Ideas for Leadership in Logistics

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LQ's Global Trade and Technology Forum:

Perspectives and ideas for transforming business through logistics and supply chain management from American and Canadian leaders in the field.

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Supply Chain Event Management

Is It Time to Implement?

By Chris Norek Ph.D.
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When there is an ad hoc change in a customer's order, or a deviation from a planned process, SCEM can help you to sense that event and satisfy the customer. This article will provide you with a better understanding of SCEM and show where the deployment of SCEM capabilities can enhance the overall effectiveness of your supply chain and company.

Introduction

Supply Chain Event Management offerings are finally commanding attention in the marketplace. These types of software applications allow companies to track orders across the supply chain in real-time between trading partners. The information provided by these systems allows a company to sense and respond to unanticipated changes to planned supply chain operations. Customers understand that deviations from plan will arise – but increasingly it is how their partners manage the exceptions that make a difference in customer satisfaction.

Imagine a shipping delay detected upstream in the supply chain. To ensure that the customer isn't disappointed, the supplier is prepared to incur significant cost to make up for the lost time with expedited freight. As it turns out, the customer has also had a change in plans, and the original required delivery date has been extended. In fact, the customer does not want the product quickly any more. When the downstream players' supply chain demands have more "wiggle room", then the perceived urgency of the disruption may not be all it first appears. What would have been both a customer service failure and an increase in costs could be transformed into a mutually beneficial supply chain collaboration opportunity. What is it worth to have the knowledge of supply chain changes as they occur? What tools, systems and processes must be in place to pursue this capability?

Defining Supply Chain Event Management

Let's define what we mean by supply chain event management. A wise advisor and logistician, Bud LaLonde, Professor Emeritus at The Ohio State University, once said that if you fail to set the level of expectations for an audience, then the audience will create its own scorecard and evaluate you on their terms. For many of the terms in the evolving field of supply chain management, each individual or company often has its own set of definitions. To set the parameters for this article, our definition of supply chain event management is the management of the information regarding a multitude of events across a supply chain. In other words, an event is any happening or occurrence within a function or process of the supply chain that can be monitored and reported upon.

SCEM does not plan, source, make, deliver or return a product, but rather conveys information regarding those supply chain processes at a specific event level, such as:

- a hand off from one supply chain entity to another
- the commitment of a product to an order
- the movement of a shipment between two logistics network nodes

• the placement of a product into storage.

These events carry with them auditable documentation (increasingly all electronic) that enables systems to be developed that capture and respond to their happening (or not happening). It is the establishment and documentation of a set of auditable, and recordable supply chain events, and the subsequent deployment of technology tools and software that monitor and report on those events, that creates a supply chain event management system.

SCEM's Relation to Other Functional Systems

How and where does SCEM fit within the overall enterprise applications landscape? SCEM is a tactical application, and it is deployed in conjunction with other transactional systems used within the enterprise, such as order management and manufacturing execution systems. Again, SCEM is utilized to monitor and report on events, which we defined as any happening or occurrence within the supply chain operations process. A summary of other functional systems linked to SCEM is included in Exhibit 1.

Exhibit 1

Functional Systems Linked to Supply Chain Event Management

- Order Management
- Purchasing
- Inventory Management
- Manufacturing/Production Management
- Warehouse Management
- Transportation Management
- Supply & Demand Planning
- Supply Chain Collaboration & Visibility

In deploying an SCEM solution, it is imperative that the company first articulate a listing of events that are critical steps in their business process – those that create ripple effects up and down the supply chain when they do not come off as scheduled and planned. Examples include the reporting of production yield quantities in a manufacturing process, receipt of containers or rail cars for outbound loading and staging, or the hard reservation of inventory within a company's inventory systems to a specific customer's order. After defining the business processes and the specific events within them, the next step is to document and identify the entities within the company's business systems that will serve as the electronic representatives of the actual steps of the physical process. Think of these as fields in a database, or a status within an operational system's transaction log. Depending upon the business process to be monitored and managed, it is not unreasonable for there to be upwards of one hundred potential events contained in the overall business process.

A key in defining the events is to establish the proper level of granularity such that the SCEM's output yields actionable and value-creating information, but to not get so granular that the managers in charge of the business process become inundated with alert messages. One way to manage this is to provide ranges to monitor events and managers are not notified unless the performance falls outside of these ranges.

To illustrate, let's consider the mapping and deployment of an SCEM solution for a manufacturing company that operates in a make-to-order model (see Exhibit 2). In this scenario, the event management design is aimed at monitoring the completion of the order-to-delivery process. Unique electronic identifiers are selected to model this process within the SCEM system and are monitored to achieve an electronic audit trail of the business process. The events included in this example, and the systems they might originate from, include:

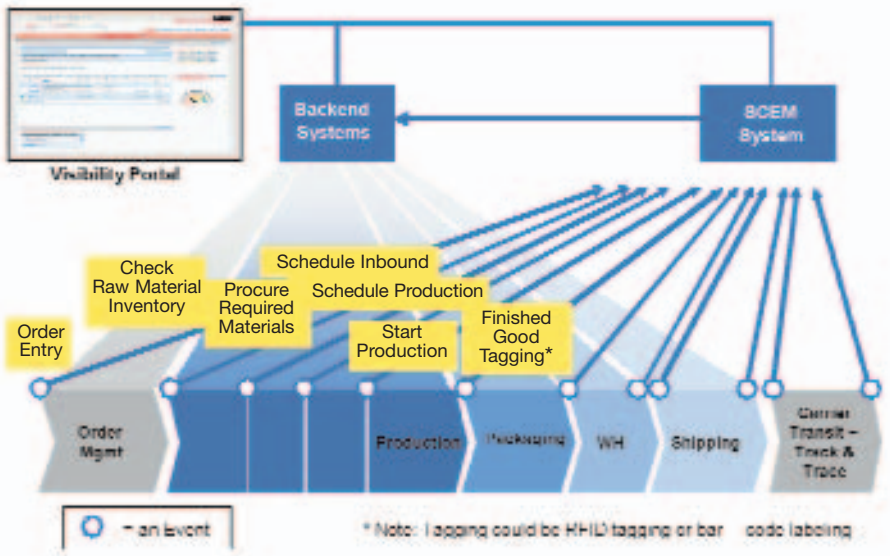
- **Order Management System**
  - Capturing and Entering the order (either in a call center or via electronic methods)
  - Performing a check of available inventory to produce the order
- **Purchasing System**
  - Either reserving the required inventory for the Bill of Material (BoM), or alternatively creating the electronic Purchase Order for the required raw material
- **Transportation Management System**
  - Scheduling the raw material inbound (if necessary)
  - Truck loading and dispatching
  - Post-shipment in transit trace-and-trace updates from the carrier
  - Delivery confirmation / Receipt acknowledgement from the destinator
- **Manufacturing/Production Management System**
  - Scheduling production for the order utilizing the required delivery date to establish the latest acceptable job date
  - Starting production
  - Monitoring of the manufacturing process at identified event steps through the process where adherence to plan can be confirmed or denied
  - Post-production quality inspection
  - Product packaging and labeling
- **Warehouse Management System**
  - Warehousing processing steps (as prescribed by the order profile)
  - Scheduling timing and placement of product in the staging area for vehicle loading
  - Customer pick-up or load into carrier's vehicle
- **Transportation Management System**
  - Truck loading and dispatching
  - Post-shipment in transit trace-and-trace updates from the carrier
  - Delivery confirmation / receipt acknowledgement from the customer

Note that in the example above we listed 18 events throughout the business process that serve as key performance indicators (KPIs) for the order-to-delivery process. Whether the appropriate number of events for your company's business situation is half- or double-that level is a consideration that you must make with your colleagues and trading partners. As a guide to that determination, we offer the following insights:

- Begin your process design by first listing all the available event candidates that currently exist within your enterprise systems (if you can't capture the information, you can't manage the process with it)
- Assign more weight to event types that carry definite and known up and down stream "ripples" (such as constrained inventory availability, or goods damaged in transit)
- Determine the possible severity of each event-type outcome in terms of cost, quality and service, and ensure that the most critical potential stumbling blocks are most readily monitored
- Establish thresholds within each process area where your key events transpire, and determine what actions should be taken and which process owners should be alerted when an event outcome exceeds a threshold or range.

Perhaps most importantly, remember that often times less is more. SCEM systems can be extremely powerful tools, but they can also overwhelm a new user if the process models and alert designs are not appropriately calibrated. (As an example, the distribution center manager does not need to receive a page at 10am on Saturday morning to inform him that seven trucks arrived at the DC the night before as scheduled).

Exhibit 2. Example Deployment of SCEM within a company that uses a make-to-order fulfillment model



Creating Value with Supply Chain Event Management

It is in the management of this granular event information where your company can utilize SCEM applications to enhance customer satisfaction and improve operational performance. For example, by enabling a customer to discover the status of an order you give that customer the assurance that you will deliver on your promises. In addition, delivering this capability to your customers can reduce your cost-to-serve because the inquiry can be made via a self-service web portal with no human intervention on your company's behalf.

Further, when there is a deviation from a planned process, your SCEM application enables you to sense that event, and thus respond in a way that ensures your customer is satisfied despite an unplanned occurrence. In many instances, the response to the supply chain event is transparent to the customer because you were able to detect the deviation early enough to address it without the customer's knowledge. Clearly, any business system that enables you to keep tabs on the performance of your entire supply chain – to monitor all events, and manage only those occurrences that "trip an alert mechanism" – will serve to improve your performance, lower your costs, and enhance your customers' experience.

Companies that deploy supply chain event management systems can expect to achieve the following operational and economic benefits:

• **Lower inventory levels**
By having a real-time view of the supply chain, lower safety stocks are needed for variations *Increases return on assets and lowers inventory carrying costs*

• **Increased customer satisfaction**
Visibility provides comfort to customers that shipments will arrive as planned *If a changes does occur, a customer can be notified rather than be surprised*

• **Reduced transportation costs**
Less need to use expedited forms of transportation if delays are known in advance and are accommodated

• **Reduced labor costs**
Less need for overtime for addressing unplanned events *Better labor planning is enabled*

• **Lower manufacturing costs**
Fewer emergency changes to the production schedule

Conclusions

As we have discussed, SCEM systems do not buy, make, move and sell products, but rather serve to deliver information surrounding those key supply chain operations as they occur (or don't occur). In the scenario discussed for the make-to-order company's order-to-delivery process, the source systems for the "electronic representatives" of the physical process are the company's existing systems used to manage:

- Order Management
- Procurement
- Manufacturing
- Quality
- Warehousing, and
- Transportation

The scope of the scenario we used to illustrate supply chain event management pulls its information heavily from ERP and SCM systems that are already in place for most product-based firms. As you consider your firm's next step in weighing the potential for supply chain event management in your business, keep in mind that SCEM is a complementary solution to what you have in place, not a substitute or a replacement.

As the capabilities afforded by SCEM systems become better understood, they will increasingly become central solution elements of extended supply chains. Further, as supply chains continue to expand across geographies and enterprises, the inclusion of SCEM applications as part of the technology landscape will become a critical aspect in achieving more tightly aligned, interconnected supply networks.

Summary Points for SCEM

• Key is to use information to react to an unplanned event and make arrangements to reduce the impact of the change. Customers realize that not everything goes as planned but they don't like being surprised when it is too late to make an adjustment.

• Monitor events and notify management of exceptions that need to be managed. This frees up time from having to monitor all events.

• Store the data regarding the events to enable analysis at a tactical and strategic level to identify process weaknesses, pursue continuous improvement opportunities, and identify strategic trends.

Food for Thought

One of LQ's readers recently wrote: "There are a lot of articles in LQ that are substantial. I can't read every article. How should I choose?"

It's an excellent question - and this reader knows it isn't uncommon for us to be asked this question. It's a quandary that many face when they start to read LQ. Some readers enjoy the entire issue while others single out specific articles to read and reflect on.

Each issue of LQ is put together with the highest regard for LQ's discerning readership, whose time is of considerable value. During various publishing and editorial seminars over the past several decades, I have heard that a magazine's content can be likened to that of menu. In the case of LQ, we aim to provide rich editorial content for executives' minds. We do not expect you to order everything on the menu, and appreciate that you're likely looking for something palatable for today; Specific articles at the moment about best practices and business cases germane to you. This may be a few articles or more, depending on your appetite.

However, we can offer some suggestions. A quick scan of LQ's cover tells you about the theme of this edition, and the leaders in the field who have contributed to this edition of LQ.

A glance at each article's heading and the deck underneath affords you with a sampling of what to expect from each article. And the illustrations are designed to complement the hypothesis and theme underlying each paper. You can, of course, also leaf through LQ's pages and consider each article, and sample all of them.

While the contributors to this issue aren't household names, they are renown in their respective fields in the United States and Canada. Dr. David Closs, begins this special report on applied technology in supply chain management and logistics with an insightful look at how four universities and IBM are enhancing student exposure to the latest planning and operations technologies in the field. Chris Norek and Scott Sykes have clearly documented the value Supply Chain Event Management affords companies and organizations. Greg Slawson's essay on Integrated Logistics Management is bound to change the way logisticians look at creating sustainable advantages over competitors. Kurt Kuehn's article also reflects on how an organization's supply chain strategy cannot be separated from its business strategy in today's competitive environment. Craig Fuller focuses on the perils of applying technology in the supply chain without possessing sufficient overall business acumen and training. Jim Davidson provides us with an important commentary on the application of technology. David Griffith's case study on applied technology in China and other emerging markets shows us important lessons learned and protocols for success.

Mark Morrison's article examines the capacity crunch in transportation, a subject recently addressed by a panel of distinguished speakers at Toronto's CLM Roundtable, that is of paramount importance - as evidenced by the turnout of delegates for this roundtable.

After you've read about LQ's contributors and their titles on the magazine cover, there's the table of contents, with short article summaries to help you navigate. While we suggest these few tips can help to make selections from LQ's menu of contributors, the best way is to read all of them.

OUR CONTRIBUTORS

LQ's mandate to provide "Ideas for Leadership in Logistics," is clearly evidenced this issue with articles written by professionals and logisticians from America and Canada who are leading and transforming business by creating new roadmaps and definitions for leadership in this exciting field.

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FedEx Corporation, with revenue of $25 billion provides the transportation industry's broadest range of services. Its operating subsidiaries include FedEx Express, FedEx Ground, FedEx Freight, FedEx Custom Critical and FedEx Trade.

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