

Global Trade

Software

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AUTOMATED INTELLIGENCE: VISUALIZING YOUR END-TO-END SUPPLY CHAIN

Obtaining [visualization](#) into the company's end-to-end supply chain is a topic on the forefront of supply-chain management professionals' to-do list. The ability to visualize, simulate, forecast and react to events within the supply chain is paramount to business execution and, ultimately, managing and meeting customer expectations. Disruptions to the supply chain occur in many ways, including weather, natural disasters, political upheaval, mechanical failure and cybercrime, which lead to delays in one or more modes of transportation along the supply chain. Because of the myriad of disruptions that can affect the supply chain, software solutions that can publish, subscribe, forecast and react to disruptive events become a vital part of a supply chain operation.

Pushing Critical Information in Front

The ability to publish events is a fundamental requirement for supply-chain software. Publishing events in the form of an alert, text, email or graph should be expected from today's software versus software requiring a user to navigate to a screen, provide filter criteria and request information that may or may not provide a meaningful result. Today's [supply-chain databases](#) contain massive amounts of information that can be unleashed, with the appropriate event-driven software, to facilitate visualization into upstream and downstream activity within the supply chain. Events within the supply chain may be positive or negative but equally important so they must be broadcast to the community. Negative events, such as a late rail car arrival or a product recall, are obviously disruptive, but so are positive events, such as early carrier arrival and spikes in customer demand. A positive event in the "human" supply chain can quickly become a negative event.

Recently, on a flight back to O'Hare, the flight attendant announced we would be arriving at the gate 35 minutes early due to a strong tailwind. Happy to hear the announcement, I eagerly awaited arrival to the gate. Shortly after landing, the pilot announced that, due to our early arrival, a gate was not available. After waiting 40 minutes, we were finally at the gate! In this situation, software that could publish early arrival information for another system to act upon by finding an open gate and resources to support the new gate, would have been ideal.

Notifying of Important Events

The ability of software to subscribe to events within the supply chain is crucial to data aggregation, forecasting, visibility and reaction to potential and/or reported events. Today's software should be able to communicate via web services, utilizing standard messaging such as JavaScript Object Notation to obtain vital information about the status of one's supply chain. Supply chain software should be able to request information or openly accept information as it is made available. Web services allow software to integrate easily into accessible information hubs for end-to-end supply chain visibility. Regardless of relationship to the supply chain, be it carrier, supplier, broker, manufacturer, etc., software that can subscribe to information freely provides a relevant stream of data that can be acted upon based on company objectives and metrics.

One example presented at a recent supply chain conference was access to information that alerted the manufacturing plant to a multi-day railcar delay. Having this delayed transit information allowed the manufacturer to reassign production lines so that plant utilization remained at expected levels while not compromising overall product availability.

Responding to Changes

Processing and reacting to this plethora of data is fundamental to increasing supply chain efficiency, managing customer expectation and mitigating risk. [Supply chain software](#) should be able to accept data from multiple inputs, aggregate data and present data visually so appropriate actions can be taken or recommendations can be made. Reactions to incoming events can take many forms including texts, emails and graphical representation such as graphs and gauges, with these reactions also taking into consideration configured thresholds and metrics when formulating a response. Based on the scenario presented, these formulated responses will be communicated upstream or downstream to ensure supply chain challenges are understood and that supply chain objectives are achieved.

A recent scenario was presented where a shipment was delayed leaving China. The delayed shipment event not only triggered an alert to U.S.-based operations but also triggered requests for product from suppliers in other regions of the world that could replace product on the delayed shipment. All of the aforementioned data processing and reactions took place without human intervention—amazing!

Storing the Sea of Data

We've spoken about software's ability to publish, subscribe, forecast and react to supply-chain events, but without a centralized information hub a company can be limited to the information they have access to and/or information they can share, which ultimately limits their ability to effectively manage their supply-chain activity. As end-to-end supply chain visibility requirements continue to evolve, so must the availability of a

centralized data hub, or data exchange, encompassing all trade partner relationships and supply-chain activity globally.

Based on appropriate security and authentication protocols, organizations should be able to provide and request information related to any supply-chain event, furthering overall supply-chain visibility. A centralized information broker would be able to dispatch information or make calls out to other systems. Information regarding shipments, product availability, vehicle maintenance, routes, carrier capacity and a host of other supply-chain topics could be used to make appropriate business decisions related to the affected area of the organization's supply chain. As they say, "information is king," and this continues to be true as software requirements for supply-chain visibility continue to evolve.

One of the most important components of an overall supply-chain strategy is software. When evaluating software to provide in-depth visibility into your overall supply chain, it is imperative that the software is built on open platforms with the ability to publish information and subscribe to information via web services and standard Application Programming Interface calls. Once you are comfortable with the software's ability to communicate, ensure the software can process data effectively and render information in a format that makes answering the top 10 questions of the day expedient.