SCM5 Will Drive the Next Wave of Supply Chain Advantage

Gartner has identified five key technology-enabled capabilities for supply chain management. This group, which we call "the SCM5," is expected to drive performance improvements in supply chain operations through 2007.

The supply chain management (SCM) market is brimming with messages about new technologies, paradigms, applications and models, each promising to solve an array of business problems, including challenges users weren't even aware they had. However, amid all this noise, Gartner has isolated and identified five technology-enabled capabilities — which we call the SCM5. Along with the new business processes these capabilities enable, the SCM5 will drive the next wave of performance improvements in supply chain operations.

Against a backdrop of continuing emphasis on collaborative commerce (c-commerce), commoditization of core SCM capabilities, and increasingly sophisticated users and technology, the SCM5 become important. Through 2007, the development and integration of the SCM5 capabilities — business process management (BPM), inventory visibility, business activity monitoring (BAM), analytics and optimization — will consume at least 50 percent of development funds in the top-10 revenue-producing SCM vendors (0.7 probability).

The Components of the SCM5

BPM: As collaboration in SCM increases process complexity and dynamism, application components — whether stand-alone or embedded in incumbent SCM applications — with the capability to explicitly manage workflows across multiple applications and enterprises are becoming critical. BPM can help enterprises deal with these complexities (see "Business Process Management: The Hot Non-Market"). This will require technology to perform application integration and extended BPM tools to contextualize transactions across the extended supply chain and manage appropriate workflows.
Although BPM features have been deployed predominantly in stand-alone applications (largely from the integration broker market) and even separately as integration brokers and workflow engines, we increasingly see vendors embedding BPM capabilities and rich process templates in incumbent SCM applications. At this point, however, process templates for these embedded BPM tools remain immature offerings from vendors, so early adopters will still need to build their own processes.

As the process templates and SCM-specific functionality become more mature, enterprises will also have to weigh the benefits of using an enterprisewide BPM infrastructure against the benefits of templates and process-specific functionality that will come with SCM-targeted BPM functionality. One possible solution to this problem is process-specification abstraction from the actual application managing the process. This would enable the use of SCM templates in enterprise-level BPM infrastructures; however, it is unlikely to become a reality anytime soon, so enterprises will continue to make strategic choices in this area for the near future.

**Inventory Visibility:** This is the ability to track the status of inventory across the extended supply chain. This means setting up “buckets” for every status and location of inventory and using real-time integration technologies to populate these buckets. Inventory visibility capabilities also involve the ability to create views of the data in a format that best meets the needs of the individual user.

Enterprises should consider how they will use point-in-time and cross-time views of the data. Users should have a point-in-time view to see where the inventory is in the supply chain, but they should also be able to filter this point-in-time view so that they can see all of the inventory related to a specific entity: order, shipment, customer, supplier, facility or business unit. In addition, users should be able to access cross-time views, which are historical and projected information for inventory related to a specific entity, such as the history and projected delivery time of a specific shipment or order.

For example, a customer might call a customer service representative (CSR) to find out the status of his or her order for PCs and monitors. Using a point-in-time view filtered to the order level, the CSR would be able to discern immediately that the monitors are on a boat from Hong Kong and that the PCs are in production in the United States. Using a cross-time view of the monitor shipment, the CSR could tell the customer that the monitor shipment will arrive next month. The customer might ask the CSR to find out if the monitor order can be expedited, and the CSR would be able to call up a point-in-time view of all monitor
inventory across the supply chain to see if other monitor inventory is available to be allocated to the customer. This example illustrates the importance of a flexible combination of point-in-time and cross-time views to answer different business questions.

Although several vendors have packaged inventory visibility as part of a supply chain event management (SCEM) application, there is intrinsic value in inventory visibility. Users might hook up inventory visibility information to a customer portal or to a BAM tool, but it is important to point out that inventory visibility can be used to solve a number of enterprise problems independent of other SCEM or SCM capabilities.

**BAM:** With the push toward a real-time enterprise, BAM will become a critical component in SCM strategies (see "Business Activity Monitoring: 'New Age' BI?"). The important components of SCM will be business intelligence (BI) capabilities with real-time data flows, a layer of sensing technology and real-time notification capabilities. BAM will highlight exceptions to the enterprise to enable rapid resolution of issues and to ensure that the problems don't remain hidden among the mountains of information that employees have available to them.

Although many vendors describe their alerting and notification capabilities as stand-alone SCEM tools, most remain relatively immature, and many tools have more-mature functionality around inventory visibility than BAM. Most incumbent SCM vendors are still in the process of developing embedded BAM functionality. However, with BAM embedded in incumbent SCM applications, users will probably get the same functionality for less money; it will have SCM-specific functionality, and the integration will be cleaner in most cases. Users should examine whether an SCEM tool that is bolted on to their incumbent SCM applications will have sufficient business logic to distinguish between meaningful notifications and conditions for which no human intervention is required.

Stand-alone and embedded vendors are also still developing important BAM capabilities, such as escalation and revocation, that are necessary to ensure usability of BAM tools. For example, because of unsophisticated alerting capabilities that use e-mail as the sole alert delivery mechanism, users sometimes turn on these tools and get flooded by e-mail alerts because the system is incapable of revoking alerts when the underlying condition has been resolved. When this happens, users often turn the system off or dramatically reduce its scope, simultaneously reducing impact and, ultimately, return on investment (ROI).
Analytics: Analytics will form a vital feedback loop necessary for continued SCM performance improvement. Supply chain analytics encompass the BI tools that form the foundation, as well as the process-level analysis models. Although enterprises have always had operational reports to indicate what’s happening on a daily basis in operations, enterprises have had to wait long periods — as batch integration and data latency eventually generated metrics — to understand how the business metrics are trending.

A new breed of analytics tools that enables real-time visibility to, and exception-based notification around, trends in business metrics and scorecards is emerging. Although this real-time alerting capability of analytics tools overlaps with BAM tools to a degree, it is still important for users to consider the two types of capabilities separately, because they can be used to solve very different problems.

In addition, as early adopter enterprises are increasingly looking at the impact of supply chain partners’ actions on the performance of the supply chain, these enterprises are beginning to understand the importance of both enterprise-level and cross-enterprise analytics. For example, enterprises are beginning to move from just looking at how much inventory is in a warehouse and how quickly it turns to how much inventory is in the supply chain and what would happen if demand changed over time.

Real-time process-level analytics tools are still fairly immature, and enterprises will have to look at a variety of established SCM application vendors and niche vendors to meet their requirements in this area.

Optimization: As convergence between planning and execution capabilities becomes a reality (see “SCM Convergence Within the Four Walls”), optimization capabilities are being applied across the SCM landscape and not just in traditional planning applications (see "Volatility Is Driving SCE Beyond Transaction Support"). Although the equation-based optimization models are fairly mature, their use in converged SCM applications is still being explored by leading-edge SCM vendors.

In addition to traditional equation-based models, we are seeing a proliferation of agent-based models and simulation models stepping up to begin to solve SCM problems. Agent-based models remain very immature “consultant ware,” but some vendors are exploring incorporating them into leading-edge solutions where equation-based models produce incomplete, latent or inaccurate results.
Lead With the Solution, Then Look to the SCM5 to Enable It

Some of the SCM5 capabilities enable new transactions, whereas others "close the loop" and help enterprises ensure that action is directed at the right problems. However, all of these capabilities are strategic — enabling enterprises to solve age-old supply chain problems in new and fresh ways.

Users must begin with the business problem they are trying to solve, rather than with the technology itself. Too many enterprises "install acronyms," rather than solve business problems — that is, they deploy a technology solution before a business problem has been identified or before a clear link between the business problem and the technical solution has been established. Once the business problem is established, users should look to the SCM5 capabilities to see if and when they can be applied, either alone or in combination, to create a new or more-efficient way to solve the business issue. Through 2007, users will deploy the SCM5 capabilities in at least 75 percent of SCM projects (0.8 probability).

Enterprises should avoid generalized justifications for these types of projects, such as "we must create end-to-end visibility of our supply chain." Often, a good portion of the business benefits can come from visibility to inventory in specific places, and a more-efficient project would focus on that specific issue. Although often highly publicized, the intangible or unintended benefits from such generic justifications are rarer than they appear and are a risky basis for project justification.

Bottom Line: The SCM5 enables enterprises to use the supply chain and their trading partners to strategically differentiate themselves through 2007. Enterprises should first identify business problems that these capabilities can be used to solve. Then, they should determine how each of these capabilities will be deployed by established SCM application and niche vendors to build upgrade plans that incorporate this functionality.

Acronym Key

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAM</td>
<td>Business activity monitoring</td>
</tr>
<tr>
<td>BI</td>
<td>Business intelligence</td>
</tr>
<tr>
<td>BPM</td>
<td>Business process management</td>
</tr>
<tr>
<td>CSR</td>
<td>Customer service representative</td>
</tr>
<tr>
<td>ROI</td>
<td>Return on investment</td>
</tr>
<tr>
<td>SCE</td>
<td>Supply chain execution</td>
</tr>
<tr>
<td>SCEM</td>
<td>Supply chain event management</td>
</tr>
<tr>
<td>SCM</td>
<td>Supply chain management</td>
</tr>
<tr>
<td>SCP</td>
<td>Supply chain planning</td>
</tr>
</tbody>
</table>