

Viewpoint

True e2e solutions

As the supply chain execution industry evolves into a new era, companies are forced to partner more tightly with their customers and suppliers in order to keep costs at bay and manage margins. These same companies will look to their existing software vendors for end-to-end (e2e) solutions to help facilitate this painful and previously unsophisticated bi-directional communication. Accordingly, software vendors will begin marketing an e2e solution suite in order to capture this market-share and follow-on work with existing customers and keep new competitors at bay. New industry infusions are met by a marketplace eager for clarification and further definition so that each company can self-evaluate the value of this new technology for their own organization. Companies will also be estimating how long they can prolong the unplanned capital investment and supporting infrastructure required as a participant. Examples of past supply chain technology introductions include Just-in-Time (JIT), Collaboration Planning Forecasting and Replenishment (CPFR), Electronic Data Interchange (EDI), and most recently Radio Frequency Identification (RFID).

The true definition of e2e is a seamless, information rich network connecting all appropriate “nodes” in a customer’s supply chain complimented with easy to navigate user interfaces which empower users to make timely and educated decisions as kinks in the supply chain occur. The ability to more cost-effectively handle exceptions is why these new technologies are developed and deployed in the first place. The day and age of throwing more bodies at a problem in the hopes of resolving it proves very costly and rarely achieves the desired goals. We will illustrate the value and examples of a true e2e solution through our

fictitious bike manufacturer and distributor, Masterson Bikes.

Masterson Bikes serves several customer channels, including their own small retail network, large wholesale organizations, and finally a fast growing on-line direct-to-consumer market. Regardless of the channel, all customers come to the same web-site portal to place orders, that is customized to the consumer through a secure user identification and password. Let’s first walk-through a typical on-line transaction with a consumer highlighting several critical components of Masterson Bikes’ complete e2e solution that has increased customer services and sales since being implemented.

John, a repeat customer to the Masterson Bike site, logs into the web-site to place a new order. John selects the components of his bike that he would like, adding them to his electronic “shopping cart” and then proceeds to check-out. Before gathering his payment information, the web-site provides John with several options based upon his initial inventory request and delivery time.

“The handle-bars you have requested are currently not available in the requested delivery timeline; therefore, we can offer the following alternatives:

- a. Accept a delivery date of ten days versus the requested delivery date of three days.**
- b. Upgrade to a more expensive set of handle-bars that can be delivered in three days as requested; the incremental cost to your order is \$35.**
- c. Downgrade to a less expensive set of handle-bards that can be expedited in two days at no additional cost.**

Which option would you like to select?”

Handle-bars are very important to John and he has wanted to try the more expensive brand for some time; the incremental cost of the handle bars outweighs the extra seven days to wait for his finished bike, so he selects option b and completes his order. John is very satisfied with his order and interaction with Masterson Bikes, but is unaware that a sophisticated e2e solution contributed to his high customer satisfaction. Let's see how this occurred.

As John confirmed his requested items and quantity to the Masterson Bike web-site, Masterson Bikes evaluated the order based upon their internal profile of John as a customer. John is a "B" customer on a A,B,C scale meaning he is a good repeat customer capable of generating good margins for Masterson Bikes, but not a high volume or prioritized customer (A customer) nor a one-off customer that if he never visited their site again, Masterson Bike wouldn't lose sleep over (C customer).

Masterson Bike's e2e solution first verified John's order request against "allocated" available inventory for his customer classification and determined that they did not allocate the requested handle-bar to John's customer classification for this requested delivery time period. Masterson Bike had the requested handle bar in stock within their warehouse, but their monthly forecasting exercise suggested that this handle bar would be requested by a member of the "A" customer classification over the same period, thus they are restricting any "B" or "C" customers from ordering this part. Their decision is based on the fact that they want to cater to their "A" customers since they drive more volume and better margins. However, they don't want to lose a "B" customer such as John, so they have developed options for him to be satisfied and not take the entire order elsewhere.

The business rule options they defined and executed through the web-site were:

- 1. If "allocated" inventory is available in the next forecast period (i.e. one week later), then suggest a longer delivery date for the requested item at no additional cost to John.**
- 2. Suggest a substitute item that is available to John's customer class within his requested delivery timeline; in this case the higher priced handle bar that he had wanted to try. The key is to provide John with the incremental cost and a part that is compatible with the rest of his order. Masterson Bikes defined as part of their business rules an item substitution matrix that tells them which items are compatible alternatives across their supplier network; Masterson Bike has invested in multiple supplier relationships in order to provide their customers with ample options.**
- 3. Suggest a lower price substitute item that is not popular and is simply occupying valuable inventory shelf space in the Masterson Bike warehouse. In order provide incentive to John to consider the lower priced item, Masterson Bike's business rules offer an expedited shipment time then John's original request; Masterson Bike has already calculated that the increased cost in shipping far outweighs the inventory carrying cost of this item.**

Masterson Bikes has determined that for this class of customer, it is important to capture the customer order at the time the original order request is placed, even if the original request cannot be fulfilled. They have defined suitable alternatives to overcome the "kinks" in this order cycle. Let's now see how this same scenario would be applied to an "A" classified customer and the further capability of a complete e2e solution.

During the same timeline that John placed his order on the Masterson Bike web-site, Allison,

a buyer for one of Masterson Bike's largest customers places her monthly order for bike components. Because Masterson Bikes is a major supplier to Allison's company, the two business partners have been exchanging monthly forecast and sales expectations in an effort to guarantee available inventory and timely delivery. This month, Allison's company is running a promotion for bike handle bars and as a result she needs to increase the quantity of her order, above the projected forecast previously communicated to Masterson Bikes.

When Allison places her order for handle-bars with a 10% increase in forecasted quantity, Masterson Bike's web-site user interface provides her with similar options to fulfill the order as it did to John. The Masterson Bike e2e solution will apply specific business rules configured for Allison's company "A" classification behind the scenes in order to provide her with favorable fulfillment options and complete the order within this buying session.

“The handle-bar quantities you have requested are currently not available in the requested delivery timeline; therefore, we can offer the following alternatives:

- a. Accept a quantity of 150 handle-bars (equal to the original monthly forecasted amount) on the requested shipment date AND accept the remaining order quantity in ten shipping days, at no additional cost.**
- b. Accept all order quantity delivered within the requested three day delivery window at an expedited shipping cost of \$42.**
- c. Accept a quantity of 150 handle-bars (equal to the original monthly forecasted amount) and 15 upgraded handle-bars (equal to the excess order quantity) within the requested three day delivery window at an upgraded material cost of \$60.**

Which option would you like to select?”

The e2e business solution solver applied to Allison's order has similar characteristics to the application against John's order with some subtle, yet powerful differences:

Since Masterson Bikes had enough inventory to satisfy the forecasted and allocated inventory amount of handle-bars expected to be ordered by Allison's company, they offer to supply that portion of the order immediately. Accordingly, the e2e solver also “borrows” forecasted inventory from the next inventory planning period and reserves this inventory for fulfillment over a longer period of time. NOTE: the e2e solver could also have “borrowed” inventory previously allocated to either a “B” or “C” classification customer, if available, because the importance of Allison's company and/or profit margins would dictate that this is a fair business practice.

Masterson Bikes offered to complete the entire order for Allison in the requested timeline at an expedited shipping cost. The reason for this increase in shipment cost is because Masterson Bikes must request an expedited shipment quantity from the handle-bar manufacturer and is passing along this “cost of business option” onto the customer. Masterson Bikes can justify this additional cost because the requested order quantity is greater than the amount Allison's company had requested. If the ordered quantity had been within the forecasted amount and Masterson Bikes had not been able to fulfill this quantity, the business rules would have fulfilled this order quantity at NO additional shipping costs. Masterson Bikes is able to confirm the shipment date of this order request because they know ahead of time, by collaborating with their supplier, the lead time for both manufacturing and shipping, including expedited shipping methods. At the time Allison's order was placed, Masterson Bikes was able to “punch out” electronically to review the



handle-bar supplier's available on-hand inventory that had not yet been shipped. If Allison accepts this order fulfillment option, Masterson Bikes will use this same electronic "punch out" communication method to create an expedited order and shipment request to fulfill Allison's order request.

In the last option for Allison's order the e2e solver offers an upgraded component currently available in inventory and quotes the up-charge amount. NOTE: the business rules for Allison's company are not configured to offer a lower quality item at this time.

Let's review the components of the Masterson Bike e2e solution that were critical to providing a successful customer experience for different customer channels:

1. The customer user interface was on-line, informative, and user-friendly, thus allowing both customers to complete their original order and address order "kinks" during the order session without the need of further contact with a customer service representative. This critical business component of an e2e solution also guaranteed that neither John nor Allison placed their order with an alternative supplier.
2. The Masterson Bike e2e solver used "allocated" available inventory versus traditional available on-hand inventory to decide how to fulfill the requested orders. The allocated available inventory was previously segmented by item category and customer classification (A, B, C) using forecast data and used-defined business rules. The value of this second critical business component of an e2e solution serves

to preserve profit margins and customer importance and avoids having a one-time low margin customer cannibalize the entire stock of inventory.

3. The Masterson Bike e2e solver understood cross-selling (offering an alternative item of similar or less value) and up-selling (offering an alternative item of higher value), including the costs involved with each of these options. The Masterson Bike e2e solver maintained a configurable item substitution matrix for all applicable items as well as the pricing business rules applied to each customer category.
4. The Masterson Bike e2e solver extended the relationship with their suppliers to include real-time links to available, but not shipped inventory, as well as the transit time for standard and expedited shipment. Accordingly, the Masterson Bike e2e solver also calculated the incremental shipping or material cost involved with executing a direct shipment from the supplier.

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