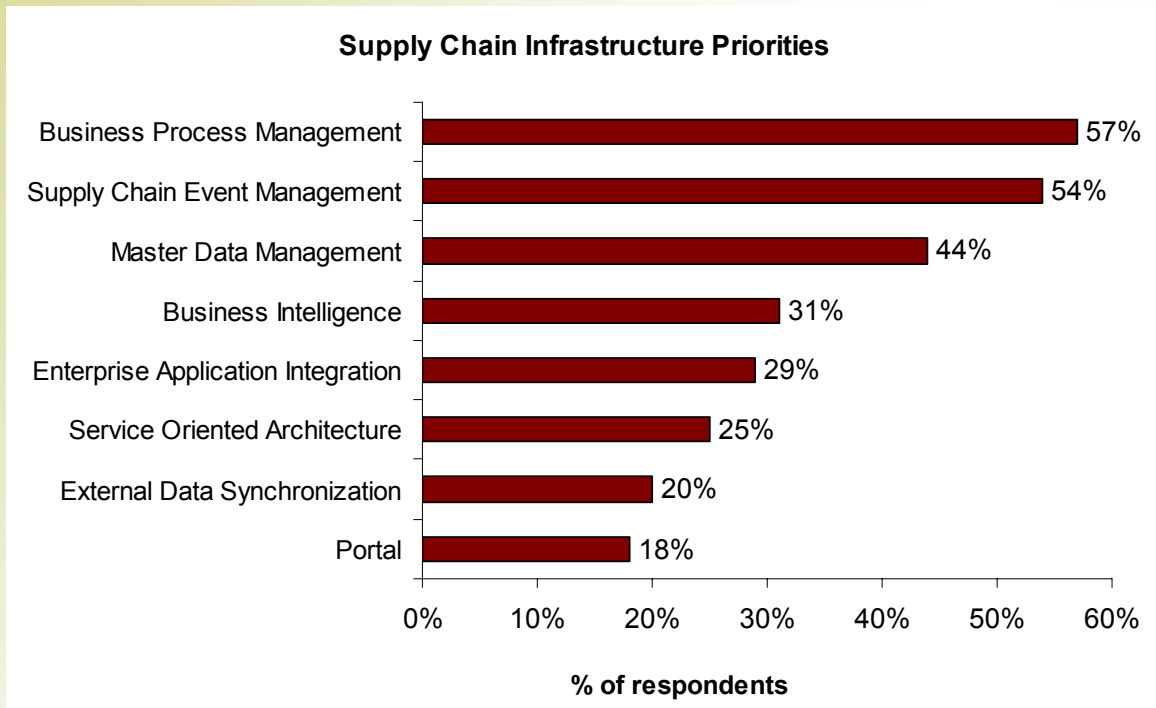
### Supply Chain Infrastructure Technology Investment Areas

Aberdeen's benchmark research finds that supply chain executives are seeking new capabilities and technology features for their next-generation supply chain solutions (see [The Supply Chain Innovator's Technology Footprint](#)). Supply chain professionals are saying they need more flexibility from their technology to meet today's marketplace requirements. Seventy-five percent of companies report that their current supply chain software limits the amount of services they can offer customers. These companies are faced with the following pressures (both business as well as IT) that result in a need for improved supply chain infrastructure software.

- Need to provide a single face to the customer with consistent service levels, driving a requirement for corporate-wide visibility and process control of fulfillment activities.
- Evolution of sales and operations planning processes towards an "Integrated Business Planning" process to improve gross margins, requiring an integrated business process with data integration and normalization across several organizations within the company.
- Outsourcing of manufacturing operations resulting in more complex business processes not well-served by fragmented internal supply chain infrastructure.
- Need for more supply chain agility to thrive in an era of dynamic demand and increased supply chain uncertainty, which is constrained today by the lack of supply chain infrastructure to support closed-loop planning-execution-analysis processes.
- High total cost of ownership of maintaining multiple and disparate supply chain infrastructure software and hardware components across the organization (the various costs being maintenance costs, support costs, training costs, upgrade costs, capital expense for hardware etc.).

Aberdeen research has found that Supply Chain Event Management, Business Process Management and Master Data Management are the top three infrastructure areas that supply chain executives desire in their next generation of supply chain technology (Figure 1).

**Figure 1: Top Supply Chain Infrastructure Priorities**



Source: [AberdeenGroup](#), July 2006

Business Process Management is listed as the top infrastructure priority among supply chain professionals with several other factors bearing on the mind of enterprise managers. Supply chain infrastructure technology includes:

**a) Business Process Management**

Most supply chain software is not designed for being able to handle the rapid business process change and distributed enterprise model on which businesses are currently operating. These applications also sometimes feature artificial separations of planning and execution solutions based on historical reasons when end users really want a single process that spans across planning and execution (for example: master production scheduling and MRP are usually separate applications while they are part of a continuous process from an end user perspective). Finally, the cost and difficulty of modifying these applications to support newer business processes is also very high. The specific goal of Business Process Management tools is to resolve these drawbacks and enable more flexibility and reduced costs. Leading companies are looking to leverage these tools and build out processes that

are flexible from an end user perspective as well as leverage their existing investment in ERP and best-of-breed supply chain solutions.

**b) Supply Chain Event Management**

Supply chain event management platforms let companies manage information across distributed systems and multiple tiers at every stage of the supply chain process from order creation to fulfillment. These platforms can detect, evaluate, and alert on problems in real time. Next generation SCEM solutions will not only be able to monitor order status, manufacturing status, in-transit status, and inventory and asset positions, but also will be able to trigger financing and settlement activities based on supply chain events.

**c) Master Data Management**

Uniform master data provides companies with an enormous competitive edge. Leading companies are leveraging master data management solutions to standardize their supply chain data and provide a much easier process to keep this data updated and new. A best practice is not to try to do a “big dig” on all the data but do selective surgery using master data management tools on the data that will drive the quickest ROI on sharply defined business problems.

**d) Business Intelligence Platform**

Aberdeen’s 2006 research finds that role-based performance dashboards and personalized alerts are the most valued capabilities of analytics platforms by supply chain executives (cited as a priority by 64%). Performance management that projects forward impacts as well as assesses history is highly desired by 55%. Also scoring high: supplier/carrier scorecards and executive cockpits that enable proactive exception management and setting of business goals and policies for operations. Companies often prefer to work with custom reporting approaches on top of Business Intelligence OLAP databases to support their analytics requirements because these solutions can bridge their multiple supply chain and ERP applications, producing a unified analysis. BI vendors are realizing this and moving towards productizing reports and providing blueprints or templates for specific supply chain areas like sales and operations planning or retail price management. These solutions act as plug-ins on top of more advanced supply chain optimization technologies and act as visibility layer for management.

**e) Enterprise Application Integration**

Time and again, software implementations have failed due to lack of data automation and lack of integration. It can be argued that a lack of data is often due to inefficient business processes—but a lack of adequate EAI technologies also plays a significant role in failure of implementations. EAI solutions are moving into the business process management space and the lines between these solutions are becoming blurred. This reflects the recognition by companies of the more strategic nature of EAI technologies as well as the opportunities identified by the EAI vendors to not only own the data flow but also the process flow. The other major shift in EAI is the push by enterprises to consolidate their EAI tools to improve total cost of ownership. Many companies are seeking to standardize on one EAI tool versus having multiple flavors (and all the license, maintenance, and training costs that demands) across different locations, departments, divisions, etc.

**f) Service-Oriented Architecture and Composite Application Support**

Service-oriented architecture (SOA) provides the framework and standards for building the supply chain of the future. SOA's already seeing widespread adoption in corporate IT department. A recent Aberdeen benchmark study finds that 45% of companies have SOA-related supply chain projects already underway ([\*The Service-Oriented Architecture in the Supply Chain Benchmark Report\*](#)). The main factors driving these implementations are: a desire for new capabilities like process integration across applications, re-use of applications via web services, and better management of IT complexity. Companies are looking for vendors to provide composite applications that tie together point solutions to enable a flexible industry specific company specific business process. An example of such a composite application is an Integrated Business Planning solution that will enable the balancing of supply and demand to maximize profit by bridging sales and operations forecasting tools, constraint-based supply chain applications, and financial systems.

**g) Additional supply chain infrastructure technologies:**

There are a host of other supply chain infrastructure technologies that are being examined by customers for different applications, including data synchronization (external), electronic messaging infrastructure, portal technology, grid solutions, and RFID. For instance, companies are looking at grid solutions to minimize the investment on hardware and leverage lower-cost blade servers that can host compute-intensive planning applications in a distributed environment.

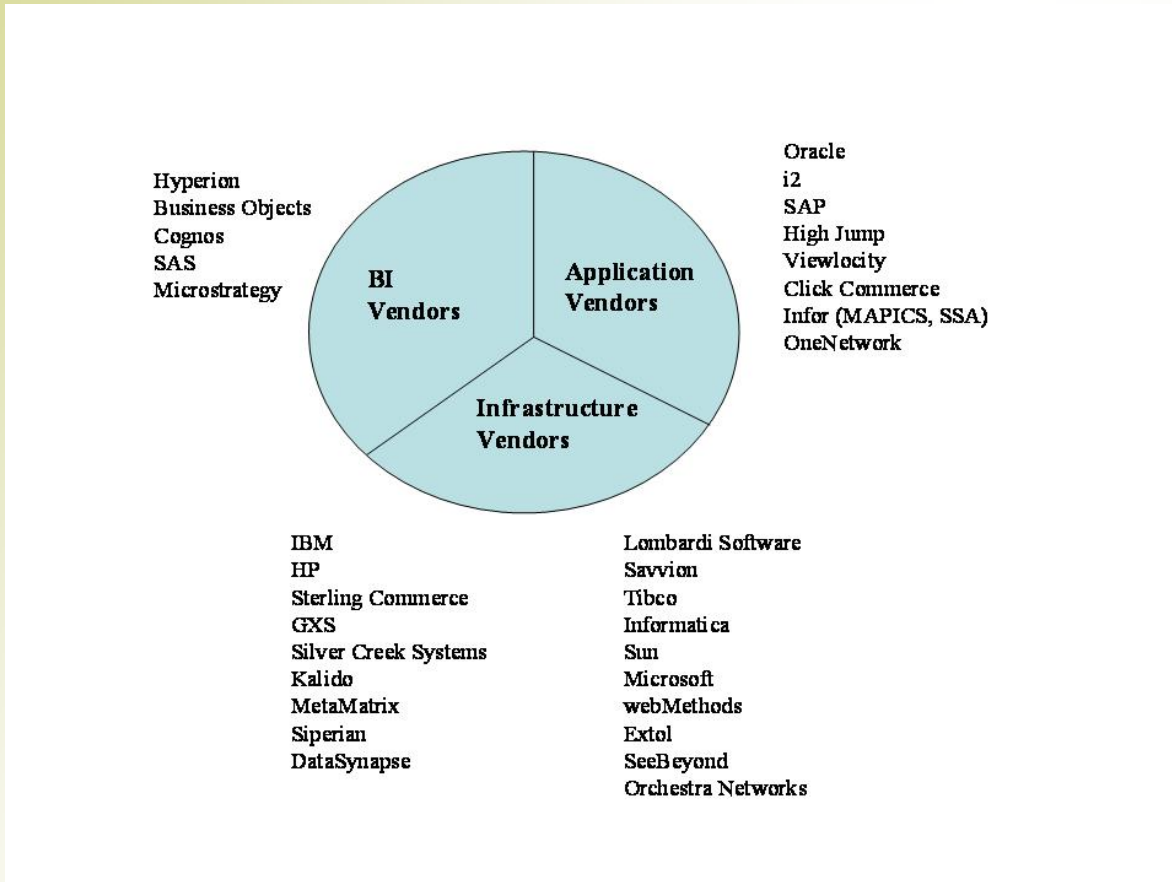
**Vendor Landscape**

Currently, three categories of vendors focus on developing supply chain infrastructure technology: application vendors, business intelligence vendors, and infrastructure vendors. These vendors are converging towards the same goal – providing a next-generation flexible business process that improves corporate performance.

- **Application vendors** are realizing that traditional monolithic applications are not suitable for solving complex supply chain problems and that customization no longer is financially viable for customers as well as vendors. These vendors are accelerating the ability for their customers to more easily and dynamically configure business processes through built-in BPM tools while leveraging the underlying product capabilities through SOA web services calls.
- **Business Intelligence vendors** are realizing that they are plugged into critical supply chain processes and working towards improving their product capabilities to address specific supply chain requirements and process flows.
- **Pure-play infrastructure vendors** have provided tools traditionally bought by corporate IT departments to glue together supply chain-related systems. In many cases, their technology has also been embedded in the technology stacks of the supply chain application vendors. Infrastructure vendors are realizing that they have an opportunity to get a bigger piece of the supply chain pie by moving upstream in the value chain and packaging solutions and tool kits specifically designed for supply chain processes. They are also positioning themselves to become the infrastructure technology of choice in corporate infrastructure standardization efforts.

Figure 2 shows the three types of vendor categories and the vendors that represent the supply chain infrastructure space: application vendors that provide supply chain infrastructure components like EAI or MDM, BI vendors, and infrastructure vendors.

**Figure 2: Partial Listing of Supply Chain Infrastructure Vendors**



Source: [AberdeenGroup](#), July 2006

**ROI Associated with Supply Chain Infrastructure**

Companies are looking for a clear roadmap for moving their supply chain infrastructure from their current state – which often involves a hodgepodge of technologies that may be flexible but is not standardized, leading to high TCO, and impeding corporate-wide visibility into end-to-end supply chain plans and activities -- to a more standardized and lower cost infrastructure that better supports today’s needs for dynamic process workflows. Companies are looking for an ROI framework that they can use to assess their current infrastructure capabilities and what Best in Class enterprises are doing in this respect.

Line of business owners need to drive the adoption of SOA and composite applications because it allows flexible workflows and business processes that can be modified by end users.

Another driving factor for line of business owner adoption of supply chain infrastructure technologies is the hope for seamless workflows and data across disparate applications.

The various drivers for CIO and IT organizations are looking to justify supply chain infrastructure projects are:

- a) Minimize IT complexity and create standardization, lowering staffing, training, and support costs;
- b) Leverage existing investment in supply chain applications to create Best in Class business process workflows;
- c) Manage the flow of data to enable better and more timely business decisions;
- d) Avoid large-scale, rip-and-replace application projects and leverage existing legacy system capabilities through web services, business process management, and composite application frameworks;
- e) Reduce maintenance revenues and consulting fees to software vendors by being able to modify application code through standard XML/XSLT based technologies that are enabled by web services and
- f) Provide more accurate data to and enable more collaborative processes with suppliers, customers, and other external partners.

An ROI framework to measure the benefits for supply chain infrastructure investment should factor all the above criterion and provide an indication to the decision makers (whether line of business or IT) about the cost savings that can be made based on a supply chain infrastructure investment. If enterprises do not invest in the new generation of supply chain infrastructure technology, they stand to lose in terms of higher IT total cost of ownership as well as less flexible and effective business processes.

### Related Research

[The Service-Oriented Architecture in the Supply Chain Benchmark Report](#) (September 2005)

[The CFO's Agenda for Global Trade](#) (September 2005)

[The ESB in the Land of SOA](#) (December 2005)

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