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IBM Lays Out its Vision for the Supply Chain of the Future

Instrumented, Interconnected, and Intelligent

SCDigest Editorial Staff

What will the supply chain of the future look like? According to IBM, it will be a lot smarter.

IBM is the latest to present a vision for the future of supply chain, in a new report based on a survey of some 400 supply chain executives from across the globe. Last week, we summarized key survey findings from the report. (See **What is at the Top of the Supply Chain Executive Agenda?**) This week, we look at the second phase of the report, the IBM vision for the supply chain of the future. (See also **Xbox Live is the Supply Chain of the Future**.)

IBM identified five key themes it says represent the "Chief Supply Chain Officer Agenda": cost containment, supply chain visibility, supply chain risk management, customer intimacy/requirements, and globalization.

In the report, IBM says there will be three main strategies that companies will use to build the future state supply chain: better "instrumentation," improving integration or "interconnectedness," and increased supply chain "intelligence."

What does that really mean?

IBM outlines the characteristics of each as follows:

Instrumented:

- Sensor-based solutions to reduce inventory costs with increased visibility
- Production and distribution process detectors to monitor and control energy usage and waste
- Physical transportation, distribution and facility asset management, controlled and monitored with smart devices for efficiency and utilization

IBM says, for example, that when it comes to supply chain visibility, increasingly the "issues will not be about having too little information, but rather too much. Smarter supply chains, however, will use intelligent modeling, analytic and simulation capabilities to make sense of it all."

Interconnected:

- Agile, on demand network of suppliers, contract manufacturers, service providers and other (financial and regulatory) constituents
- Outsourcing non-differentiating functions to share risks across the global network
- Variable cost structures that fluctuate with market demand
- Shared decision making with partners at source (local, regional, global strategies)
- Integrated, networked asset utilization and management

Intelligent:

- Network and distribution strategy analysis and modeling with event simulations
- Scenario-based operational analysis
- Simulation models and analyzers to evaluate flexibility factors – service levels,
- costs, time, quality – with inventory synchronization

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- Sustainability models to analyze and monitor usage impact (carbon, energy,
- water, waste)
- Integrated demand and supply management with advanced decision support

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Impact on Functional Areas

In the graphics below, IBM summarizes what the impact will be of moving to an instrumented, interconnected and intelligent supply chain of the future.

FIGURE 13 THE "SMARTMAP" TO THE SUPPLY CHAIN OF THE FUTURE

Which capabilities are most critical to your organization?

	SCM COMPETENCY AREAS			
	STRATEGY	PLANNING	LIFECYCLE MANAGEMENT	SOURCING AND PROCUREMENT
INSTRUMENTED	Visibility and performance mgmt SC optimization and transparency Sensors and simulators of customer demand	Realtime demand mgmt and inventory optimization Realtime inventory pipeline visibility Early warning detection: supply and demand synchronization	Predictive analysis and simulation design techniques Embedded systems Sensors for preventative maintenance	Risk and compliance sensors and modeling Proactive and realtime supply network event monitoring Global sourcing and import logistics KPIs and detection
INTERCONNECTED	Alignment of business and SC strategies with partners Integrated sustainability strategies Variable cost structures that fluctuate with market demand	Collaborative planning and execution Integration of financial and operational analysis Integrated S&OP with external metrics	Collaborative development and engineering with customers and partners Customer insight driving brand brilliance Knowledge sharing for continuous improvement	Realtime visibility of multitiered supply Contract management and strategic sourcing Outsourcing to share risks across the global network and create variable structures
INTELLIGENT	Segmented cost-to-serve analytics Sustained SC cost reduction via advanced analytics Risk-based impact analysis	S&OE (where "e" is execution) Risk-adjusted inventory optimization Networked S&OP with optimized decision support	New product development innovation and analytics Sustainable, "green" considerations throughout lifecycle Model-driven systems engineering	Predictive buy-sell analytics Sustainable procurement practices Intelligent spend analysis

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	OPERATIONS	ASSET MANAGEMENT	LOGISTICS	ENTERPRISE APPLICATIONS
INSTRUMENTED	Optimized inventory controls and event detection Sensors and actuators in production for carbon, water, waste monitoring Visibility for operational risk management and control	Total cost mgmt dashboards Environmentally sustainable asset monitoring Integrated probability-based risk assessment	Event-driven logistics alerts Realtime sensors for optimized network Ease of network on-boarding and automated data feeds from logistics partners	Monitoring and realtime detection and alerts Inventory optimization ERP to MES integration
INTERCONNECTED	Networked design for manufacture, supply, use and reuse Trade terms mgmt linked to partner KPIs Demand-driven production and postponement	Integrated asset and resource management Geographic information systems Dynamic and variable asset cost structures	Realtime visibility to logistics providers Network integration with variable contingency plans and policies Agile, on demand logistics network	Collaboration platforms: customer, provider, supplier ERP to ERP integration Enterprise and network performance management
INTELLIGENT	SC models to manage capital expenditure Disaster response models Simulation model to evaluate flexibility factors: service levels, costs, time, quality	Cost-of-ownership analysis Tax and compliance modeling Proactive redeployment/ reconfiguration/ divesting of assets	Carbon footprint management Data-driven reverse logistics Network and distribution strategy analysis and modeling	Business intelligence and integrated analytics Predictive analysis and advanced analytics applied to events KPI trends linked to training and change mgmt program

The report adds in conclusion: "Globalization and growing supply chain interdependence have introduced a heightened level of volatility and vulnerability that is unlikely to subside. Uncertainty has become the norm. This new environment demands a different kind of supply chain – a much smarter one."

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