

WHITE PAPER

Need for Speed and Flexibility Drives Manufacturers to Reengineer External Processes Around B2B Integration

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Maureen Fleming
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IN THIS WHITE PAPER

This paper looks at trends in the manufacturing industry that cause manufacturers to reevaluate and revamp their business-to-business (B2B) processes and integration capabilities. In discussions with manufacturers, we find that B2B process improvement is frequently prompted by larger initiatives to better respond to increasingly complex customer requirements and to streamline their operations.

This paper also shows how manufacturers are reorganizing their internal operations to facilitate the shift from EDI-only transfer to a broader range of functions that support a larger view of commerce.

This white paper also includes a case study of a manufacturer that recognized the importance of reengineering its B2B integration processes to better enable supporting complex and varied customer requirements.

SITUATION OVERVIEW

Regardless of the magnitude of the economic recovery, how manufacturers operate will be changed forever by practices they began to put in place to survive the economic crash. Applying intelligence to core processes will help manufacturers improve responsiveness, become more dynamic, and better manage costs. According to IDC Manufacturing Insights, manufacturers will increasingly focus on changing their processes to become both lean and adaptable. Key areas of attention include:

- ☒ **Transformation of business models to better meet the needs of increasingly demanding customers.** Manufacturers face a global market that forces them to serve two masters. One is the developed markets of North America, Western Europe, and Japan, where buyers expect products uniquely suited to their needs. The other is the emerging markets, where rising buying power represents future growth, but based on products that are mass produced for cost advantages. Both masters are very demanding, and companies must transform their business models to align with serving both sets of needs.
- ☒ **Evolution from a fixed cost-driven supply network to a variable cost-driven value network.** The modernization of the supply chain will continue, allowing manufacturers to understand past, present, and future performance. Companies will increasingly seek to optimize capabilities to fulfill globally and take a unified view of production, logistics, and trade execution. Operating models will favor a

capabilities view rather than a resource view and will manage based on more variable, rather than fixed, costs. This evolution is about not only getting current with best practices but also developing fundamentally different capabilities (strategic outsourcing, shared capacity, collaborative innovation).

- ☒ **Creation of intelligent fulfillment capabilities network.** The modern fulfillment capabilities network will be instrumented to support accurate, complete, and timely data acquisition. This requirement will move well beyond transactional reporting or sensor data going into some temporal data historian. Rather, continuous data acquisition will benefit from interpretation at the edge and will support tracking schedule, quality, cost, asset, and product information.

One of the more significant outcomes of the recession is the broadly recognized need for situational awareness, making it a fact that operating within the new economy requires more intelligence. To compete effectively, manufacturers are finding that they need to create smarter processes, products, plants, people, and partners.

Evolving to an intelligent manufacturing model cannot occur without a strong focus on automation. Core to automation is the integration required to unify and manage processes that span the supply chain. This integration is already complex, and even more complexity is assured as manufacturers move to more dynamic and faster business cycles, expand across geographies and channels, and adapt to meet the needs of customers.

Evolving from Point-to-Point EDI to Integration-Driven Processes

Prior to the recession, many manufacturers were focused on simplifying and standardizing their processes. Rather than support unique implementations of technology in every facility across a region, they began to unify and standardize implementations of their core applications, particularly their ERP systems.

Manufacturers were able to justify standardization initiatives because, once completed, they lowered operating costs. Because standardization also removes the complexity of supporting many frequently incompatible methods of achieving automation, there was also the potential to speed up technology enablement of new revenue initiatives.

With the recession, standardization continues to be important, but investments are taking a different path, with a greater focus on external processes and specific areas that require change to support the newer, dynamic growth initiatives. Examples include visibility, order management, the shift from batch to real-time processes, and the rearchitecting of integration from a focus on EDI to a broader focus on integration for expansion and customer alignment.

In discussions with manufacturers that reengineered their B2B operations, we found in some cases that more than 50% of the traffic exchanged with trading partners is associated with real-time status messages, a significant increase from two years ago. In other cases, manufacturing B2B teams are being asked to support the exchange of documents that support a collaborative business process but do not involve EDI formats.

Customer Innovation Driving Changes to B2B Operations

In our discussions, we found that manufacturers are reengineering their externally oriented B2B processes because their customers are heavily focused on process efficiency. A cornerstone of efficiency is predictability, which is leading to a much stronger emphasis on supplier accountability. The increasing use by customers of service-level agreements (SLAs) with performance penalties as well as real-time status reporting means there is an increasing need among manufacturers to maintain a reputation of reliability and flexibility.

Manufacturing customers are also experimenting with their own innovation initiatives and are asking their suppliers to change long-standing processes and ways of doing business. Winning new business may require support of more dynamic processes. In our discussions, we found a manufacturer that won new business because it was able to support real-time configuration of products as they were moving down the assembly line. And other manufacturers were adapting to handle requests for real-time receipt of orders and transmission of status updates.

Whether initiatives are driven from the top down to focus on improved intelligence and a more efficient and faster flow of data within a business network or from the bottom up through the adoption of technology to decrease the cost and improve the reliability of transactions to and from partners, the result is a strategic need to improve integration-dependent processes.

New Thinking About Outsourcing and Hybrid and Adaptive B2B

There has been an evolution in thinking about B2B. Three years ago, there was a strong focus on standardization to align with ERP standardization, along with a focus on outsourcing to decrease costs.

While that trend continues, we are also seeing the acceleration of a hybrid model, where some aspects of B2B are outsourced, such as trading partner mapping and troubleshooting. A large food manufacturer with out-of-control costs, for example, brought in a new management team, including a new CIO. The CIO worked with the IT organization to reevaluate its support of business, separating strategic and tactical operations. The team considered B2B operations to be tactical, which meant the focus would be on controlling costs by shifting to a B2B integration managed services model.

As the team continued its evaluation, it discovered a wide disparity and inefficiency in how it distributed work among plants from its centralized order management system. No two plants had compatible systems for inventory or order fulfillment, and it took hours each day to determine how work should be distributed across the plants.

The team realized that, internally, the problems it was experiencing with application-to-application incompatibility were similar to those that it had with B2B integration — files needed to be transferred securely and reliably to systems that were all incompatible with each other. But it couldn't outsource internal integration without outsourcing its entire datacenter, so it had to adopt internally installed software.

Rather than adopt an enterprise service bus or enterprise application middleware, it made a decision to install B2B gateway software to automate the internal order distribution process. The manufacturer went from a multihour manual process across each plant to a fully automated process handled in minutes.

It currently uses its B2B gateway software as a hub that handles any data that requires integration, including the outsourced EDI traffic. The outsourced EDI traffic is also routed through the hub.

We are also seeing a trend among some manufacturers that consider B2B a strategic asset that allows them to win new business through their ability to respond and adapt faster than their competition. In this scenario, the decision to strengthen B2B operations and invest is a key part of the growth strategy.

In these companies, there is an understanding that overall integration capabilities need to be built on an architectural foundation that evolves from point-to-point integration to repeatable process components that can be used whether the data involves trading with a partner or is for internal use. By rearchitecting B2B in this way, manufacturers are able to minimize the cost of change and speed up their ability to respond to change requests. They also see benefit in the leverage they can obtain through the standardization and reusability of their integration assets.

Overcoming Organizational Challenges

In our discussions with customers that have successfully reengineered their integration processes, we found a consistency about challenges around organizational issues and skills gaps. These issues had to be overcome before the companies could achieve the flexibility and cost-effectiveness required to be successful.

The organizational changes needed to support process improvement often encounter resistance from IT and business staff and management. B2B managers can expect a period of adjustment and may need to introduce changes gradually in order to gain internal support for these initiatives.

The food manufacturer encountered cultural resistance when it adopted new B2B processes because the changes affected a cross section of business and IT operations. A significant change involved the shift from custom-developing capabilities to purchasing and implementing commercial off-the-shelf software. Another change involved outsourcing. Because process change was pushed from the top down, the affected business units had to absorb the impact and move on.

In another case, a B2B team knew it needed to change because it was turning away too many customer requests for custom integration and also spending an increasing amount of budget on change management. But because the B2B operations were so large, the team did not want the disruption that change implied. In this case, change had to be nondisruptive and evolutionary. It also had to be cost neutral, which necessitated an internal reorganization that involved consolidating and outsourcing the problem identification and troubleshooting process to lower costs.

Another common challenge was the skills gap in moving from a point-to-point integration model to a process-centric, reusable approach. The B2B teams had to look at their current integration, decompose the common steps involved, and build reusability into their efforts. There was also the challenge of moving from a batch- and file-oriented approach to a model where some of the B2B traffic had to be handled via Web services and message traffic.

These changes required training and experimentation as well as collaboration to share code and best practices. But as new requests are made, manufacturers that made a shift to a more adaptive form of integration find that they are able to respond more rapidly and more comprehensively than when they had a narrower, EDI-centric view of integration.

Another area of challenge was determining where process improvement should occur. In our discussions with manufacturers that went through B2B reengineering, we found that a key challenge was how to resolve the gap in knowledge between the applications team and the B2B team. In one case, the determination was made that integration was more difficult than maintaining enterprise applications, and the two groups were reorganized into one. The B2B manager was promoted to manage the combined unit.

In other cases, the decision about where to change a process was negotiated and policies set. For example, a change that involved business functionality was made in the application, while integration issues were moved from the application to the integration hub. Another decision was to move problem detection, visibility, and reporting about customer data to the integration hub from the application to speed up troubleshooting and visibility.

CASE STUDY

B2B Process Reengineering Led to Greater Flexibility in Supporting Customers

Note: IDC's typical approach for case studies is to name the specific customer, but this customer has requested anonymity due to the strategic nature of its story.

A United States-based manufacturer of electronic, electrical, and fiber-optic connectors and switches has been a Sterling Commerce customer since 1985, beginning with the mainframe-based Gentran EDI mapping software. A few years ago, the company decided to migrate from IBM Sterling B2B Integrator, which is B2B gateway software used to exchange data with customers and partners, transform the data to required formats, and orchestrate the integration processes between the gateway and applications. The team wanted software that would allow it to support customers with a broader array of file types and custom formats as well as use the orchestration capabilities to speed up and increase the efficiency and automation of its integration processes.

As with many manufacturers, this company needed these new capabilities to meet new, more demanding service-level agreements with customers.

Last year, the B2B team finalized plans to provide a more cost-effective 24 x 7 x 365 global support model and outsourced its troubleshooting operations offshore. The last entity to support went live in February 2010. Beyond providing better services to customers, this move also freed up time for the B2B team to begin supporting customer requests for higher-value, more innovative business processes using Sterling Integrator.

Challenges and Solution

When the Global Manager of Electronic Commerce and EDI began working at the company 14 years ago, she was one of two people in IT focused on B2B integration. At that time, there were only five trading partners trading EDI in an integrated manner.

Over the past 14 years, the number of partners managed grew to over 4,000, exchanging 16 types of EDI documents, with an average trading volume of 16,000 documents daily. With this growth in adoption, the B2B team grew to 19 full-time employees, including a 6-person offshore support and development team.

Booty also manages a corporate team responsible for maintaining B2B software and providing regional user support, as well as regional implementation teams that onboard new trading partners. Teams are located in the United States, the Netherlands, Japan, Korea, India, and Singapore.

Challenges

By 2005, changing customer demands and the growth in volume and importance of B2B transactions were putting pressure on the team to reengineer its operations. With the launch of Sterling B2B Integrator and other products that enabled a broader view of B2B integration, the team saw a way to solve several of its problems by upgrading to newer software.

The team concluded that adopting a newer process-oriented solution like SI would allow it to shift from a sole focus on EDI to a broader view of commerce by providing support for both traditional EDI and nontraditional EDI-like document types on an organized, unified platform. The team also concluded that it could shift from manual processes to greater automation through the adoption of integration-related workflow.

Overall, the B2B team needed new technology to help it increase the volume of data it could exchange with customers and increase the level of B2B automation inside the organization.

The team's decision to upgrade its B2B capabilities met with resistance from the business. An upgrade would require migration and testing of 10,000+ partner maps. The business units working with the team saw the complexity of the upgrade and were skeptical about whether it would bring enough value to the company to justify the effort and the potential risk to B2B transaction processing.

While the team realized the upgrade would require training and the need to gain new skills among its team members, the upgrade made sense for two reasons:

- ☒ First, the new platform would support customer requests that required greater flexibility in supporting customers' non-EDI data. Without the new platform, the company was turning down customer requests that fell outside the scope of EDI, which meant it had to manually receive and process the data that may have been delivered less securely and efficiently.
- ☒ Second, the team saw a way to cost-effectively improve customer service by moving to an offshore model for some parts of its B2B operations, giving the team the ability to add higher value without significant gains in cost.

In 2005, with these opportunities in mind, the company decided to move forward with a major upgrade of its B2B technology.

Selection

The team identified the requirements that the platform would have to fulfill. One requirement was workflow for task and data management. It also needed to be able to shield its customers from the change in technology until it had been successfully implemented. Finally, it needed flexibility around document and transaction-type support. The latter requirement narrowed the playing field significantly when it came to support for double-byte character handling, which the company needed in order to trade with partners in Japan.

The company considered and evaluated Sterling B2B Integrator and a software package from another vendor that no longer sells the product. The company also considered B2B integration managed services options before choosing Sterling B2B Integrator.

The team decided to deploy on premise rather than shift to a managed service model because it was concerned with the speed and cost of change management in addition to the volume of changes required. It wanted enough flexibility to meet customer demands without the ongoing costs that a managed service model entails.

Ultimately, the company decided to upgrade to Sterling B2B Integrator partly because of its long-standing relationship with Sterling Commerce but more because of the robust commerce and data handling features of the product. The team was confident that the technology would work and that Sterling B2B Integrator would be able to meet its requirements.

Implementation

The migration from Gentran to Sterling B2B Integrator involved several steps, including the conversion of more than 8,000 partner maps to the new mapping utility. Several additional issues mandated a gradual approach, including gradual funding, the recession, a reorganization of the team, and training and skills acquisition.

Reorganization

In order to free more time for users to learn and develop skills with Sterling B2B Integrator, the company reorganized its B2B team. Before this initiative began, the internal B2B team was responsible for troubleshooting as well as implementation and operations. Employees had neither enough time to learn the new language required to develop on the Sterling B2B Integrator platform nor time to develop new business processes.

The company decided to outsource troubleshooting to a third party in India. The reorganization allowed the primary support activities to be offloaded from the core team in favor of being handled offshore. Now, the offshore team monitors and identifies transactional failures, performs the analysis necessary to determine why failures occur, and then alerts the internal team about what needs to be fixed. The company then decides who is responsible for fixing the problem. In addition to providing this higher-level support, the internal B2B team is responsible for implementation and operations.

Building Knowledge Structures

To implement Sterling B2B Integrator, employees learned Sterling B2B Integrator's native BPML, and they learned how to break down point-to-point integration into a series of steps that are connected through model-driven orchestration. By building the integration as a set of reusable components, they ultimately would be able to speed their change cycles and become more cost-effective. While learning this new approach was challenging, the team ultimately viewed the change as an opportunity to establish a structure for collaboration and knowledge sharing.

Once the headquarters-based B2B team became proficient, it began to train the regional implementation teams. It also developed a structure for training regional teams of Sterling B2B Integrator users so that each team could be self-sustaining and continuously develop proficiency with each new implementation. Instead of reaching out to headquarters for help, regional teams gained the knowledge that allows them to look within their own resources to create their own solutions.

Sterling B2B Integrator users within the company are now well equipped to develop new business processes.

A Bad Economy, a Cautious Business

In addition to an ambitious reorganization initiative and the complexity of the initial training process, the worldwide economic crash lengthened the implementation time. The bad economy caused the lines of business involved with the Sterling B2B Integrator implementation to proceed cautiously. The B2B team received funding for Sterling B2B Integrator incrementally and had to implement Sterling B2B Integrator piece by piece.

Solution

The company went fully live with Sterling B2B Integrator in 2008. In addition to allowing the company to provide better service to customers, the reorganization around the implementation of Sterling B2B Integrator realigned the internal B2B

team's responsibilities and improved coordination across its far-flung global manufacturing operations to bring efficiencies to its overall B2B organization, to increase its output of higher-value business process efforts, and to better support its growing partner network.

Now, the internal B2B team is responsible for both implementation and operations, providing application development and business process modeling, partner onboarding, software upgrades, testing, and first-line support. A corporate-level group maintains Sterling B2B Integrator and related applications, handling upgrades and testing and addressing anomalies in data and business processes that the company's regional organizations identify. The company also has implementation teams in the United States, the Netherlands, Japan, Korea, and Singapore.

Results

With its upgrade to Sterling B2B Integrator and selective use of offshore development and support resources, the company has been able to model and support a wide range of business processes — some involving complex workflow — to move well beyond EDI-only partner transactions and to increase responsiveness and reliability.

Sterling B2B Integrator's mailbox feature has been especially useful, particularly the ability to use it as a holding area. If some part of the organization needs to grab the data and supplement it with additional context, it can pull the data out of the appropriate processing mailbox, add value, and put the data back before it is advanced to the customer's mailbox for pickup.

The reorganization and upgrade also improved the reliability and uptime of the company's B2B processes, and the team is now more nimble in responding to problems and completing projects. This has improved service in the company's regional organizations, allowing them to focus on value-added tasks such as enabling new transactions.

For both BPML and use of Sterling B2B Integrator's mailbox features, the B2B team collaborates and shares expertise internally to decrease the time required to gain expertise. The company has been able to build a robust training and knowledge sharing structure across the organization around learning, using, and continuously improving business processes built on Sterling B2B Integrator.

With the system in place, business managers are now convinced of its benefits. IT and business groups meet biweekly to review requests for custom integration and new implementations. Because there is more flexibility in what the company can offer to its trading partners regarding what it can accept in an automated fashion, the business has also seen the benefit. Requests that it had to turn down are now accepted, and the company has been able to automate tasks that were formerly performed manually.

ESSENTIAL GUIDANCE

Improving B2B processes is an important step in enabling the changes required by manufacturers to better compete in the new intelligent economy. Efforts should be under way to improve the adaptability of B2B processes, and design should also involve problem tracking and visibility.

In discussions with manufacturers that successfully went through B2B reengineering, we found that cultural changes and the skills gap were important issues to overcome. It is always far easier to solve cultural problems with a top-down approach than with a bottom-up approach, but even when business is reluctant to make changes, a gradual approach with systematic improvement will yield positive results.

Skills include the ability to determine how to convert integration from a point-to-point activity to a reusable process. Manufacturers that were able to make this shift are better able to respond quickly and cost-effectively to new requests to onboard and to make requested changes. Another skill is the adoption of a processing language that implements workflow and allows reusable process components to be developed.

Yet another skill is learning how to work with the enterprise applications team to determine where a particular process needs to be located. Should the application be customized to respond to the new demand, or is this something that can be captured and automated within the integration process? That means a team that involves applications specialists and B2B specialists needs to be formed to review these issues.

Given the growing importance of real-time business cycles, there is also the need to shift from file-oriented integration to messages and Web services. We are finding that cycle times are speeding up for processes associated with inventory or logistics to the point where they are now event driven and increasingly dynamic. That means responses have to align with this speed.

FUTURE OUTLOOK

Given the gap between the needs of the new intelligent economy and the underlying capabilities of manufacturers to respond dynamically and cost-effectively, smarter processes, products, plants, people, and partners will take time to implement. However, we are seeing that those companies that are beginning to adapt by reengineering externally driven processes are able to differentiate themselves by their ability to meet the changing needs of their customers. A core part of reengineering also involves the ability to adapt cost-effectively.

We believe that manufacturers that have embarked on this journey as a form of innovation will gain ground much more quickly than those that view B2B as a tactical, back-office function.

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