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IMPROVING SUPPLY CHAIN VISIBILITY VIA TECHNOLOGY:

OPTIONS, TRENDS AND ROI-DRIVEN PROJECTS

BY **Beth Stackpole**, Contributor

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Supply chain visibility has become a hot topic, as companies struggle to keep costs low while increasing efficiency and service levels. A clear view of what's going on across the entire supply chain has become a competitive imperative. This ebook examines the types of technology that companies are using to improve supply chain visibility and offers examples of ROI driven projects that can make a measurable impact.

In this eBook, appropriate for SCM, IT and business professionals, readers will:

- Get a better understanding of the scope of the supply chain visibility challenge and the benefits of solving it, as well as learn more about justifying SCM technology investments
- Get an overview of the many kinds of SCM technology available today that contribute to improving visibility
- Learn more about how compliance is driving the need for greater supply chain visibility
- Read about specific projects with a defined scope and ROI that can help improve supply chain visibility with quantifiable results

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Simply defining the supply chain visibility challenge is tough in and of itself. In this chapter, learn how to define the scope of a supply chain visibility project, and find out how to identify the most relevant pain points in your organization to build visibility projects around.

NOT SO LONG ago, effective supply chain management meant staying abreast of orders, inventory levels, even raw materials and parts supplies within the confines of a manufacturer's four walls. Yet fast forward a decade and the game has completely changed, driven primarily by globalization and the rise of outsourcing.

Today's manufacturers have multi-tiered networks of suppliers, partners and customers, all of them playing a pivotal role in how the manufacturers bring their products to market. Factor in the economic downturn, customer demand changes and a multi-

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tude of possible supply chain interruptions, and manufacturers are looking at a much more complex picture. Traditional enterprise software platforms like ERP or SCM are not equipped to deliver the end-to-end visibility and controls a manufacturer requires in order to optimize its supply chain from the standpoint of both cost and operational performance efficiencies.

"Back 15 years ago, an ERP system gave you good visibility into where everything was within the four walls of your company—everything from where parts were to what was on order," said Anil Gupta, principal at Applications Marketing, a consulting firm. "As companies started outsourcing and more core business functions moved outside the four walls, ERP no longer had visibility into all of that. Companies now need inter-enterprise processes and visibility, and they need access to information that is not necessarily within their company."

The number of partners composing a supply chain network is certainly on the rise, according to a Supply Chain Benchmark survey by Gatepoint Research and E2open, a provider of on-demand, multi-enterprise demand-supply network solutions. More than half of the 4,000 respondents reported having in excess of 500 component suppliers or manufacturing partners. Of that broad network, 44% of respondents said they had deficient visibility into tier 1 suppliers, while 75% confirmed they had insufficient visibility into tier 2 and tier 3 suppliers. More than 80% of respondents admitted they hadn't yet automated—or had only partially automated—their supply chain processes.

Much of the problem lies with the fact that there is no single definition of supply chain visibility, nor is there a well-defined product category of solutions. Rather, the definition of supply chain visibility depends on what kind of manufacturer you're talking to, according to Noha Tohamy, vice president of research at AMR Research, a Gartner company. A high-tech manufacturer, for example, would probably describe its need for visibility from a supply-side perspective, as a way to

> "[Organizations] need access to information that is not necessarily within their company."
>
> —**ANIL GUPTA** of Applications Marketing

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do rapid planning and stay on top of what's going on with contract partners, Tohamy said. On the other hand, a consumer products manufacturer would view supply chain visibility from the demand side, in terms of leveraging downstream or point-of-sale data to come up with better forecasts and eventually to optimize inventory and sales.

Yet supply chain visibility on its own isn't enough to make a business case for a project, whether it involves purchasing enterprise software, on-demand supplier network solutions or doing custom integration to sync up existing business systems.

To make a successful case for supply chain visibility, manufacturers need to zero in on the most relevant pain point for the business and build the case for visibility around that. For instance, for manufacturers dealing with contract outsourcing, having real-time visibility into interruptions that could affect product delivery or quality levels can help manage customer expectations, reduce returns and provide overall better service. For manufacturers of packaged goods, being able to collaborate with suppliers and share real-time forecasts and demand data can help reduce inventory on hand and improve order fill rates.

"If you're a company or supply chain investing in a supply chain visibility solution, bring it back to a very concrete business benefit you're expecting," Tohamy said. The business owners expecting benefit from the initiative should work in tandem with supply chain management, the CFO and high-level representatives from IT to make the business case for supply chain visibility projects. It helps to pick one spot to start and hook that project to the CEO's core mission.

"Check out what the CEO is doing and hook your star onto that," said Ann Grackin, CEO of ChainLink Research, a research and advisory company specializing in supply chain issues. "What the corporation is driving to—that's how you pick your first project." ■

> "What the corporation is driving to—that's how you pick your first project."
>
> —**ANN GRACKIN**, CEO of ChainLink Research

Beth Stackpole is a freelance writer who has covered manufacturing techniques and manufacturing technology extensively.



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There are many vendors claiming to enhance supply chain visibility, but not all products will advance an organization's goals. In this chapter, get an overview of the SCM technology available today that contributes to improving supply chain visibility.

UNLIKE MOST categories of enterprise software, a Google search on supply chain visibility won't turn up a plethora of possible solutions. There will be no feature-by-feature comparison of like products or even an evaluation of a common set of tools. Rather, choosing a solution for supply chain visibility really starts by defining the business problem and the kind of visibility that's required. Only then can a manufacturer zero in on the proper category and product solution that is best positioned to address its particular visibility problem and work toward achieving its specific business goals.

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"If you do a search on supply chain visibility on the Internet, you'll find that it's not one category of solutions but rather multiple categories of providers making that claim," said Noha Tohamy, vice president of research at AMR Research, a Gartner company. "The reason is that you can't define supply chain visibility—it's not a feature or function—and there is no one-size-fits-all supply chain visibility solution. Rather, it's more about a foundation of how you need to manage your supply chain and get visibility with suppliers and visibility within your own organization."

> "It's not a feature or function—and there is no one-size-fits-all supply chain visibility solution."
> —AMR's **NOHA TOHAMY**

Many vendors tout supply chain visibility among the benefits of their solutions. But each comes at the visibility problem from a different angle, depending on what audience or specific industry it serves and depending on where the need for visibility is most acute. Some key in on providing visibility on the demand side, helping manufacturers that have a heavy retail and distribution presence in optimizing inventory and order fulfillment. Another set of providers tackle visibility from a supply side view for companies looking to better manage and garner efficiencies with their outsource partners or large networks of suppliers. Some providers interpret supply chain visibility from a logistics perspective, delivering applications that track a product as it moves throughout its distribution cycle, while others have targeted track-and-trace as the major visibility challenge, providing solutions that help manufacturers keep tabs on products throughout the various stages of the lifecycle, greatly aiding in compliance efforts.

Here are the primary product categories that have staked a claim around supply chain visibility:

- **Traditional supply chain management (SCM) and ERP software providers:** Companies like Manugistics and I2, both now owned by JDA Software, have been expanding their SCM suites to address the visibility problem beyond the traditional view of what's happening within the four walls of a manufacturer's internal operations. ERP giants like Oracle and SAP have also become more aggressive about mapping their offerings to

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support the supply chain visibility problem. SAP's SCM suite, for instance, has features not only for demand planning and forecasting with retail partners but also for planning and collaboration across supplier networks—the goal being to help reduce inventory and increase the velocity and accuracy of raw materials supplies while improving replenishment of stocking locations.

Many of the offerings in this category do a good job of supply chain planning, but there is still work to be done around the execution part of the visibility problem, according to Anil Gupta, principal at Applications Marketing, a consulting firm. "Supply chain visibility systems that can tell you how you're executing against your plan are key," Gupta said. "It's become more of an execution issue than a planning issue."

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- **Business intelligence tools:** Best-of-breed business intelligence tools are another avenue for addressing the supply chain visibility problem. According to a new report published by Aberdeen Group, pervasive and role-based supply chain intelligence has emerged as a critical factor for improving operational performance. The only way manufacturers can adapt their supply chains to continuous business changes fast enough is to establish an adequate level of supply chain intelligence, according to the report's author, Viktoriya Sadlovska. Therefore, tools and processes must be put in place to monitor supply chain performance and notify specific process managers before problems can morph in disasters, said Sadlovska, Aberdeen's researcher of product value chain and supply chain management when this article was published. A full 57% of the 209 respondents to the Aberdeen survey indicated that improving supply chain intelligence was a critical factor for improving overall operational performance.

- **Network operators:** Traditional

value-added network (VAN) providers, Electronic Data Interchange (EDI) tool vendors and B2B e-commerce platforms are highlighting supply chain visibility as one of the areas where they can deliver a competitive edge. Companies such as Sterling Commerce and GXS now tout capabilities that let manufacturers track everything from active orders and payments to in-transit shipments. In addition, there are a growing number of new Web-based, software-as-a-service offerings in this space, including companies such as One Network and E2open. These services connect a supply chain network, providing capabilities for supply-side and demand-side collaborative order management, inventory planning and logistics planning, in addition to serving up integrated business intelligence, business process management and real-time exception management. The SaaS offerings tout ease-of-integration for syncing up multiple enterprises.

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> "It's more about a foundation of how you need to manage your supply chain and get visibility with suppliers and visibility within your own organization." —AMR's **NOHA TOHAMY**

→ **Best-of-breed:** There are scores of applications that key in one particular supply chain visibility problem—for example, global trade management solutions, which deliver a window into international inventory and shipment status. Players in this category include companies like GT Nexus, Logility and Management Dynamics. Sales & Operations Planning and inventory management are other categories tackling a specific slice of the visibility issue. These solutions can hit the mark for manufacturers that have a very defined visibility problem.

→ **Custom integration:** Of course, manufacturers can always try to solve the visibility problem by developing their custom integrations between multiple legacy packages and enterprise systems used by their suppliers. Unless there is a specific reason to do so, most experts discourage this route, as it's a lot of heavy lifting for IT, which doesn't necessarily have the expertise, bandwidth or ability to deploy and support external systems.

—B.S.

3 ENHANCING SUPPLY CHAIN VISIBILITY TO ACHIEVE COMPLIANCE

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Faced with a complex regulatory climate, manufacturers are starting to seek supply chain visibility to meet compliance directives related to trade regulation and the environment. In this chapter, learn more about compliance as a driver for visibility.

PROVIDING A more accurate, real-time picture of demand signals or supplier inventory levels is the focus of most manufacturers' supply chain visibility projects. But facing an increasingly complex regulatory climate, manufacturers are beginning to want enhanced visibility to help meet compliance directives related to trade practices, environmental mandates and upcoming serialization and track-and-trace laws.

"[Compliance] is an up-and-coming factor, and manufacturers are expecting a lot more regulations for environmental compliance, around packaging for trade compliance and

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things like ePedigree, for understanding where your product is coming from," said Noha Tohamy, vice president of research at AMR Research, a Gartner company. "We see a lot of manufacturers working with the government and their customers to come up with what to invest in without stifling their ability to be profitable and efficient within their supply chains."

> "[Compliance] is an up-and-coming factor, and manufacturers are expecting a lot more regulations for environmental compliance, around packaging for trade compliance and things like ePedigree." —AMR's **NOHA TOHAMY**

One of the more prominent areas where enhanced supply chain visibility comes into play is environmental compliance. Regulations like REACH (Registration, Evaluation, Authorization and Restriction of Chemical Substances), which makes manufacturers responsible for tracking and managing the hazardous chemical substances that are part of their products; RoHS (Restriction of Hazardous Substances); and WEEE (Waste from Electrical and Electronic Equipment) up the ante for manufacturers. These directives require manufacturers to keep tabs not only on the attributes of the supplier components and materials that go into their products but also on how those parts and components are disposed of and potentially recycled at end of life.

The ramifications for manufacturers that aren't on top of these mandates can be quite significant—costly redesigns, scrapped parts, blocked shipments, potential customer dissatisfaction and, possibly, steep fines. Most manufacturers are still using spreadsheets, homegrown databases, even manual processes to retrieve and manage this data with their supply chain. Increasingly, however, a variety of enterprise systems—from supply chain offerings to product lifecycle management (PLM) suites—are adding functionality to help manufacturers automate these processes and more effectively track and improve the environmental performance of their products.

Forthcoming environmental regulations around carbon emissions will be the real game changer for manufacturers, stepping up the need for

visibility solutions to aid in meeting compliance. According to a study by the Business Performance Management Forum and E2open, 42% of more than 125 companies surveyed have yet to consider carbon footprint or greenhouse gas emissions across their extended supply chain. While 76% of respondents said their customers have not requested such information, two-thirds expect them to demand such data in the coming years.

Aside from environmental compliance, new laws related to global trade are another area where manufacturers can benefit from better visibility in their supply chains. Global trade management solutions like those from Management Dynamics, Oracle and others automate the processes that allow manufacturers to efficiently trade and collaborate across borders and ensure they pay the correct amount of duty while protecting against fines and penalties, as well as loss of trading privileges.

Directives around serialization and track-and-trace laws emerging in such industries as pharmaceuticals and retail are yet another area of compliance that can directly benefit from improved supply chain visibility. Companies such as Acsis and IBM, among others, are offering solutions, many based on barcode and RFID technology, to help track, monitor and measure the chain of custody of a product as it moves through its lifecycle.

Despite the fact that all of these compliance efforts create visibility challenges for manufacturers, experts say compliance is rarely a springboard for building a case for a specific supply chain visibility project. Instead, organizations should focus on traceability and visibility of products, rather than compliance as the focus. **—B.S.**

> "We see a lot of manufacturers working with the government and their customers to come up with what to invest in without stifling their ability to be profitable and efficient within their supply chains." —AMR's **NOHA TOHAMY**

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Manufacturers should tackle the visibility challenge by choosing a primary pain point. In this chapter, read about specific projects with a defined scope and ROI that can help improve supply chain visibility with quantifiable results.

AS MANUFACTUERS' supply chains go global and become increasingly complex, getting end-to-end visibility across an extended value chain is a little bit like trying to keep pace on a treadmill. Therefore, experts suggest manufacturers take on the visibility challenge by narrowing the scope of their efforts to the primary pain point surrounding visibility as the best way to achieve demonstrable results and to chart a course going forward.

"You have to pick your spot—spray and pray doesn't work with this kind of effort," said Ann Grackin, CEO of ChainLink Research, a

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CASE STUDY: ONE PROJECT AT A TIME

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FOR FOOD giant Del Monte, the primary pain point around visibility had everything to do with bolstering the order fill rate for its retail customers, without having to carry significant inventory. Three years ago, the company had embarked on a corporate mission to be recognized at the No. 1 CPG supply chain by its customers, and two specific supply chain visibility projects played into that goal. The manufacturer put in a new demand management system from JDA Software in addition to leveraging on-demand supply chain planning, execution and business analysis services from One Network, which functions as the order execution tool. "The two together address our key concerns: predicting what our customers want and making sure what we have gets there," said Rob Ferguson, director of supply chain projects at Del Monte. "Previously, we had no inventory visibility to know what products were where, nor did we know what to move to fill anticipated customer demand."

Not anymore. Today, Del Monte has become 20% to 30% more accurate with order prediction, resulting in fill rates that are the highest in the company's history. In addition, proven retailers can achieve 99% in store, in stock rates with a total of 15 to 20 days of retailer inventory, Ferguson said. Flush with that success, Del Monte will now broaden its efforts to deliver similar visibility to suppliers.

At BreconRidge, a contract manufacturer in the electronics industry, the visibility issue was more about inventory management and control, as well as visibility for revenue recognition. The company had difficulty getting a clear and accurate picture of inventory despite using existing tools like Excel and its SAP ERP system, according to Paul Smithson, BreconRidge's corporate planner.

In 2007, the firm began using Kinaxis' RapidResponse on-demand supply chain management service, initially in the demand intake process, allowing planners to analyze the impact of changes so they could determine more accurate commit dates to customers and identify any materials that were holding up the process. "If we can control demand going into the box effectively, it helps us with on-time delivery and inventory management processes downstream," Smithson said. Over time, BreconRidge gave buyers access to the system to give them visibility into demand constraints for suppliers that could affect realization of revenue. Next up is giving customers access to the system so they get visibility into things like their order book profile, inventory and status of shipments, Smithson said. "It will give them a level of confidence that they can see what we're doing and what we're committed to." ■

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research and advisory company specializing in supply chain issues. "You've got to give some serious thought to the corporate CEO initiative—that's how you pick your first one."

While most manufacturers face a common set of supply chain visibility problems, their most pressing pain points will differ, depending on what kind of manufacturer they are, where they sit in their own value chain, and the kind of industry they're in. The most universal visibility challenges are related to demand and inventory management, while having up-to-date track and trace information on orders as they move through the logistics and fulfillment cycle is another big area that manufacturers target for visibility. Here are some of the more common supply chain visibility projects with a defined scope, which will yield measurable results:

- **Collaborative demand planning:** While a major factor for consumer products manufacturers, companies in other segments also need more accurate and real-time information on customer demand. Collaboration hubs or tools that let a manufacturer and its customers share demand and inventory information and manage exceptions greatly aids in inventory management and helps keep operating costs low. "Manufacturers today are interested in better forecast accuracy, and that requires more demand visibility than they had before," said Noha Tohamy, vice president of research for AMR Research, a Gartner company.

- **Risk management around suppliers:** As manufacturers look to low-cost suppliers overseas, they open up their supply chains to a certain amount of risk. Tools or platforms that provide information about the financial standing of suppliers or deliver a window into a contract manufacturer's inventory and ability to fulfill order commitments can help a manufacturer mitigate risk around quality and time-to-delivery issues.

- **Track and trace visibility:** Knowing exactly where orders or inventory are in real time is critical for manufacturers so that they can ensure they have the right products and inventory in the right place at the right time, ultimately helping them to deliver high-quality customer service.

- **Sales and operations planning (S&OP):** An increasingly popular supply chain visibility project, which delivers a 360-degree view of a company. By accounting for all of the functional areas of the organization as part of business planning, manufacturers can more effectively match supply to demand and make informed decisions on order fulfillment and inventory based on customer profitability and other factors. **—B.S.**

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About Management Dynamics:
Management Dynamics is a leading provider of global trade management solutions that improve the performance of global supply chains for importers, exporters, logistics providers, and carriers. The company's solutions synchronize the flow of information among trading partners, optimize supply chain execution decisions, and streamline import and export processes to ensure regulatory compliance and minimize costs and risks involved in cross-border transactions. Leveraging over 20 years' industry and technology expertise and delivered on-demand, Management Dynamics' time-proven solutions are used by more than 14,000 global users at some of the world's most successful 3PLs, carriers, manufacturers, retailers, and high technology companies.