IBM Institute for Business Value

Smarter Commerce is redefining value chain visibility

Connecting the dots

By Karen Butner

Smarter Commerce is redefining the value chain in the age of the customer. It starts with putting the customer at the center of your operations – which of itself is not a new idea – however, truly operationalizing this strategy is not easy. It requires synchronizing your entire value chain to deliver consistent and predictable outcomes and necessitates improved collaboration and visibility for your customers and partners.

Every phase of the commerce cycle is affected (see Figure 1).
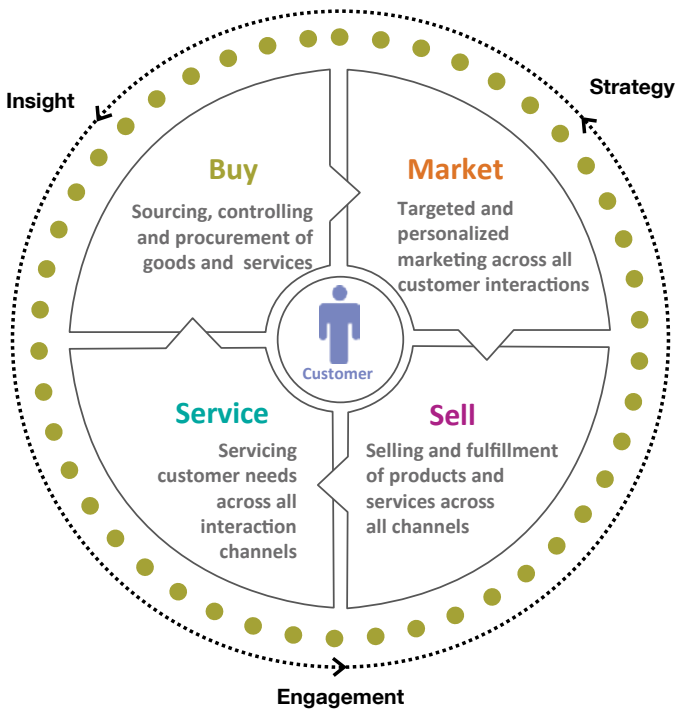
Source: IBM Institute for Business Value.

Figure 1:. **Smarter Commerce primary integrated processes.**

Buy: Sourcing, controlling and procurement of goods and services. Smarter Commerce optimizes supplier and partner interactions based on changes in shopping/buying behavior across the supply chain and reconsiders partner roles and relationships to generate new and differentiating customer value.

However, Lack of visibility into supplier inventory leads to stock outs, late/expedited shipments, quality issues, and more.

Market: Targeted and personalized marketing across all customer interactions. Smarter Commerce uses customer insight - deep insights about customers – gleaned in large part from the global conversations taking place online– to deliver timely and personalized engagement across multiple touch points.

However, Lack of timely information on forecast, or customer orders results in additional costs and missed opportunity.

Sell: Selling and fulfillment of products and services across all channels. Smarter Commerce enables customers and partners engagement so they can shop, exchange information, and collaborate across all touch points, spanning human, digital, social, and mobile modes of access that are optimized according to their preferences.

However, Inability to receive timely, accurate demand signals leads to stock outs, excess/obsolete inventory, higher cost, lost revenue, and poor customer satisfaction.

Service: Servicing customer needs across all interaction channels. Smarter commerce enables flawless customer service across all customer interactions and anticipates their behavior and takes action to keep them loyal.

However, Lack of visibility into changing partner commitments can lead to poor customer service, longer cash-to-cash & reduced profitability.

Value Chain Visibility connects the Dots

Visibility was a leading challenge identified in the most recent IBM Study, "New Rules for a New Decade". It is a major concern as companies seek agility and responsiveness in their global operations. At a time when the free flow of information is readily available to most of the world through the Internet, supply chain managers still struggle with getting accurate and timely information to run their global operations. This point-of-view will provide a blueprint for visibility by discussing how industry visionaries are fusing real-time value chain information, event processing, advanced analytics and business intelligence technologies for performance optimization. Business benefits include lower inventory costs, rapid availability of reliable data, fast response to shifts in market demand and flexible analyses for tactical and strategic decision making.

Supply chain executives are at different points in building smarter collaborative visibility capabilities. Some are still struggling with transactional level exchanges and breaking down the silos among functions within the enterprise. In sharing information with their value chain partners, they rely primarily on electronic data interchange (EDI) and are working through standardization and data management approaches to make sense of the information.

Others have taken things a step forward with integration. They are integrating their strategies, plans and operational capabilities with visibility, both across functions and business units within the enterprise and with their extended network. They are building more integrated visibility capabilities with key partners (suppliers, service providers, contract manufacturers and customers) that are focused primarily on supply chain planning and logistics functions. They are implementing dashboards and scorecards to better monitor on-going performance against targets and manage exceptions and disruptions.

But the "Visionaries"… they are pushing ahead by using collaboration among their network partners with business intelligence to make collective and fast decisions. They are using business intelligence and advanced analytics to analyze, monitor and detect changes, from the highest priority events to the most minute transaction, that influence customer service. From adjustments in forecasts due to real-time point of sale or actual orders, to production schedule adjustments from a supplier to in-transit shipment status from a carrier they are aware and reacting quickly.

Visionary leaders are integrating and synchronizing end-to-end information among all parties, bringing together pertinent data on events to monitor activities and performance to plan. They are implementing dashboards, in multi-media, on multiple devices, to proactively manage their supply chains.

They are taking "sense and respond" to greater levels of "predict and act." For example, an automated replenishment signal from a store shelf predicts a potential out of stock situation. Inventory balances are automatically checked, as are the business rules associated with this product for this customer. An automated transaction is generated and transmitted to the distribution center to ship product immediately, and a signal is sent to the product supplier to update production schedules accordingly. No human intervention is required.

To achieve this, many Visionaries are fusing real time information, event processing and advanced analytic technologies (see Figure 2). Their extensive connectivity enables the entirety of their supply chain network to plan and execute decisions collaboratively. They are aggregating or segmenting information for trend analysis, automating business rules, automating transactional responses to alerts, and recommending actions based on performance criteria.
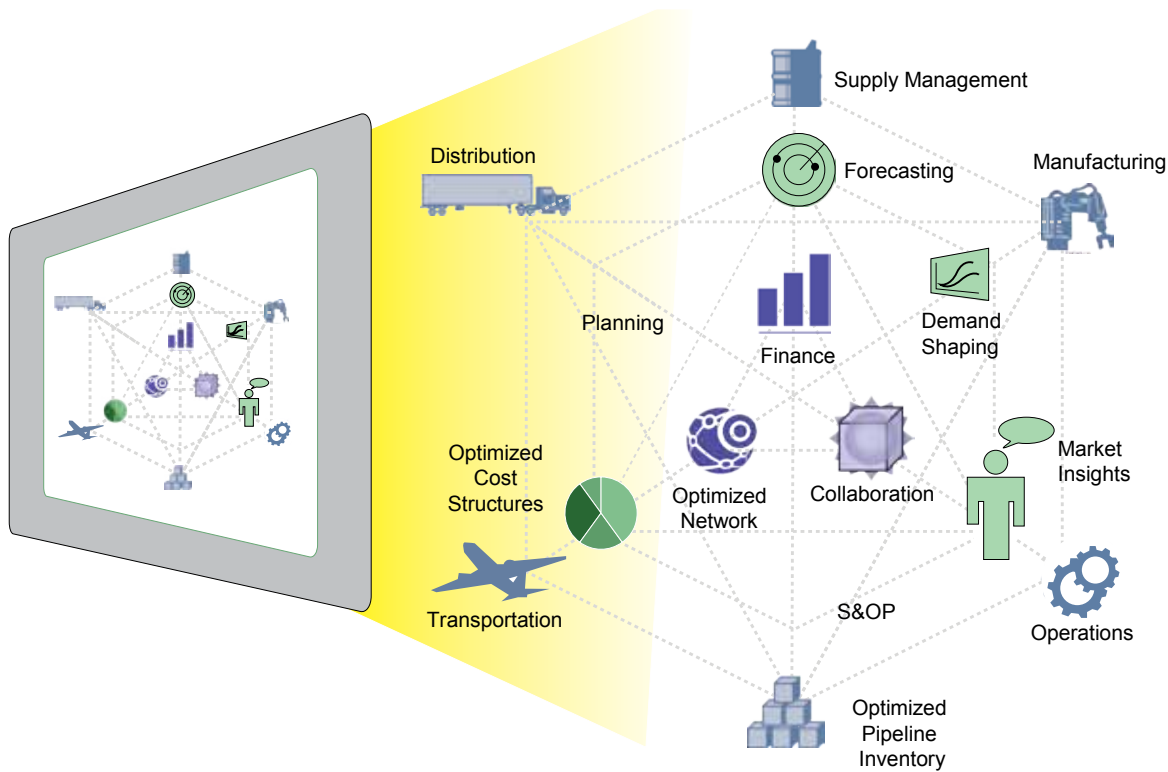
Source: IBM Institute for Business Value.

Figure 2:. **Value Chain Visibility: a multi-enterprise, supply-demand balancing lens on integrated operational events and the resultant financial impact.**

And finally, they are capturing real time information to proactively monitor product and service flows using smart devices (RFID, GPS, sensors and actuators). Although this capability may be later on their list of priorities, those endeavoring to use objects, versus labor-based tracing and monitoring, are realizing the benefits. As product lifecycle traceability in many industries is becoming a major concern, the use of smart devices is likely to become more prevalent for tagging products wherever they are, as well as the containers and modes that are transporting them.

For example, a global aircraft manufacturer implemented real time visibility to control part and components from multi-tiered suppliers to final assembly. With its suppliers becoming more geographically dispersed, it became increasingly difficult to track parts, components and other assets as they moved from suppliers' warehouses to one of the company's 16 manufacturing sites.
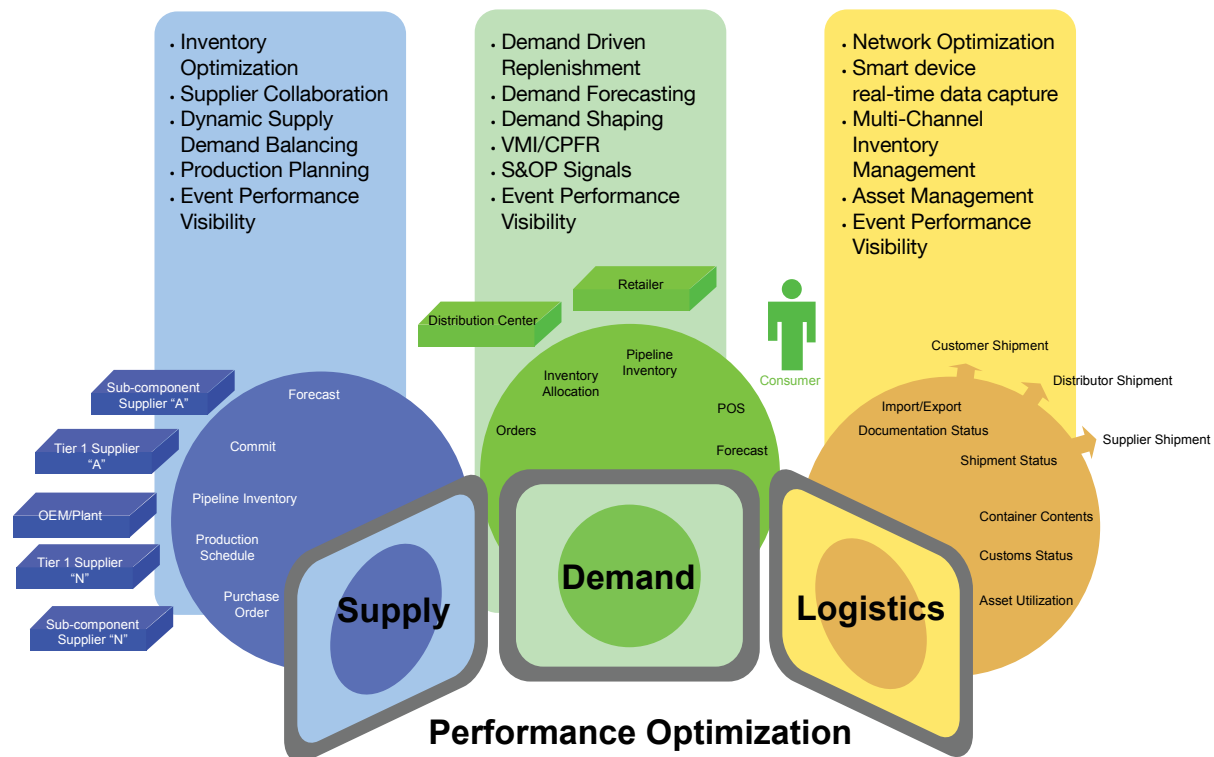
Using smart sensing devices tagging each component part, they were able to detect when inbound shipments deviated from their intended path. As parts move from suppliers' loading docks to warehoused inventory to the assembly line, they travel in smart containers fitted with RFID tags holding vital information. At each important juncture, readers interrogate these tags. If shipments arrive at the wrong place or do not contain the right parts, the system alerts employees to fix the problem early before it disrupts production.

Benefits:
- Significantly reduced the incidence and severity of parts delivery errors – and the costs associated with correcting them
- Increased the overall efficiency of its parts flow, cutting time spent physically handling parts in its warehouses by 75 percent
- Reduced safety stock and avoid significant carrying costs
- Prepared to meet known – and unanticipated – cost and challenges of potential global disruptions to their supply chain operations

Value Chain Visibility integrates and synchronizes demand, supply and logistics to optimize performance. (see Figure 3). Demand visibility focuses on demand driven replenishment and forecasting. Data is received from multiple customer sources from point-of-sale (consumer retail) to point of order to provide a continuous update of actual demand. Actual demand then recalculates forecasts that were originally derived and achieved through Sales & Operations Planning (S&OP). Depending upon the industry and company situation, business rules can be applied to automatically make proactive allocation decisions – sending out replenishment signals to distribution channels for example. Also, based upon business rules, the demand manager may send a signal to reevaluate inventory optimally in the pipeline. This may include an event management signal to redistribute, reallocate or resupply inventory at appropriate junctures in the value chain pipeline.

Supply visibility, as the name implies, is responsible for all activities to manage the information flow and decisions concerning multi-tiered supply. Typical insights would include supplier commitments and production planning and scheduling outcomes against original purchase agreements. With this constant and current information, the supply manager can dynamically balance supply with demand. Alerts are sent to the appropriate parties when there is a significant imbalance (based upon business rules and tolerances) which may cause a delay in customer requirements being met. Through supplier collaboration these imbalances can be dealt with in a timely manner and corrective decisions and actions placed back into the business rules for the next synchronization

Supply

- Inventory Optimization
- Supplier Collaboration
- Dynamic Supply Demand Balancing
- Production Planning
- Event Performance Visibility

Sub-component Supplier "A"
Tier 1 Supplier "A"
OEM/Plant
Tier 1 Supplier "N"
Sub-component Supplier "N"

Forecast
Commit
Pipeline Inventory
Production Schedule
Purchase Order

Demand

- Demand Driven Replenishment
- Demand Forecasting
- Demand Shaping
- VMI/CPFR
- S&OP Signals
- Event Performance Visibility

Retailer
Distribution Center
Consumer

Pipeline Inventory
Inventory Allocation
Orders
POS
Forecast

Logistics

- Network Optimization
- Smart device real-time data capture
- Multi-Channel Inventory Management
- Asset Management
- Event Performance Visibility

Customer Shipment
Distributor Shipment
Import/Export Documentation Status
Supplier Shipment
Shipment Status
Container Contents
Customs Status
Asset Utilization

Performance Optimization

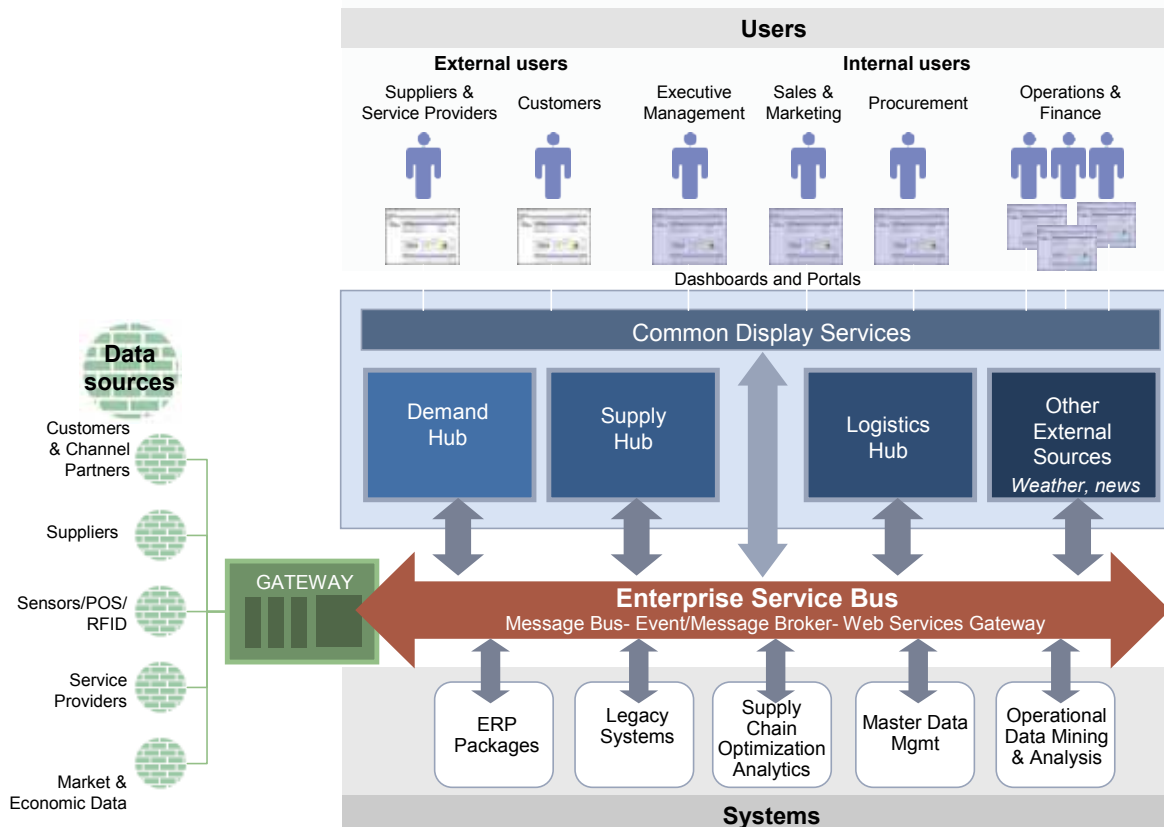Source: IBM Institute for Business Value.

Figure 3: **Value chain visibility integrates and synchronizes demand, supply and logistics to optimize performance.**

Core to the interactions of any supply chain are the logistics activities to physically store and transport products around the world. Logistics visibility assimilates a multitude of transaction signals starting with enterprise logistics planning to service provider tracking and status information. Logistics constraints (e.g. lead times, port delays, carrier capacities) are evaluated against customer service levels. Based upon business rules and tolerances, either a corrective action may be automatically generated (reroute or expedite a shipment) or an alert may be generated for human decision making, thus optimizing the continuous flow of products, while managing discrete logistical activities.

The actual "heart" of Value Chain Visibility is performance optimization. Key performance indicators and performance criteria are provided on multiple media for continuous management review and correction across all three facets of the Value Chain. This includes customer demand variations, supplier performance to plan, and of course the continuous stream of logistics activities.

Managing complex value chains requires timely and accurate information that is shared between functions of the enterprise and among all of the parties in the value network. It begins with market insights and customer forecasts, and includes constant "signals" on commitments, status and performance-to-plan from service providers, channel partners, and suppliers. Effective value chain visibility is not just about connecting the dots from a technology perspective, but very much about the cooperation and trust required to share information and collaborate on decisions. Having a personalized view of events, alerts and performance criteria, with appropriate levels of data security, is an important feature of any visibility initiative.

To summarize, Value Chain Visibility is best understood as a multi-enterprise, supply-demand balancing lens on integrated operational events and the resultant financial impact. Advanced analytics are used to synchronize end-to-end transactions, with intelligence, to optimize inventory at all phases and to predict variations (see Figure 4). Advanced computing technologies, will provide the necessary intelligence to advance Value Chain Visibility into a whole new realm of real time, computer-decision- response technology, required in the near future to meet the growing complexities of globally integrated value chains.

Source: IBM Institute for Business Value.

Figure 4: **High-level architectural view.**

The benefits of implementing and managing your value chain with intelligence and performance optimization are many. To name a few that many companies are enjoying:

- **Revenue** – higher revenue through enhanced customer service; better analytics to capture market insights and avoidance of risks such as stock-outs
- **Flexibility** - enhanced decision making for proactive strategic and tactical planning.
- **Speed** - shorter customer demand response lead times and supplier lead times with real time decision making
- **Cost Efficiencies** - lower pipeline inventory and carrying costs, lower labor costs through decreased handling and processing, lower channel inefficiency costs.
- **Risk Management** - Decreased risk at all junctures and functions, through reliable information supporting proactive risk identification and mitigation.

Conclusion

Smarter Commerce requires tight integration of all of the players in the value chain with the customer centric to all activities from planning to execution. More and more companies are recognizing the benefits of a multi-enterprise, synchronized approach to value chain management. They are implementing new processes and technologies to:

- **Synchronize portal** views that bundle **visibility** and **control** of the supply chain to gather, process, analyze, display and disseminate planning and operational data
- **Consolidate events** across the end-to-end supply chain – customer-facing demand, multi-tiered supply and up-to-date logistics
- **Manage by exception.** Issue alerts, recommend action, and notify appropriate parties when key performance indicators are trending toward tolerance boundaries
- Establish **web-based collaboration** with business partners and share internally key event, alert and information
- Initiate recovery responses either automatically or through **decision feedback loops**
- Create **agile** supply chain operations with the capability to respond to **shocks or shifts** in supply, production, demand, and logistics.

Connecting the dots to redefine the value chain in the age of the customer

What's new in value chain visibility? Obtaining accurate and timely information to manage the complexities of today's value chains has been on the agenda of operations and finance executives for a long time. What's exciting is that new analytics capabilities, workflow collaboration and technologies are evolving to help connect the dots.

What are your value chain visibility gaps?
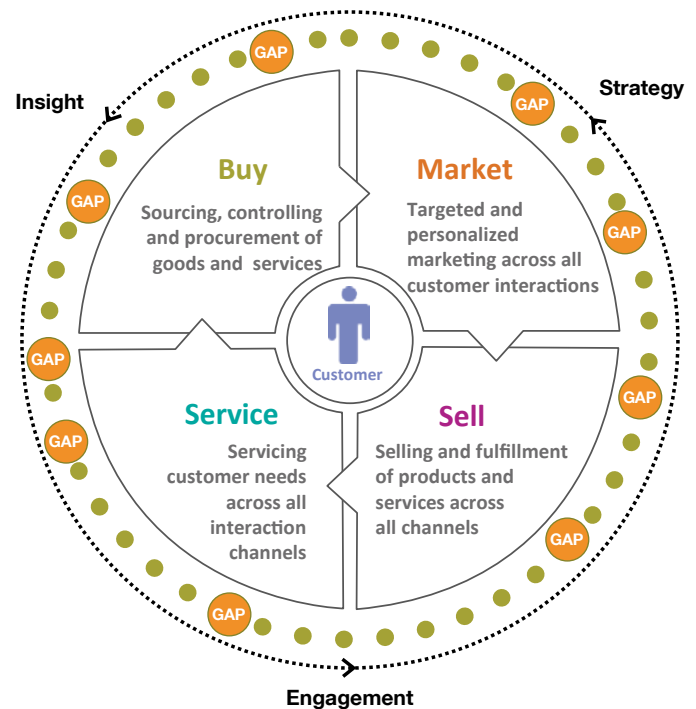
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