Supply Chain Visibility Is Key to Improved Efficiency and Reduced Costs

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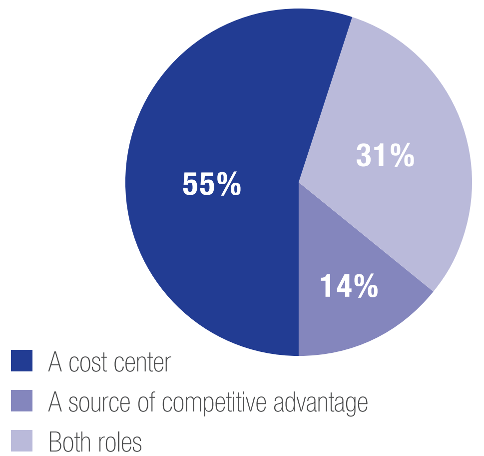
Introduction

A 2013 survey by Capgemini global consultants found a majority of business managers, 55 percent, believe the role of supply chain management is to provide a competitive advantage. So it may not be surprising then that managers also listed "supply chain visibility improvement" as their top priority. This sounds like a noble goal, but what exactly is meant by supply chain visibility?

The term can actually mean different things to different businesses. A simple definition offered by Inbound Logistics refers to "knowing where inventory is at any moment." A more expansive definition from Aberdeen Group researchers describes "the awareness of, and control over, specific transport and logistics activities, and the statuses of events and milestones that occur prior to and in-transit."

WHAT IS THE ROLE OF SUPPLY CHAIN MANAGEMENT?



Source: Capgemini Consultants, 2012.

Two ways of describing the same goal possibly, but each business will need to determine its own goals for improved visibility and the steps necessary to get there. A visibility strategy adopted by a multinational corporation with suppliers located across the globe, for example, would be different than the strategy developed by a midsize U.S. manufacturer that relies primarily on U.S. and perhaps Canadian or Mexican suppliers.

The idea of adding visibility into the supply chain first gained traction during the early 1990s when technology pioneers introduced ways for businesses to track shipments and provide updates as a package moved from Point A to Point B. As technology developed, so too did capabilities for capturing more information about not just shipment movements but the entire supply chain as well.

An integral component of visibility is the sharing of information with all stakeholders. This can require a significant change in culture for businesses used to keeping a tight leash on supply chain–related information. Gaining visibility means allowing different parts of the process to talk to each other, understand each other's role in the supply chain, and get to the point where everyone is on the same page, pulling in the same direction.

Enhanced supplier collaboration was embraced by managers at Lowe's Companies as a way to improve efficiency. Lowe's Senior Vice President LeRoy Allen addressed the process at a 2011 industry seminar: "With 3,000 suppliers, you can't talk to all 3,000 of them. You can't do that," he said. "You've got to give them a minimal amount of information, so they can help you run the business better. And when I say run the business, it's our business, it's their business, it's Lowe's business, and that's the way we look at it."

"Our whole concept here is that we can do a much better job if we run this supply chain together. And we've seen time and again that if we can do that, the costs that we can drive out, the innovation we drive in, our ability to really manage and meet the expectations of our ultimate customer, we are doing a much better job at that," Allen added.

To start, a business will need to consider three core questions:

1. *Who* do we want to share information with?
2. *What* information do we want to share?
3. *How* do we want to share that information?

Determining the who, what, and how will drive a business's approach to visibility. The more stakeholders "in the loop," the greater the likelihood for collaboration and efficiency. But that collaboration will come with increased exposure to risk. Finding the right balance is key. As the following discussion will make clear, help is available, and a determined business can have a solution that adds visibility into its unique supply chain.

In considering adding visibility to its supply chain, a business needs to determine:

1. **Who** do we want to share information with?
2. **What** information do we want to share?
3. **How** do we want to share that information?

What Is Visibility?

An operations manager is told by senior management to cut costs by 10 percent. But how can the manager do that without understanding how a cutback in one area will reverberate across the rest of the production process? Instructing Vendor A to change a process without understanding that Vendor B relies on Vendor A's output could uproot the whole process.

Allowing the manager to have insight into the entire process—greater visibility—would avoid potentially disastrous scenarios such as this from playing out.

This then is a key objective of all businesses: 360-degree insight and awareness of all processes to ensure synchronization, understanding among all stakeholders, and maximum efficiency. Within that broad objective, visibility can be broken down into three core parts:

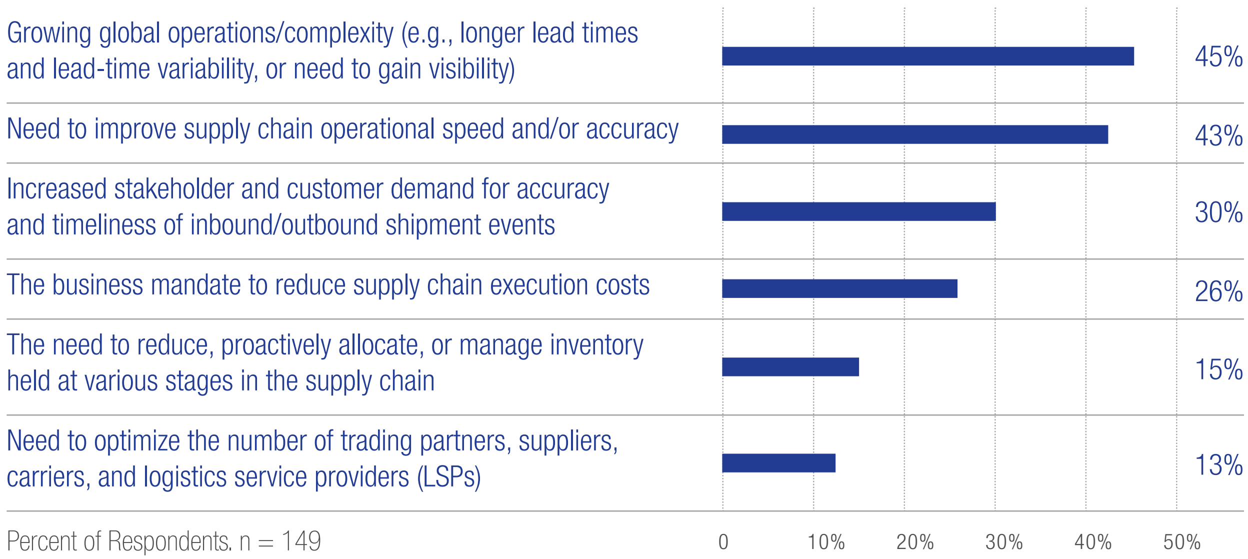
- Coordination of all supply chain parts/processes
- Planning/management for potential disruptions
- Process for delivering high levels of customer service

Coordination of All Supply Chain/Parts Processes

While no two supply chains are exactly the same, it is a safe bet that all are more complicated, involve more stakeholders, and more variables than supply chains of just a few years ago. And, of course, supply chain managers today are under enormous pressure to find efficiencies and lower overall costs.

A 2013 Aberdeen Group study listed the top concerns for managers looking to improve supply chain visibility:

TOP PRESSURES TO IMPROVE SUPPLY CHAIN VISIBILITY



Source: Aberdeen Group, May 2013

Whatever the reason, supply chain managers have prioritized the need for supply chain visibility and are turning to innovative, collaborative strategies to help plan and manage critical processes. Whereas in the past, it was common for a "control tower" approach, in which a manager would give top-down direction to the field, the process now is much more collaborative. Today, managers seem open to increasingly "out of the box" ideas that find value in collaboration, even sometimes with direct competitors. Among the increasingly popular solutions for adding supply chain visibility:

VENDOR-MANAGED INVENTORY (VMI)

Although not a new concept, VMI has grown in popularity in recent years largely because it helps businesses avoid having to assume responsibility for inventory. Instead, inventory obligations shift to the supplier, who tracks inventory levels and restocks as needed. Inventory is held by the supplier on-site or at a nearby location. Key benefits to the business include access to inventory as needed and liability to pay only for what is needed. At the same time, suppliers benefit from ensuring that merchandise is properly displayed and that employees are trained about products' selling points.

VMI is a technology-driven partnership, with strong reliance on electronic data interchange (EDI). Key information about product sales is transmitted on a predetermined basis from the customer to the vendor. That information could include: quantity sold (both in dollar value and in number of units), quantity on hand, and quantity on order. Based on this data, an electronic order is generated and approved by both the seller and supplier.

Additional VMI benefits:

- Greater flexibility with capital—by investing in less inventory, a business will have additional funds to spend on other areas
- Improved fill rates, decreased stock-outs
- Reduced administrative burden
- Reduced purchasing costs—since orders are generated via EDI data, retailers no longer need to generate time-consuming purchase orders
- Fewer on-site storage space demands

Jon Schreibfeder, inventory management expert, author, and president of Effective Inventory Management, Inc., says that a well-managed VMI has the potential to be a "win-win" for both the supplier and customer. But, he cautions, any VMI agreement must clearly delineate expectations, fee structures, and responsibilities.

To that point, research by Oracle noted the importance of a vendor having an understanding of the big picture in order for a VMI to succeed. "Unfortunately, many VMI programs fail because they simply transfer the transaction aspects (and costs) of placing replenishment orders from customer to vendor, without improving the vendor's understanding of demand," the report noted. "In fact, such VMI programs often degraded supply chain performance because vendors lack visibility to retailer-driven promotions and other store-level events. This visibility is needed to forecast accurately."

For a VMI arrangement to succeed, vendors need to be fully aware of all factors affecting market demand. Specifically, that visibility can allow vendors to properly anticipate inventory needs and, in turn, decrease operating costs.

DEMAND MANAGEMENT

In its simplest form, demand management refers to the process whereby businesses utilize various indicators to forecast customer demand and align their supply chain to meet those projections. To do this properly, a business must take into account a number of coinciding processes, including sales and operations planning, demand planning, statistical forecasting, sales plan reconciliation, and key performance indicator monitoring. Together, these processes can help a business develop a realistic demand forecast, which in turn will drive operations, manufacturing, sales, and marketing planning. When properly put in place, demand management gives everyone a seat at the table and a high degree of visibility into a business's forecasting processes.

Demand management can be a highly effective technology-driven tool for helping businesses manage inventory.

Central to its success is the synchronization and integration of many different parts, with technology being the glue that holds everything together. The typical business has access to troves of data about virtually all aspects of its business. Big data can be truly overwhelming unless a business has the mechanisms in place to properly manage and assess the information.

Equally important, managing demand must be done in real time, and current technology makes this possible. In a recent white paper on this subject, IBM analysts note: "demand management is a more proactive approach than its predecessors—relying on highly sophisticated quantitative and advanced modeling techniques to preset tolerance levels and pinpoint problem areas, monitor and adjust strategies dynamically, and achieve real-time visibility and synergy across all channels."

With big data certain to play an increasingly larger role in supply chain operations, it is essential for businesses to embrace its potential. By implementing technology and processes for data analysis, businesses can make better and more strategic decisions.

DEMAND SENSING

Demand sensing is a relatively new concept in inventory management that allows businesses to focus on near-term demand. Demand sensing takes the data-driven principles of demand management to a higher level by applying additional indicators and different mathematical equations. Whereas demand management tends to rely on historical sales data and makes assumptions based on previous years' practices, demand sensing relies on real-time supply chain practices and tries to predict future demand based on indicators including open orders and daily sales.

As reported by Supply Chain Brain, demand sensing gives businesses a more exact forecast of consumer demand. "The method serves as an alternative to traditional demand planning, whereby companies look primarily at seasonal patterns and average sales for a given time of year," explained Rob Byrne, chief executive officer of software provider Terra Technology. "Demand sensing," says Byrne, "brings in all the data that might be relevant about what's going on in the marketplace." Orders, historical trends, point-of-sale data, and channel inventory are among the inputs that can be factored into the mix.

Demand sensing has been especially attractive to larger multinational retailers. Terra, for example, provided the demand sensing solution that was adopted by Kellogg cereals as a way to better gauge inventory needs on a weekly basis rather than via its traditional month-by-month planning method. When the company implemented demand-sensing technology on a "test" basis, results were significant—the company experienced a 40 percent improvement in its short-term forecasting accuracy.

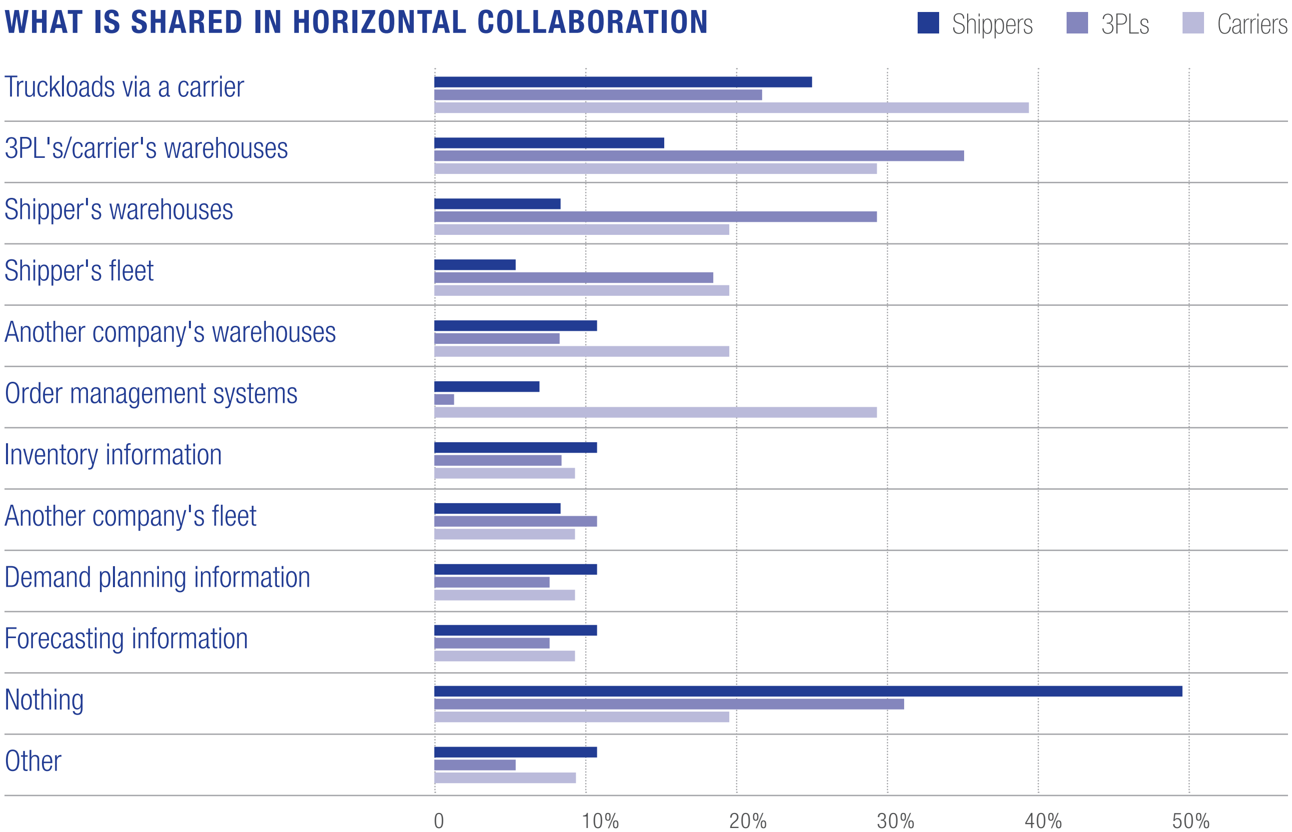
HORIZONTAL COLLABORATION

Supply Chain Management Review described horizontal collaboration as companies sharing supply chain assets for mutual benefits.

Businesses in the same industry, who often have the same customers and same logistics needs, are prime candidates for horizontal collaboration. A current "high-profile" example involves two competitive chocolate manufacturers, the Hershey Co. and The Ferrero Group in North America. The two companies announced in 2011 that they had entered into an alliance to share warehousing, transportation, and distribution processes and assets.

Other "competitors" sharing logistics processes include Tropicana and Ocean Spray, as well as Pennsylvania-based Just Born confectioner (best known for "Peeps" marshmallow candies) and an alliance of five other candy companies. In an interview with American Shipper magazine, Joel Sutherland, managing director at the University of San Diego's Supply Chain Management Institute, explained, "Just Born increased the amount of freight shipped out of its distribution center by including other confectionery shippers to form a collaboration of 'like' shippers delivering product to 'like' customers." The impact? Sutherland says that the collaboration will save the companies "about 25 percent of their total transportation costs per year."

Source: North American Horizontal Collaboration in the Supply Chain Report, Eye for Transport, 2011.



Businesses interested in integrating horizontal collaboration solutions into their supply chains should be forewarned though. It's not for everyone, and it's hard work. According to the [North American Horizontal Collaboration in the Supply Chain Report], produced by supply chain research group [Eye For Transport], top concerns for businesses include:

- Fear of information disclosure
- Lack of clarity over who's in charge

- Lack of widespread acceptance of ideas
- Difficulty finding appropriate partners
- Difficulty starting trusting relationships

VESTED OUTSOURCING

If all parties have a stake in a business arrangement's outcome, doesn't it follow that everyone involved will do whatever it takes for a positive result? This is the logic behind "vested outsourcing," a new business model that relies on creating win-win relationships between parties.

The premise was developed by a team of researchers at the University of Tennessee who undertook a project, funded by the United States Air Force, to try and figure out ways to cut spend on key cost centers including IT and operations.

As team member Kate Vitasek explains, their work gave rise to a belief in "outsourcing for results" rather than simply for services. Through vested outsourcing, companies take the old adage "What's in it for me?" and turn it into "What's in it for WE?" Vitasek told a Bloomberg TV audience. Major corporations including McDonald's, Intel, and Procter & Gamble have espoused the vested outsourcing model with notable success.

10 ELEMENTS OF A VESTED AGREEMENT	
Rule 1: Outcome-Based vs. Transaction-Based Business Model	
Element 1	Business Model Map
Element 2	Shared Vision Statement and Statement of Intent
Rule 2: Focus on the WHAT, not the HOW	
Element 3	Statement of Objectives/Workload Allocation
Rule 3: Clearly Defined and Measurable Desired Outcomes	
Element 4	Clearly Defined and Measurable Desired Outcomes
Element 5	Performance Management
Rule 4: Pricing Model Incentives are Optimized for Cost/Service Trade-Offs	
Element 6	Pricing Model and Incentives
Rule 5: Insight vs. Oversight Governance Structure	
Element 7	Relationship Management
Element 8	Transformation Management
Element 9	Exit Management
Element 10	Special Concerns and External Requirements

Source: 10 Essentials of a Vested Outsourcing Agreement, Global Delivery Report, September 19, 2012.

Whereas in the past a business would approach a service provider and try to negotiate the lowest cost and most favorable terms possible, a "vested" model involves a partnership in which each has a stake in the other's success.

A list of five rules can help companies work toward the principles of vested outsourcing:

- Focus on outcomes, not transactions
- Focus on the what, not the how
- Clearly defined and measurable outcomes
- Pricing model incentives that optimize cost/service trade-off
- Insight vs. oversight governance structure

Planning/Management for Potential Disruptions

While no company hopes for a supply chain breakdown, every business needs to plan for one. From a weather-related event, to a geopolitical event, to a supplier bankruptcy, to a dockworkers' strike, no supply chain is safe from an unexpected, potentially crippling disruption. This is especially true in today's post-recession era as businesses have cut back significantly on inventories. But with careful planning, and forward-looking visibility, a business can have contingencies in place should the unexpected occur.

Research conducted in 2014 by the American Productivity and Quality Center found that 75 percent of companies surveyed took steps during the recession to cut costs by seeking out low-cost providers—which usually resulted in longer lead times. Not only did companies add new suppliers, but most acknowledged their new partners were located in parts of the world susceptible to natural disasters and political events.

Perhaps not surprisingly, businesses said they did not feel as connected to their new Tier 2 and Tier 3 suppliers, and there was a lack of confidence and a lack of visibility with regard to "commitment to effective management of hazard risk and business continuity."

Clearly this is a less than ideal situation and underscores the need to have insight into every supplier's potential weak links. Take, for example, a 2013 study led by Professor David Simchi-Levi at the Massachusetts Institute of Technology that upended traditional thinking about the impact of disruptions on the supply chain. Conventional wisdom has long held that the greatest risk to the supply chain is posed by suppliers that receive the biggest expenditures. Not so, according to the MIT research. The team examined Ford Motor Company's supply chain and determined that providers of low-cost components posed the greatest threat. Previous assumptions were that Tier 1 suppliers of expensive parts, like seats and instrument panels, would cause the greatest loss of profit in cases of disruption, but in fact it was demonstrated that a break in the supply of relatively inexpensive components would cause the greatest disruption.

Businesses can plan for the inevitable unplanned disruption by adding visibility to their supply chains in a number of ways:

SCENARIO PLANNING

A 2014 "lessons learned" analysis by SupplyChain24/7 of the recent recession found that limited visibility—an inability of businesses to communicate effectively with customers and suppliers—resulted in excess inventory that cost businesses dearly. "For many firms, the visibility of true customer demand was close to zero at the beginning of the crisis. Many found it challenging to identify reliable demand information," the report stated. Going forward, businesses need to map out several scenarios and plan a course of action for each:

- What would happen if demand decreased dramatically?
- What would happen if our Asian, Mexican, or any other region's suppliers were unable to provide materials for three months?
- What if our U.S. workforce went out on strike for a multiweek period?

SUPPLY CHAIN SEGMENTATION

Although it is more cost effective to utilize a single-source supplier for certain products, a business can minimize risk by adding multiple suppliers. According to analysis by the Massachusetts Institute of Technology's Sloan Management Review, this reduces the impact of a disruption at any location, since all suppliers are producing the same item.

SUPPLY CHAIN REGIONALIZATION

Another option is to regionalize the supply chain by locating manufacturing sites or distribution centers in strategic locations around the world, with each facility capable of providing a majority of the company's products. This would ensure that a disruption in one geographic area did not cause a system-wide breakdown. A network of regional supply chains would need to be highly synchronized, with real-time monitoring to ensure proper inventory levels and customer servicing, among other things.

Regardless of the tactics a supply chain manager introduces, it is critical to have a precise understanding of the likely points of disruption. That can only be accomplished by having visibility—insight into each supplier's strengths and weaknesses—and a comprehensive "what if" plan in place that addresses every scenario, as implausible as it may seem. No one can prevent the 100-year storm, but a supply chain with good visibility can prevent it from shutting down production.

Process for Delivering High Levels of Customer Service

Customer service was one of the earliest beneficiaries of the technology revolution, as shipment and order tracking were among the first innovations to affect supply chain technology. “Shipments were tracked and monitored automatically using technology," Gartner Group’s Dwight Klappich said in a Logistics Management overview, “with alerts sent out to the stakeholders as the item was in transit and ultimately delivered.”

Package tracking and automated alerts remain critical customer service functions. According to 2013 ComScore research among European online shoppers, 96 percent said that tracking a purchase was an essential service, with 65 percent preferring to receive email alerts, and 62 percent in favor of tracking a shipment directly on a retailer’s website. But businesses need to be aware of just how much customers now consider visibility to be a core service. In a separate ComScore survey, 31 percent of U.S shoppers cited “ability to track online purchases while in transit” as an important area that needed improvement.

Building Visibility

Shared information, of course, is the key to a highly visible supply chain. For many businesses though, the thought of sharing data with external partners goes against a long-ingrained culture of strict confidentiality. But as businesses understand the need for visibility across their extended supply chains—2014 research by Forbes/KPMG found 40 percent of senior executives say their supply chains lack visibility—businesses are realizing the value in data sharing with business partners.

40%

OF MANUFACTURERS

LACK VISIBILITY ACROSS THE EXTENDED SUPPLY CHAIN

Source: KMPG Global Manufacturing Outlook 2014.

The Forbes/KPMG report also found that manufacturers willing to share real-time data with suppliers benefited from measurable results, including significantly reduced working capital, leaner inventories, and lower exposure to risk.

"Those that are not able to harness their data in this way will be at a major competitive disadvantage," said KPMG's Mark Toon.

When is Big Data Too Much Data?

While there's no disputing the need for a data-driven supply chain, there is such a thing as having too much data, which can be counterproductive. Instead of searching for ways to tap into more and more information, some argue that maybe time would be better spent analyzing existing data.

Guy Courtin, director of industry solutions at Supply Chain for Progress Software, took on the subject in a recent issue of eyefortransport.com. Noting that "visibility" has become the term du jour among supply chain managers, Courtin wonders if, rather than "seeing" or "possessing" more data, supply chain managers might find it more helpful to focus on "what it is we are already observing and how it impacts our supply chain."

He uses as an example a retailer who wants more POS data. "What if they could collect greater detailed information about how their stores are doing, what units are selling and at what volume and mix. If they could get more visibility down to the SKU level…how fantastic," he writes.

"But," he adds, "what if that data is too old once they received it? Have you really gained more 'visibility' or just more noise, information that might have once been valuable but now is lost due to a host of factors?" Instead he posits, "Supply chains need to focus on the data they are already viewing, understand what they are observing, and determine if there are any causalities that can be identified."

Jace Davis of IBM Sterling Supply Chain Visibility seems to echo that point by arguing that businesses need to focus on "quality" of data rather than quantity. "The better data you have, the better decisions you can make."

He also warns "today's complex supply chains create too much data for manual processes to absorb. This causes a lack of real-time visibility into supply chain events as well as an inability to detect and resolve exceptions in a timely manner."

So it would seem that businesses looking to build greater visibility into their supply chains should think carefully about the volume and categories of data they need to capture. It may well be that "less is more" when it comes to meeting visibility needs.

Finding the Process That Works for Your Business

Identifying the right visibility-building IT solution can be an overwhelming task. With so many options to choose from, a business must take care to select the solution that will best fit its unique needs. This will depend on what the business wants to get out of increased visibility:

- Increased competitiveness?
- Reduced risk?
- Greater efficiency?
- Increased responsiveness to customer orders?

Another critical considerations include the types of suppliers and business partners involved. Whether a business needs to interact with global suppliers, raw materials producers, distributors, or government agencies will affect the type of data-sharing solution a business chooses.

The right solution is out there, it's just a matter of investing the time—and getting the proper guidance—to weed through the options.

SUPPLIER PORTALS

Linking supply chain partners through the use of portals has become an increasingly effective way of gaining visibility. Gartner Group analysis found that supplier portals are no longer "nice to haves" but have become critical supply chain management tools. With a supplier portal in place, partners are able to link to each other's internal systems, thus allowing instantaneous access to critical data. Since both parties have access to identical data, there is reduced risk of transferring faulty information or of transmission delays. The downsides involve the cost associated with building a portal and the "leap of faith" some senior managers will have to make in allowing their confidential reports and data to be shared with external suppliers. But as Gartner warns: “Organizations that are not visible on portals and connected to their trading partners soon may not have trading partners. Suppliers will access the portal of many other buyers or brand owners.”

CLOUD/SOFTWARE AS A SERVICE (SAAS)

Most companies cannot afford the hefty price tag of a customized technology solution, and fortunately there are more affordable options. Today a multitude of cloud-based “Software as a Service” (SaaS) solutions provide cost-efficient alternatives with similar benefits. In its simplest form, SaaS applications are essentially rented by businesses that pay ongoing operating and maintenance costs. A business generally accesses the SaaS application by logging onto the vendor’s website. Affordability is the major advantage, and many businesses are able to implement technology solutions that would otherwise be unaffordable. In addition, a business does not have to incur the costs of buying and installing infrastructure and paying for any upgrades. The major disadvantages are the inability to customize the software and the possibility of a service disruption.

Ideally, a technology solution will collect data both on the supply side and the demand side. A highly visible supply chain will collect data on key metrics including:

- Order acknowledgement by supplier
- Order acknowledgement matches purchase order
- Raw material arrival at supplier
- Supplier’s projected production plans
- Supplier’s production in-process events
- Quality control
- Advance shipment notice created by supplier
- Carrier pickup of goods (inbound)
- In-transit status
- Customs clearance status

That data would then be analyzed and used for accurate forecasting, planning, production, and other processes, with those plans shared across the supply chain with all stakeholders.

How Visibility Can Help Your Supply Chain

The obvious and immediate benefits of supply chain visibility come when a manager is able to know, with pinpoint precision, the exact location of any raw material or finished product at any given time or when a manufacturer is able to continue to function even after a significant weather event disrupts production in one geographic region.

Research conducted in 2013 by Aberdeen Group examined performance efficiencies between businesses with high degrees of visibility and those with lower visibility into their supply chains. Among the findings were significantly better performance rates for high-visibility businesses in several key areas including:

- On-time and flawless order deliveries to consumers
- On-time and flawless receipt of orders from suppliers
- Decreased total landed per unit costs
- Decreased frequency of out-of-stock inventory
- Full compliance with GS1 coding standards
- Full capability to track at the item level (through GS1 coding)

Other benefits include:

Reduced Inventory Costs

Reliable visibility will lead to more accurate forecasting, which will result in better inventory control. As a result, a business should be able to reduce safety stock levels along with levels of unsold or obsolete merchandise. By some estimates, good visibility can result in a 20 percent reduction in inventory levels.

Reduced Transportation Costs

By understanding precise production schedules, and having insight into suppliers' potential pain points, a business can plan ahead and lock in transportation at more efficient rates. Visibility can help avoid the use of costly expedited service or air service when a ground or rail solution would suffice.

Improved Customer Service

Visibility will allow you to know exactly where a product is at any given moment. Visibility will also permit you to communicate that information to your customer so that delivery dates can be confirmed and expectations managed. And should an unexpected delay occur, that information and a possible solution could also be communicated to the customer *before* the scheduled delivery time.

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Seamless Customs and Regulatory Compliance

This is especially important when selecting an IT solution. Many industries are subject to high levels of government regulation, which can be very time consuming and exacting. This is also true of international shipments, which must comply with a multitude of customs, security, and tax requirements. Not only must a business comply fully with all government mandates, but it must first be aware of exactly which forms and information are required. Technology exists that can automate the compliance system so that all necessary paperwork can be filed electronically. This makes the filing process less onerous and reduces the amount of time spent filling out, processing, and storing all required documents.

Conclusion

A popular 2013 Adobe advertisement features Encyclopedia Britannica executives who excitedly ramp up their global supply chain in the mistaken belief that they are experiencing a surge in online orders. The problem though is that the surge is being single-handedly created by a baby pounding away on a keyboard.

It's an entertaining commercial, but the message is clear: Things can go terribly awry if a business does not have good insight into the different parts of its supply chain.

Businesses seem to understand this as "improving supply chain visibility" was the top priority of business managers responding to a 2013 survey by Capgemini global consultants. But visibility to one company is not necessarily visibility to another. Businesses need to begin the process of improving visibility by determining what exactly they hope to achieve and how committed they are to opening up their processes to allow information exchanges with all key stakeholders.

Improving supply chain visibility requires a long-term commitment with complete buy-in and understanding from all parties. The good news is that technology is making the process easier than ever. Once a process is in place, the results can be dramatic, namely, through greater efficiency and reduced costs.

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