

The Value of Integration within the Supply Chain

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The business of integration is not about the integration. Integration of disparate systems is a commodity function, and just like any commodity it is essential but not differentiating. What is differentiating is what is done with the timely presentation of the information exchanged between supply chain partners because they have effectively executed supply chain and enterprise integration. In this article we will discuss where the promise of business integration lies and the enablement of the enterprise to respond efficiently to disruptions in its supply chain.

The business value to an enterprise's of an integrated supply chain lies in the ability of the technology to enable the enterprise to manage relationships with key suppliers and customers and to respond to disruptive events in the flow of goods. Simply put, monitor what is happening, recognize disruptions, and enable an intelligent response to that disruption.

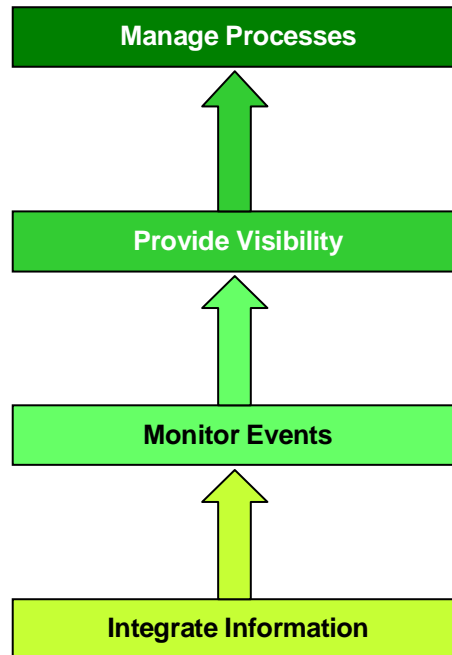
The Abstract View

Many enterprises are looking at the value they believe can be attained by expanding their own abilities to collaborate in a more timely fashion with their trading partners. The difficulty with collaboration is that it is more than just a technology. It is about a philosophy that drives the development of the relationships with the trading partners and encourages mutual trust more than it is about technology. Having said that, it is extremely difficult to execute without having technology in place to enable it to succeed.

The technology that enables collaboration has four levels, all four need to be addressed depending on the extent of collaboration desired (see figure 1). The first level of collaboration is the electronic exchange of execution information (orders, shipment status, invoices, etc.). This is the fundamental infrastructure that needs to be in place. It is the connection of the enterprises' own applications with each other as well as with trading partners that enables the electronic synchronization of the information available. This level must cope with all the vagaries of method, media, structure, and content that electronic communications can take. This is the functional element delivered by most EAI tools. The second level focuses on detecting and highlighting exception situations such as transmission failures, event failures, and content errors. This goes beyond the classic determination of a transmission failure. It looks into the message content to determine a business process disruption or it looks for a message that should have been sent within a specified period but wasn't. These are all opportunities to identify a failure in the supply chain to effectively move the goods/materials necessary for the operation of the enterprise. In addition, this level enables the intelligent notification of individuals/processes that can act on resolving the exception condition. The third level focuses on improved management of the message flow and visibility to the materials and orders being processed. This level addresses inventory visibility, order visibility, and shipment visibility. It gives operations management access to the information needed to resolve exception conditions detected by the global monitoring level. This level also enables ad hoc inquiries by operations and service level management staff. The fourth level focuses more on collaboration enablement by providing work flow management, intelligent response, or relationship management and metrics. It also provides better, automated

decision processes based on document content and activities to respond more effectively to exceptions without operator intervention.

Figure 1: Integration Value Model



Source: TKR Consulting Associates, August 2005

Practical Examples

Let's review two examples to put a more practical image on this theoretical model.

The Supplier that Ships Short:

XYZ Products buys a particular component from Fred Inc. because he is the low cost provider. Fred has the nasty habit of shipping short often enough that XYZ monitors his shipments with great care. Whenever Fred ships short, the purchasing agent examines inventory and other shipments to decide if XYZ should accept a back order from Fred or seek the components from another source. In fact, this is the usual solution as the component in question is key to XYZ's manufacturing process. In that situation, the purchasing agent instructs Fred to cancel the backorder and then places an order with Jane Inc. Jane is not the primary supplier because her price is higher, but she reliably ships all the ordered quantity on time. Applying this situation to our model, XYZ determines that it is going to place orders with its suppliers via an EDI formatted message over the Internet. XYZ has also mandated that the suppliers send an electronic ASN (advanced ship notice) for every shipment. This communication is the integration layer of the model. The suppliers Fred and Jane are connected electronically to XYZ's purchasing system. XYZ has put a monitoring and visibility system in place. As these transactions are placed, it is "siphoning" off the necessary elements of these transactions (purchase orders in this case) to allow it to establish

the appropriate monitoring according to pre-defined business rules. When Fred sends back the ASN, the monitoring system recognizes the transaction being sent and the sender. It then compares the ASN quantities with the appropriate purchase order and if there are any shortages, it notifies the purchasing agent. This is the monitor events layer of the model. The purchasing agent then uses the visibility engine to determine if the available inventory, both on hand and in-transit from other sources, is sufficient to meet the need. If not, the agent then issues the back order cancellation to Fred and places the order with Jane. This seems simple in concept, but it is powerful in execution and value derived. It is much better to spend a little more for some of your component requirements than to have production stop and your customer shipments cut.

The Shipment that Misses the Boat:

XYZ also orders some components from suppliers in China. They know that if the drayage company doesn't pickup the shipments one week before the boat's scheduled sailing, the shipment will miss the boat. This is not always a crisis but it is necessary to check. In this case, XYZ has created a web page to assist the drayage carriers in China to enter the equivalent of an EDI 214 status message that allows them to be told what the movement status of their shipments really are. This message is used to up date the purchasing system's view of the shipments status. In addition, XYZ has configured its event monitoring and alarming system to expect a 214 status message indicating the pickup of a shipment one week prior to the scheduled sailing date. This information was siphoned off by the monitoring system from the purchase order information that was sent electronically to the suppliers in China. In effect, the monitoring system is going to look for a "non-event" to not occur, i.e. the failure to make a pickup in time. With this notification, the transportation department at XYZ can work with the purchasing department to take the appropriate corrective action to insure the continuous supply of components to the manufacturing process.

Perceived Value within the Enterprise

The two examples presented above are compelling in the subjective benefit they imply to XYZ Enterprises. Most organizations would have difficulty determining an actual objective financial impact for these situations. Fortunately, the business value for enabling this collaboration model through effective implementation of integration technology is not limited to subjective examples. The table below (figure 2) details some very specific key operational issues that can be objectively quantified. It further defines which organizations within the enterprise will have cost savings that can be contributed to determining the delivered value of these technologies.

Figure 2: Objective Benefits

	IT	Operations	Cust. Serv.
• Cost to maintain existing methods	X		
• Time to connect new trading partners	X	X	X
• Flexibility of compliance with trading partner requirements	X	X	X
• Transaction processing costs	X		
• Data accuracy and ease of replication	X	X	
• Support for application transitions/multiple versions	X		
• Support for M&A strategies	X		
• SCEM reduces service failures		X	X
• Inventory reductions		X	X
• Reduce fulfillment cycle time		X	X

Source: TKR Consulting Associates, August 2005

Turning the Abstract into Reality

One of the keys to turning the abstract vision of an integration project to enable supply chain collaboration into reality is to recognize that it doesn't all have to be executed at once. It is best to "think big, start small, and deliver incremental improvement." EAI is among the first of the supply chain technologies that offers project managers the necessary level of control over application implementation within the enterprise and within the supply chain because it facilitates incremental project management. With EAI you can carve the integration problem into small 30 to 90-day implementations, execute them one at a time based on business priority and potential return, re-evaluate the remaining work and choose the next implementation based on how business or technology conditions have changed.

This phased approach to application integration gives you a low-cost, low risk, rapid entry into supply chain collaboration enablement. Rather than the traditional "big bang" approach, the phased approach delivers more value with reduced capital outlay in increments spread out over time. During this economic downturn, selecting minimal capital investment projects may be prudent for many enterprises.

In figure 3 we diagram how this approach works. Specifically;

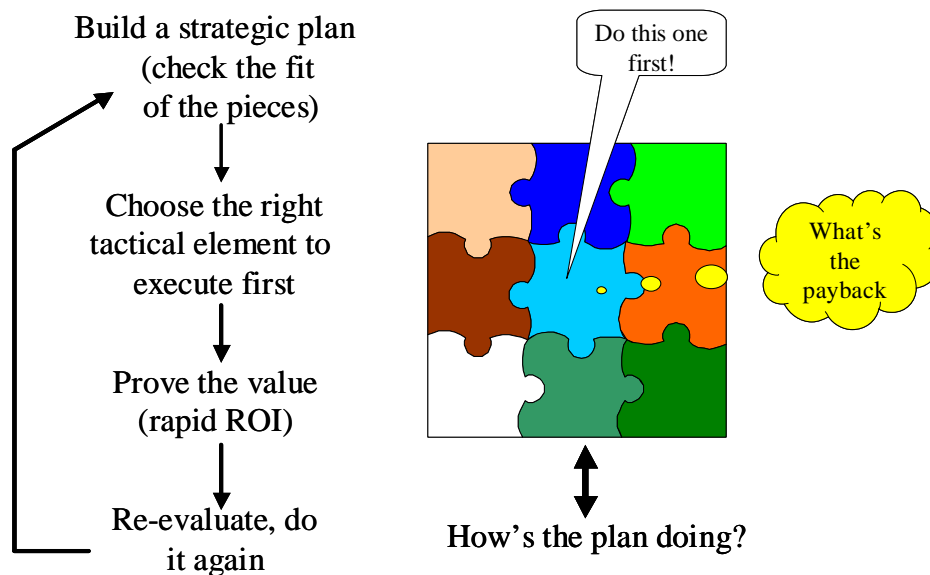
- Institute a "roughly west" strategic plan that establishes the general direction that the enterprise is going to pursue as well as the role each interface set will play in moving the enterprise in that general direction. Add detail to the

The Value of Integration Within the Supply Chain

integration plan by evaluating where the greatest business gain or largest operational pain for the enterprise is, select that project and then execute it. Do not spend time analyzing or documenting old interfaces that will not be affected. Focus only on those interfaces that support the overall plan. Control the scope of each project to allow it to be executed within 90 days. Such a short duration allows more immediate feedback, and you'll find it easier to get organizational commitment and focus.

- Next, measure the results. Communicate to the enterprise that the project attained its goals, the plan works and you're on the right course. Build confidence and commitment.
- Next, re-evaluate your "roughly west" direction. Maybe what you thought would be the fourth phase of the plan should now be the second phase. Keep each phase to 90 days and execute each in turn.
- Finally, remember that no one can predict all the implications of any one strategy over a 2-3 year period, which is the realistic time period of a strategic plan of this nature. An additional value of implementing in 90-day phases and reevaluating the plan after each implementation is that you don't need to nail down all the details at the outset or have a highly polished "crystal" ball. You can avoid paralyzing exercises in contingency planning and get on with leading the company "roughly west."

Figure 3: Think Big, Start Small, Incremental Improvement



Source: TKR Consulting Associates, August 2005

Reality vs. Hype

Integration value is about collaboration enablement. Collaboration is a business relationship and the technology helps keep the relationship honest and efficient. The

The Value of Integration Within the Supply Chain

data necessary to monitor and control the flow of goods in a supply chain is too complex and voluminous to be effectively managed manually, even with the cast of Ben Hur in the back room pounding on keyboards and screaming into phones. The data that describes the transactions and their associated events must be electronically exchanged to enable their efficient management. Systems need to be positioned to observe these data exchanges, siphon off relevant information, detect disruptions, notify the appropriate responders, and provide visibility into the events so that appropriate responses can be initiated.

This is all possible with today's technology via packaged solutions. We don't need to create an army of developers to craft this capability from scratch. These projects lend themselves towards incremental implementation, which helps insure rapid realization of value/benefit, effective control of scope and budget, and flexible management of execution to keep the delivery focused on the appropriate, though changing, business requirements.