Blueprint for supply chain visibility

Service-oriented architecture can help drive agility, supplier collaboration and demand-driven replenishment

Effective supply chains are agile, with the capability to quickly respond to shifts in supply, production and demand. As well, they can enable companies to move rapidly into emerging markets, while simultaneously allowing them to take advantage of global sources of supply, production, distribution and talent. This flexibility and responsiveness, in turn, can fuel sustainable growth. Companies can facilitate the creation of agile supply chains by establishing a blueprint that enables visibility of all aspects of their globally integrated supply chains. We believe service-oriented architecture (SOA) can provide the foundation for that blueprint.

Global sourcing and aggressive global competition, combined with increasing customer demand, are significantly affecting the supply chain. When compounded by complex logistics networks, capacity constraints, distributed and fragmented information, as well as increasing security requirements, these global market challenges and complexities can lead to excess inventory, longer cycle times and deteriorated customer service.

Adapting to the changing landscape

Today's business environment changes quickly. The supply chain leader must deal with changing market boundaries and new channels. Companies are quickly realizing a global market means more than duties and currency conversion. Contract manufacturing, along with other sourcing and manufacturing strategies
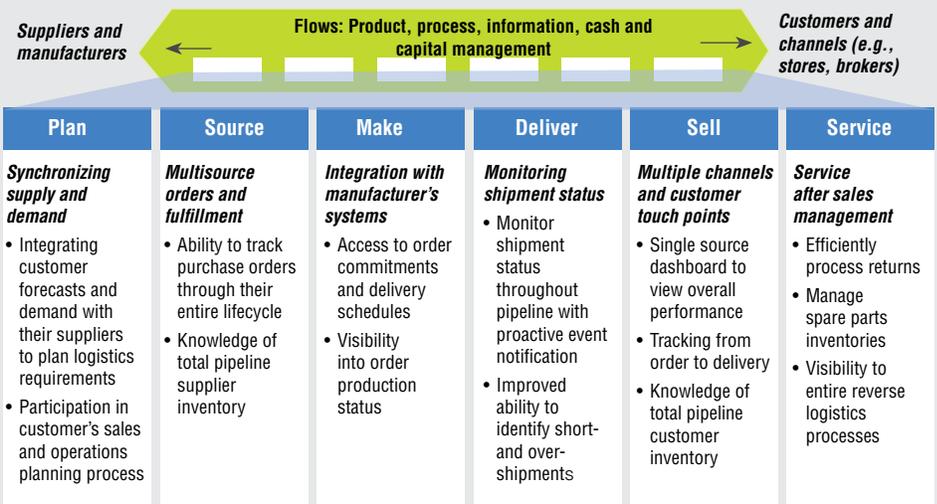
with multiple tiers and partners, has increased the complexity of the modern sourcing chain. The distribution side has also grown more complex, as logistics

networks have evolved to multi-tiered strategies. Throughout the entire supply chain, information continues to grow more important, but also more distributed and harder to rein.

SOA: A foundation for agility and visibility

SOA has emerged as a means for supply chain managers to transform the business model, enabling demand-driven synchronization of supply chain planning and execution activities in collaboration with suppliers, service providers and partners. SOA integrates people processes and information and is designed to speed up new application development

FIGURE
End-to-end supply chain visibility model.

Suppliers and manufacturers	Flows: Product, process, information, cash and capital management				Customers and channels (e.g., stores, brokers)
Plan	**Source**	**Make**	**Deliver**	**Sell**	**Service**
Synchronizing supply and demand	*Multisource orders and fulfillment*	*Integration with manufacturer's systems*	*Monitoring shipment status*	*Multiple channels and customer touch points*	*Service after sales management*
• Integrating customer forecasts and demand with their suppliers to plan logistics requirements	• Ability to track purchase orders through their entire lifecycle	• Access to order commitments and delivery schedules	• Monitor shipment status throughout pipeline with proactive event notification	• Single source dashboard to view overall performance	• Efficiently process returns
• Participation in customer's sales and operations planning process	• Knowledge of total pipeline supplier inventory	• Visibility into order production status	• Improved ability to identify short- and over-shipments	• Tracking from order to delivery	• Manage spare parts inventories
				• Knowledge of total pipeline customer inventory	• Visibility to entire reverse logistics processes

Source: IBM Institute for Business Value.

by providing repeatable "component business services," allowing companies the opportunity to balance demand and supply, as well as optimize customer service and inventory levels by managing supply chain events in realtime across organizational boundaries.

SOA is a business-driven IT architectural approach that takes everyday business applications and information and breaks them down into individual functions and processes called services. Each of these services can be mixed, matched and reused to create new, flexible business processes to address new corporate priorities. The services then can be made available to others in the extended network – such as other departments, trading partners and customers. And when processes are altered, companies can use existing, assembled, composite services and just "snap-in" the additional new process, shortening the response time. The SOA approach integrates people, processes and information. An SOA strategy helps simplify integration throughout the entire supply chain and can enable companies

to respond faster to day-to-day disruptive events and balance trade-offs.

SOA benefits: Responsiveness, flexibility and performance

Supply chain management leaders may now be able to achieve new responsiveness and flexibility while improving the performance equation. Companies can assemble the capabilities they need in new and different ways. Now, companies don't have to operate their supply chains in a vertically integrated way. A customer-driven, networked and globally integrated supply chain is the future model for many companies. This innovation requires visibility and the ability to make changes flexibly – and SOA can make this possible.

Service-oriented architecture (SOA) can enable companies to more rapidly respond to market and operational impetus. It can also help reduce the lag time and the investment needed to make technological improvements while preserving (and, in fact, optimizing) the investments of the past.

To request a full version of this paper, e-mail us at iibv@us.ibm.com

How can IBM help?

- **Global Services SOA Offerings:** SOA Design, Development and Integration Services: Helps a line of business or application group realize business value by providing a suite of SOA services that complement the application implementation lifecycle.
- **IBM Supply Chain Management Offerings and Services include:** Supply chain planning services, product lifecycle management, supply chain enterprise application services, logistics, procurement, enterprise asset management, supply chain operations and supply chain strategy.
- **Supply Chain Visibility:** Supply chain visibility addresses the end-to-end integration of the four flows: product, information, people/process and financial. Realtime supply chain network information visibility helps enable global trade and collaborative decision making.

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